

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
 530 South 5th Street, Quincy, IL 62301-4896
 Phone: 217/223-2017
 CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 0225 CLOSED SYSTEM INHIBITOR

Chemical Name and Synonyms: Proprietary Cooling Water Treatment

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Sodium Hydroxide Solution)

Hazardous Class: Corrosive Health = 1

ID Number: UN1760 PG II Fire = 0

Label Requirements: Corrosive Reactivity = 0

Reportable Quantity:

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
Sodium Hydroxide	6 %	2 MG/M3

Case #1310-73-2

Section III – Physical Data

Boiling Point –225 F

Solubility in Water – Complete

Specific Gravity –1.20

Appearance and Odor -- Clear Organic odor

pH (1% solution) –11.3

Section IV – Fire and Explosion Hazard Data

Flash Point – N/A

Extinguishing Media – Water spray or fog; CO2

Special Fire fighting procedures: None Required

Unusual Fire and Explosion Hazards: N/A

Section V – Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: May cause burns

Emergency and First Aid Procedure: EYES: Flush eye holding eyelids open with plenty of water for at least 15 minutes.

SKIN: Flush with water for at least 15 minutes.

MATERIAL SAFETY DATA SHEET – 225 CLOSED SYSTEM INHIBITOR

Section VI – Reactivity Data

Stability | Unstable
| Stable (XX)
| Conditions to avoid – Heat, sparks and open flame

Incompatibility: Avoid contacts with strong acids and oxidizers

Hazardous Decomposition Products: N/A

Hazardous Polymerization: | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wash down area with plenty of water. Floor area may become slippery.

Waste Disposal Method: Dispose of contaminated product in accordance with all local, state and federal authorities.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Local exhaust – Use only to minimize exposure

Protective Gloves: Rubber

Eye Protection: Chemical safety goggles or face shield

Other: Rubber boots, and rubber apron

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not transfer to improperly marked containers. Keep container closed when not in use.

Other:

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Revised Date: November, 2003

Prepared By: MSDS Coordinator

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530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1146 ALKALINITY BUILDER

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Sodium Hydroxide Solution)

Hazardous class: Corrosive Material (8)

ID Number: UN1760

Label Requirements: Corrosive

Reportable Quantity:

Health = 2
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Row 1: Sodium Hydroxide, 15%, 2 mg/m3

Section III - Physical Data

Boiling point -298 F
Solubility in water - Complete
Specific Gravity -1.16
Appearance and Odor -- Brown syrupy liquid - mild, slightly pungent odor
pH (1% solution) -11.7

Section IV - Fire and Explosion Hazard Data

Flash Point - None
Extinguishing Media - N/A
Special Fire fighting procedures: Flood with water using care not to spatter or splash this material.
Unusual Fire and Explosion Hazards: Although non-combustible, contact with moisture or water sufficient heat may be generated to ignite adjacent combustible materials.

Section V - Health Hazard Data

Threshold Limit Value: 2 mg/m3 (ceiling unit)
Effects of Overexposure: Skin: Extremely corrosive to all body tissue. Contact will result in severe burns and frequently deep ulceration. Eye: Will produce severe and painful injury. Inhalation: Mist will cause irritation and may even cause damage to entire respiratory tract.
Emergency and First Aid Procedure: EYES: Immediately flush eyes with plenty of water for at least 15 minutes, including under eye lids. Speed in flushing is important. Get medical attention immediately. Skin: Promptly remove contaminated clothing under a shower and flush with plenty of water. Get medical attention. Ingestion: Do not induce vomiting. Immediately dilute by drinking water or milk, then neutralize with diluted vinegar or fruit juice. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid

Incompatibility: Reacts with water generating heat. Boiling and spattering of hot caustic solution may occur.

Hazardous Decomposition Products:

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wear protective clothing made from rubber or other caustic resistant material. Wear chemical splash goggles or face shield. Dam up spill. Cover with sand or absorb with an inert porous material. *Transfer into caustic resistant containers. Avoid flushing chemical into public sewers or water systems. Small spills may be neutralized with a dilute acidic solution. The neutralized spill should be diluted with plenty of water before flushing.*

Waste Disposal Method: Dispose of in a licensed hazardous disposal facility.

Section VIII – Special Protection Information

Respiratory Protection: Airline or self-contained respirator with full face shield in presents of mists for whenever the TLV is exceeded.

Ventilation: Should be adequate to maintain the ambient workplace below the 2.0 mg/m3

Protective Gloves: Rubber

Eye Protection: Chemical splash goggles or face shield

Other: Rubber boots and apron

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Provide eye bath and safety showers at every location where eye and/or skin contact can occur. Do not get in eyes, on skin or clothing. Do not take internally. Wash hands thoroughly with soap and water after handling containers or process equipment carrying sodium hydroxide.

Other: When preparing solutions, add to water slowly and in small amounts to avoid violent boiling and spattering. Do not use hot water.

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530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1147 ALKALINE BOIL OUT
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: Boil Out
Hazard Class: Non-Hazardous

Health = 1
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Content: None listed

Section III - Physical Data

Boiling Point - N/A
Solubility in Water - 55%
Specific Gravity - N/A
Appearance and Odor -- White & Brown powder - Organic Odor
pH (1% solution) - 11.1

Section IV - Fire and Explosion Hazard Data

Flash Point -- None
Extinguishing Media - N/A
Special Fire Fighting Procedures -- N/A
Unusual Fire and Explosion Hazards -- N/A

Section V - Health Hazard Data

Threshold Limit Value -- N/A
Effects of Overexposure -- Mild irritant to skin, eyes and mucous membranes. Remove patient from area.

Emergency and First Aid Procedures - EYES: Wash copiously with water - check with physician. SKIN: Wash with water. INHALATION: Remove from exposure to fresh air.

Section VI – Reactivity Data

Stability | Unstable
| Stable (XX)
| Conditions to avoid –.

Incompatibility – Acids

Hazardous Decomposition Products – None

Hazardous Polymerization | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case of Material Spilled or Released: For minor spills the material should be swept up and discarded in the general dump. Residue may be washed away with water.

Waste Disposal Method: No special handling required. Empty containers can be incinerated or discarded with general trash.

Section VIII – Special Protection Information

Respiratory Protection -- U.S. Bureau of Mines approved toxic dust mask.

Ventilation -- None required with normal use.

Protective Gloves: Non-absorbent material.

Eye Protection -- Chemical type goggles

Other: Full cover clothing.

Section IX – Special Precautions

Precautions to be Taken in Handling and Storing -- Keep in dry area.

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CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 123 ACID CLEANER

Chemical Name and Synonyms: Proprietary Inhibited Acid

Proper Shipping Name: Hydrochloric Acid

Hazardous Class – Corrosive Material (8)

ID Number: UN1789

Health = 3

Label Requirements: Corrosive

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
Hydrochloric Acid, Muriatic Case # 7647-01-0	98 %	5 PPM

Section III – Physical Data

Boiling Point – 123 F

Solubility in Water – Complete

Specific Gravity – 1.11

Appearance and Odor -- Brown to amber liquid with irritation odor

pH (1% solution) – 1.7

Section IV – Fire and Explosion Hazard Data

Flash Point – Not Flammable

Extinguishing Media – Not Pertinent

Special Fire Fighting Procedures: Keep containers cool. If it can be accomplished safely, move containers away from fire area.

Unusual Fire and Explosion Hazards: Nonflammable, but reacts with most metals to evolve hydrogen gas which may cause fire or explosion in air.

Section V – Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: May be corrosive to eyes and skin. May cause blindness. Inhalation of vapor immediately produces severe irritation of upper respiratory tract. If inhaled deeply, edema of lungs may occur.

Emergency and First Aid Procedure: **INGESTION:** Do not induce vomiting. Drink copious amounts of water or milk of magnesia. Get medical attention. **SKIN:** Flush with plenty of water. Do not apply oils or ointments to burned areas unless physician prescribes. Get medical attention. **EYE CONTACT:** Flush with plenty of water for at least 15 minutes. Get medical attention. **INHALATION:** Remove to fresh air. If not breathing, give artificial respiration. Give oxygen. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid –

Incompatibility: Avoid base and corrosive materials. Avoid contact with most metals. Avoid oxidizing matter.

Hazardous Decomposition Products: Hydrogen gas in contact with most metals.

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is Spilled or Released: Flush with water. Neutralize with lime. Prevent spread of spill. Avoid contact with liquid or vapor.

Waste Disposal Method: Dilute and neutralize with controlled quantities of alkali before disposal into sewer or surface water system.

Section VIII – Special Protection Information

Respiratory Protection: Where required, use a respirator approved by NIOSH for sulfuric acid or mists, as applicable. Some exposures may require a full face-piece, helmet or hood.

Ventilation: Use with adequate ventilation. Equipment must be engineered to prevent any condensate formed from dropping on workers. Exhaust systems should be discharged to absorption or neutralizing equipment.

Protective Gloves: Rubber, neoprene, and polyvinyl chloride

Eye Protection: Face shield, chemical safety goggles.

Other: Rubber apron, rubber shoes

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Wash thoroughly after handling. Do not get in eyes, on skin or clothing. Do not breathe vapors. Keep container closed when not in use. Empty container may contain hazardous residues.

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CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1248 WET LAY UP CORROSION INHIBITOR

Chemical Name and Synonyms: Proprietary Corrosive Inhibitor

Proper Shipping Name: Wet Lay up Corrosion Inhibitor

Hazard Class: Non-Hazardous

ID Number: Non Required Health = 1

Label requirements: None Required Fire = 0

Reportable Quantity: Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV

None listed

Section III - Physical Data

Boiling Point - 212

Solubility in water - Complete

Specific Gravity - 1.08

Appearance and Odor -- Clear, no odor

pH (1% solution) - 7.8

Section IV - Fire and Explosion Hazard Data

Flash Point - None

Extinguishing Media - Whatever media is appropriate for surrounding fire.

Special Fire fighting procedures: Firefighters should always wear protective clothing and positive pressure self-contained breathing apparatus when fighting fires near chemicals.

Unusual Fire and Explosion Hazards: N/A

Section V - Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: EYES: May cause irritation. Skin: May irritate skin and cause discomfort or rash. Inhalation: May irritate the mucous membranes, nose, and throat and cause chest discomfort. Ingestion: May irritate the gastrointestinal tract.

Emergency and First Aid Procedures: Eyes: Immediately flush eyes with large amounts of water for at least 15 minutes, holding lids open to ensure flushing of the entire eye surface. Get emergency medical attention. Skin: Remove contaminated clothing. Wash contaminated skin with soap and water. Inhalation: Inhalation of mist or vapor, remove to fresh air. Get medical attention. Ingestion: Have conscious patient drink several glasses of water, then induce vomiting by having patient tickle back of throat with finger. Keep airway clear. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –None Known

Incompatibility: Hazardous reaction can occur with acids, ammonium compounds, amines.

Hazardous Decomposition Products:

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Persons performing clean-up work should wear adequate personal protection equipment and clothing. Contain and clean up spills immediately with inert absorbent material and place into approved container for disposal. Flush spill area with volumes of water. Attempt to keep spilled material out of sewers, lakes, rivers, streams, and other public waters.

Waste Disposal Method: Dispose of waste in accordance with all federal, state, and local regulations regarding health pollution. Waste material may be disposed of in an approved landfill.

Section VIII – Special Protection Information

Respiratory Protection: NIOSH approved respirator if air concentration exceeds TLV.

Ventilation: Local mechanical

Protective Gloves: Gauntlet-type rubber

Eye Protection: Chemical splash goggles

Other: Rubber boots and apron.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or on clothing. Do not take internally. Do not breathe mists. Use with adequate ventilation and use protective equipment. Wash thoroughly after handling.

Other: Store in a cool area. Keep drum tightly closed when not in use.

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530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1435 BOILER COMPOUND
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: None
Hazardous Class – None
ID Number: None Required
Label Requirements: None
Reportable Quantity:

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
None listed		

Section III – Physical Data

Boiling Point – 110° C
Solubility in Water – Complete
Specific Gravity – 1.1638
Appearance and Odor – Clear liquid with light odor.
pH (1% solution) – 8.1

Section IV – Fire and Explosion Hazard Data

Flash Point – N/A
Extinguishing Media – Water spray, CO₂, dry chemical, alcohol foam, foam
Special Fire Fighting Procedures: Although not combustible, should a fire occur, it is proper to wear pressure self-contained breathing apparatus. Upon evaporation such gases as hydrogen gas or nitrogen oxides may be produced.
Unusual Fire and Explosion Hazards: None

Section V – Health Hazard Data

Threshold Limit Value: Not established
Effects of Overexposure: Burns and/or irritation to skin and eyes.
Emergency and First Aid Procedure: Flush affected areas with plenty of water. Promptly remove contaminated clothing under a shower. Wash the affected area with plenty of soap and water. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Heat and open flame

Incompatibility: Strong acids, strong oxidizers

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is Spilled or Released: Wear protective clothing made of rubber. Flush with plenty of water.

Waste Disposal Method: Dispose of contaminated product, empty containers and materials used in cleaning up spills in a manner approved by local authorities. Consult appropriate federal, state and local regulatory officials for correct disposal method.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: (mechanical) used only if a chance of airborne concentrations exist.

Protective Gloves: Rubber

Eye Protection: Safety shields or chemical goggles.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin or on clothing. Do not take internally. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapors. Destroy any contaminated leather articles. Store in a well-ventilated area away from oxidizing materials and acids.

Other:

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530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1450 BOILER COMPOUND
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: None
Hazardous class - None
ID Number: None Required
Label Requirements: None
Reportable Quantity:

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Content: None listed

Section III - Physical Data

Boiling Point - 110 C
Solubility in water - Complete
Specific Gravity - 1.118
Appearance and Odor - Woody odor, dark amber liquid
pH (1% solution) - 7.9

Section IV - Fire and Explosion Hazard Data

Flash Point - N/A
Extinguishing Media - Water spray, CO2, dry chemical, alcohol foam, foam
Special Fire fighting procedures: Although not combustible, should a fire occur, it is proper to wear pressure self-contained breathing apparatus. Upon evaporation such gases as hydrogen gas or nitrogen oxides may be produced.
Unusual Fire and Explosion Hazards: None

Section V - Health Hazard Data

Threshold Limit Value: Not established
Effects of Overexposure: Burns and/or irritation to skin and eyes.
Emergency and First Aid Procedure: Flush affected areas with plenty of water. Promptly remove contaminated clothing under a shower. Wash the affected area with plenty of soap and water. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
| Stable (X)
| Conditions to avoid – Heat and open flame

Incompatibility: Strong acids, strong oxidizers

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
| Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wear protective clothing made of rubber. Flush with plenty of water.

Waste Disposal Method: Dispose of contaminated product, empty containers and materials used in cleaning up spills in a manner approved by local authorities. Consult appropriate federal, state and local regulatory officials for correct disposal method.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: (mechanical) used only if a chance of airborne concentrations exist.

Protective Gloves: Rubber

Eye Protection: Safety shields or chemical goggles.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin or on clothing. Do not take internally. Upon contact with skin or eyes wash off with water. Avoid breathing mist or vapors. Destroy any contaminated leather articles. Store in a well-ventilated area away from oxidizing materials and acids.

Other:

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CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1460 BOILER COMPOUND

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Potassium Hydroxide Solution)

Hazard Class: Corrosive (8)

ID Number: UN 1760 PGII

Label Requirements: Corrosive

Health = 1

Fire = 0

Reactivity = 0

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
Potassium Hydroxide CAS #1310-58-3	20%	2 mg/m3

Section III – Physical Data

Boiling Point -- >212°

Solubility in Water -- Complete

Specific Gravity -- 1.205

Appearance and Odor -- Clear liquid – pungent odor

pH (1% solution) -- 11.8

Section IV – Fire and Explosion Hazard Data

Flash Point -- Non-Flammable

Extinguishing Media -- Water Spray or fog; CO₂ foam

Special Fire Fighting Procedures -- None required in normal use.

Unusual Fire and Explosion Hazards -- N/A

Section V – Health Hazard Data

Threshold Limit Value -- N/A

Effects of Overexposure -- INHALATION: Airborne concentrations of dust, mist, or spray can cause damage to the upper respiratory tract. EYES: May cause severe blindness resulting in damage to the eyes. SKIN: May irritate the skin if prolonged exposure exists.

Emergency and First Aid Procedures -- INHALATION: Remove person from contaminated area to fresh air. If breathing has stopped, give artificial respiration. EYES: Flush with copious amounts of water for at least 15 minutes period, periodically lifting upper and lower lids to ensure washing of the entire surface. Seek medical attention. SKIN: Immediately wash contaminated area with plenty of soap and water. If irritation persists, seek medical attention. INGESTION: DO NOT INDUCE VOMITING. Give large quantities of water or several glasses of milk if available. Never give anything by mouth to an unconscious person. Seek medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid – heat

Incompatibility – Strong oxidizing agents, strong acids

Hazardous Decomposition Products – N/A

Hazardous Polymerization | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case of Material Spilled or Released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection -- None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation -- Maintain adequate ventilation. Local exhaust if dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection -- Face shield or chemical safety goggles.

Section IX – Special Precautions

Precautions to be Taken in Handling and Storing -- Keep container closed when not in use. Avoid contact With skin, eyes, and clothing. Store away from heat, sparks and open flame.

Other -- Minimize skin contact. Wash with soap and water before eating, drinking, smoking, or using toilet facilities. Safety shower, eye bath and washing facilities should be available. Never transfer to improperly marked containers.

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Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1495 BOILER COMPOUND
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: None
Hazardous class - None
ID Number: None Required
Label Requirements: None
Reportable Quantity:

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Content: None listed

Section III - Physical Data

Boiling Point - 110 C
Solubility in water - Complete
Specific Gravity - 1.065
Appearance and odor - Clear liquid with no specific odor.
pH (1% solution) - 7.0 - 8.0

Section IV - Fire and Explosion Hazard Data

Flash Point - N/A
Extinguishing Media - Water spray, CO2, dry chemical, alcohol foam, foam
Special Fire fighting procedures: Although not combustible, should a fire occur, it is proper to wear pressure self-contained breathing apparatus. Upon evaporation such gases as hydrogen gas or nitrogen oxides may be produced.
Unusual Fire and Explosion Hazards: None

Section V - Health Hazard Data

Threshold Limit Value: Not established
Effects of Overexposure: Burns and/or irritation to skin and eyes.
Emergency and First Aid Procedure: Flush affected areas with plenty of water. Promptly remove contaminated clothing under a shower. Wash the affected area with plenty of soap and water. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
| Stable (X)
| Conditions to avoid – Heat and open flame

Incompatibility: Strong acids, strong oxidizers

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
| Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wear protective clothing made of rubber. Flush with plenty of water.

Waste Disposal Method: Dispose of contaminated product, empty containers and materials used in cleaning up spills in a manner approved by local authorities. Consult appropriate federal, state and local regulatory officials for correct disposal method.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: (mechanical) used only if a chance of airborne concentrations exist.

Protective Gloves: Rubber

Eye Protection: Safety shields or chemical goggles.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin or on clothing. Do not take internally. Upon contact, with skin or eyes, wash off with water. Avoid breathing mist or vapors. Destroy any contaminated leather articles. Store in a well-ventilated area away from oxidizing materials and acids.

Other:

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 530 South 5th Street, Quincy, IL 62301-4896
 Phone: 217/223-2017
 CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1535 STEAMLINE TREATMENT

Chemical Name and Synonyms: Proprietary Corrosion Inhibitor

Proper Shipping Name: Corrosive Liquid, Flammable N.O.S. (contains Diethylaminoethanol)

Hazardous class: Corrosive Material (8)

Health = 3

ID Number: UN2920 PG II

Fire = 2

Label Requirements: Corrosive/Flammable

Reactivity = 0

Reportable Quantity:

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
Cyclohexylamine CAS #108-91-8	15%	10 ppm
Diethylaminoethanol CAS #100-27-8	20%	10 ppm
Morpholine CAS #110-91-8	10%	

Section III – Physical Data

Boiling Point - >212°

Solubility in Water - Complete

Specific Gravity - 0.98

Appearance and Odor -- Clear liquid with pungent odor

pH (1% solution) -11.1

Section IV – Fire and Explosion Hazard Data

Flash Point - None

Extinguishing Media - Water spray or fog; CO₂ foam

Special Fire fighting procedures: N/A

Unusual Fire and Explosion Hazards: None

Section V – Health Hazard Data

Threshold Limit Value: None listed

Effects of Overexposure: Liquid is irritating to the eyes. May be harmful if swallowed or absorbed through the skin.

Emergency and First Aid Procedure: EYES: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eye lids frequently. Call a physician. Continue flushing with water if medical attention is not immediately available. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse. Call physician if irritation persists.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid

Incompatibility: Strong oxidizing agents, strong acids.

Hazardous Decomposition Products: None

MATERIAL SAFETY DATA SHEET – 1535 STEAMLINE TREATMENT

Section VI – Reactivity Data (cont.)

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation: Maintain adequate ventilation. Local exhaust if dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection: Side shield safety glasses or chemical safety goggles. Do not wear contacts.

Other: Wear rubber apron and rubber boots if possibility of contact exists during use.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Avoid contact with eyes, skin, and clothing. Avoid breathing vapors.

Other: Do not transfer into improperly marked containers. Keep container closed when not in use.

 The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: May, 2004

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 155-L BOILER COMPOUND

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Corrosive Liquid, N.O.S. (contains Sodium Hydroxide, solution)

Hazardous Class - Corrosive Material (8) Health = 1

ID Number: UN1760 Fire = 0

Label Requirements: Corrosive Reactivity = 0

Reportable Quantity:

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Rows include Sodium Hydroxide (10%, 2 mg/m3) and Diethylaminoethanol (1%, 50 mg/m3).

Section III - Physical Data

Boiling Point - 110 C

Solubility in Water - Complete

Specific Gravity - 1.112

Appearance and Odor - Dark brown liquid

pH (1% solution) - 12.3

Section IV - Fire and Explosion Hazard Data

Flash Point - N/A

Extinguishing Media - Water spray, CO2, dry chemical, alcohol foam, foam.

Special Fire fighting procedures: Although not combustible, should a fire occur, it is proper to wear pressure self-contained breathing apparatus. Upon evaporation such gases as hydrogen gas or nitrogen oxides may be produced.

Unusual Fire and Explosion Hazards: None

Section V - Health Hazard Data

Threshold Limit Value: Not Established

Effects of Overexposure: Burns and/or irritation to skin and eyes.

Emergency and First Aid Procedure: Flush affected areas with plenty of water. Promptly remove contaminated clothing under a shower. Wash the affected area with plenty of soap and water. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Heat and open flame

Incompatibility: Strong acids, strong oxidizers.

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wear protective clothing made of rubber. Flush with plenty of water.

Waste Disposal Method: Dispose of contaminated product, empty containers and materials used in cleaning up spills in a manner approved by local authorities. Consult appropriate federal, state and local regulatory officials for correct disposal.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Used only if a chance of airborne concentrations exist.

Protective Gloves: Rubber

Eye Protection: Safety shields or goggles.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin or on clothing. Do not take internally. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapors. Destroy any contaminated leather articles. Store in a well ventilated area away from oxidizing materials and acids.

Other:

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: August, 2008

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1565 STEAMLINE TREATMENT

Chemical Name and Synonyms: Proprietary Corrosion Inhibitor

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Cyclohexylamine)

Hazardous class: Corrosive Material (8)

ID Number: UN1760 PG II

Label Requirements: Corrosive/Flammable

Reportable Quantity:

Health = 2
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Rows include Cyclohexylamine CAS #108-91-8 (36%), Diethylaminoethanol CAS #100-27-8 (8%), and Morpholine CAS #110-91-8 (4%).

Section III - Physical Data

Specific Gravity -- .98

Appearance and Odor -- light amber liquid with pungent odor

pH (1% solution) -- 11.1

Boiling Point -- >212°

Section IV - Fire and Explosion Hazard Data

Flash Point - None

Extinguishing Media - Water spray, CO2, or other Class B extinguishing agent.

Special Fire fighting procedures: N/A

Unusual Fire and Explosion Hazards: None

Section V - Health Hazard Data

Threshold Limit Value: None

Effects of Overexposure: Liquid is irritating to the eyes. May be harmful if swallowed or absorbed through the skin.

Emergency and First Aid Procedure: EYES: Immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse. Call physician if irritation persists.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid

Incompatibility: Avoid contact with strong bases. Contact will result in the evolution of heat. Also, avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations. Disposal by incineration is recommended.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation: Maintain adequate ventilation. Local exhaust if dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection: Chemical safety goggles. Do not wear contacts.

Other: Eye baths should be immediately available in case of contact. Wear rubber apron and rubber boots if possibility of contact exists during use.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or clothing. Avoid breathing vapors or mist. Store away from heat, sparks, and open flame. Use with adequate ventilation. Wash thoroughly after handling.

Other: Do not transfer into improperly marked containers. Keep container closed when not in use.

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MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1575 STEAMLINE TREATMENT

Chemical Name and Synonyms: Proprietary Corrosion Inhibitor

Proper Shipping Name: Corrosive Liquid, Flammable N.O.S. (contains Diethylaminoethanol)

Hazardous class: Corrosive Material (8)

Health = 2

ID Number: UN1760 PG II

Fire = 1

Label Requirements: Corrosive/Flammable

Reactivity = 0

Reportable Quantity:

Section II - Hazardous Ingredients

Ingredient Percent TLV

Diethylaminoethanol 40%

Section III - Physical Data

Specific Gravity -.985

Appearance and Odor -- Clear liquid with pungent odor

pH (1% solution) -10.85

Boiling Point -- >212°

Section IV - Fire and Explosion Hazard Data

Flash Point - None

Extinguishing Media - Water spray, CO2, or other Class B extinguishing agent.

Special Fire fighting procedures: N/A

Unusual Fire and Explosion Hazards: None

Section V - Health Hazard Data

Threshold Limit Value: None

Effects of Overexposure: Liquid is irritating to the eyes. May be harmful if swallowed or absorbed through the skin.

Emergency and First Aid Procedure: EYES: Immediately flush eyes with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse. Call physician if irritation persists.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid

Incompatibility: Avoid contact with strong bases. Contact will result in the evolution of heat. Also , avoid contact with strong oxidizing agents.

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations. Disposal by incineration is recommended.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation: Maintain adequate ventilation. Local exhaust if dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection: Chemical safety goggles. Do not wear contacts.

Other: Eye baths should be immediately available in case of contact. Wear rubber apron and rubber boots if possibility of contact exists during use.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or clothing. Avoid breathing vapors or mist. Store away from heat, sparks, and open flame. Use with adequate ventilation. Wash thoroughly after handling.

Other: Do not transfer into improperly marked containers. Keep container closed when not in use.

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MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 157-L BOILER COMPOUND

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Corrosive Liquid, N.O.S. (contains Sodium Hydroxide, solution)

Hazardous Class - Corrosive Material (8) Health = 1
ID Number: UN1760 Fire = 0
Label Requirements: Corrosive Reactivity = 0

Reportable Quantity:

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Rows include Sodium Hydroxide (12%, 2 mg/m3) and Diethylaminoethanol (1%, 50 mg/m3).

Section III - Physical Data

Boiling Point - 110 C
Solubility in Water - Complete
Specific Gravity - 1.105
Appearance and Odor - Clear liquid, Inorganic odor
pH (1% solution) - 12.0

Section IV - Fire and Explosion Hazard Data

Flash Point - N/A
Extinguishing Media - Water spray, CO2, dry chemical, alcohol foam, foam.
Special Fire fighting procedures: Although not combustible, should a fire occur, it is proper to wear pressure self-contained breathing apparatus. Upon evaporation such gases as hydrogen gas or nitrogen oxides may be produced.
Unusual Fire and Explosion Hazards: None

Section V - Health Hazard Data

Threshold Limit Value: Not Established
Effects of Overexposure: Burns and/or irritation to skin and eyes.
Emergency and First Aid Procedure: Flush affected areas with plenty of water. Promptly remove contaminated clothing under a shower. Wash the affected area with plenty of soap and water. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Heat and open flame

Incompatibility: Strong acids, strong oxidizers.

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wear protective clothing made of rubber. Flush with plenty of water.

Waste Disposal Method: Dispose of contaminated product, empty containers and materials used in cleaning up spills in a manner approved by local authorities. Consult appropriate federal, state and local regulatory officials for correct disposal.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Used only if a chance of airborne concentrations exist.

Protective Gloves: Rubber

Eye Protection: Safety shields or goggles.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin or on clothing. Do not take internally. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapors. Destroy any contaminated leather articles. Store in a well ventilated area away from oxidizing materials and acids.

Other:

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: January, 2007

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1655 BOILER COMPOUND
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: None
Hazardous class – None
ID Number: None Required
Label Requirements: None
Reportable Quantity:

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
None listed		

Section III – Physical Data

Boiling Point – 110° C
Solubility in water – Complete
Specific Gravity – 1.04
Appearance and odor – Clear liquid with no specific odor.
pH (1% solution) – 8.0

Section IV – Fire and Explosion Hazard Data

Flash Point – N/A
Extinguishing Media – Water spray, CO2, dry chemical, alcohol foam, foam
Special Fire fighting procedures: Although not combustible, should a fire occur, it is proper to wear pressure self-contained breathing apparatus. Upon evaporation such gases as hydrogen gas or nitrogen oxides may be produced.
Unusual Fire and Explosion Hazards: None

Section V – Health Hazard Data

Threshold Limit Value: Not established
Effects of Overexposure: Burns and/or irritation to skin and eyes.
Emergency and First Aid Procedure: Flush affected areas with plenty of water. Promptly remove contaminated clothing under a shower. Wash the affected area with plenty of soap and water. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Heat and open flame

Incompatibility: Strong acids, strong oxidizers

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wear protective clothing made of rubber. Flush with plenty of water.

Waste Disposal Method: Dispose of contaminated product, empty containers and materials used in cleaning up spills in a manner approved by local authorities. Consult appropriate federal, state and local regulatory officials for correct disposal method.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: (mechanical) used only if a chance of airborne concentrations exist.

Protective Gloves: Rubber

Eye Protection: Safety shields or chemical goggles.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin or on clothing. Do not take internally. Upon contact, with skin or eyes, wash off with water. Avoid breathing mist or vapors. Destroy any contaminated leather articles. Store in a well-ventilated area away from oxidizing materials and acids.

Other:

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 206 BIO-DISPERSANT

Chemical Name and Synonyms: Dispersant

Proper Shipping Name: Non-Hazardous Dispersant

Hazard Class: Non-Hazardous

ID Number: None

Health = 1

Label requirements: None Required

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV
None Listed

Section III - Physical Data

Boiling Point - 212F

Solubility in water - Miscible in high proportions

Specific Gravity - .0975 - 1.02

Appearance and Odor -- Milky yellow color, petroleum like odor

pH (1% solution) - 5.7

Freezing Point: - Below 35 deg. F; active ingredient freezing point 0.00 deg. F

Section IV - Fire and Explosion Hazard Data

Flash Point - None to 212 deg. F

Extinguishing Media - To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical, or foam.

Special Fire fighting procedures: Keep people away. Isolate fire area and deny unnecessary entry.

Unusual Fire and Explosion Hazards: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Hazardous combustion products may

Include, but are not limited to: Sulfur oxides, nitrogen oxides, carbon monoxide, and carbon dioxide.

Section V - Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: EYE: May cause severe irritation with corneal injury, which may result in permanent impairment of vision, even blindness. SKIN: Prolonged exposure may cause skin burns. May cause allergic reaction. INGESTION: Single dos oral toxicity is extremely low. Small amounts swallowed are not likely to cause injury; swallowing large amounts may. May cause gastrointestinal irritation or ulceration. May cause burns of mouth and throat. INHALATION: Excessive exposure may cause irritation to upper respiratory tract.

Emergency and First Aid Procedures: Eyes: Flush eyes with large amounts of water for at least 15 minutes. If irritation persists, seek medical attention. SKIN: Wash off with soap and water. If irritation persists, seek

Section V – Health Hazard Data (con't)

medical attention. *INHALATION*: Remove from exposure. If breathing is difficult or discomfort persists, seek medical attention. *INGESTION*: Do not induce vomiting. Rinse mouths and dilute stomach contents with water, or preferably with milk if available.

Section VI – Reactivity Data

Stability | Unstable
| Stable (X)
| Conditions to avoid – Product can decompose at elevated temperatures.

Incompatibility: None known

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
| Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Dike spill and soak up with absorbent material and put in salvage container for disposal. Contain material to prevent contamination of the soil, surface water or ground water.

Waste Disposal Method: If material cannot be salvaged, a method of disposal has to be in accordance with state, local, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: None required in normal use.

Protective Gloves: Rubber or neoprene

Eye Protection: Chemical safety goggles or face shield

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or on clothing. Do not take internally.

Other: Store in a full-ventilated area away from oxidizer materials and acids. Always keep container closed when not in use. Never transfer to improperly marked containers.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: February, 2009

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 290 DISPERSANT

Chemical Name and Synonyms: Dispersant

Proper Shipping Name: Non-Hazardous Dispersant

Hazard Class: Non-Hazardous

ID Number: None

Health = 1

Label requirements: None Required

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II – Hazardous Ingredients

Ingredient

Percent

TLV

None Listed

Section III – Physical Data

Boiling Point – 212F

Solubility in water – Miscible in high proportions

Specific Gravity – 1.00 – 1.02

Appearance and Odor -- Clear, off-white to amber liquid; vinegar-like odor

pH (1% solution) – N/A

Freezing Point: - Below 35 deg. F; active ingredient freezing point 0.00 deg. F

Section IV – Fire and Explosion Hazard Data

Flash Point – None to 212 deg. F

Extinguishing Media – To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical, or foam.

Special Fire fighting procedures: Keep people away. Isolate fire area and deny unnecessary entry.

Unusual Fire and Explosion Hazards: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Hazardous combustion products may

include, but are not limited to: Sulfur oxides, nitrogen oxides, carbon monoxide, and carbon dioxide.

Section V – Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: EYE: May cause severe irritation with corneal injury, which may result in permanent impairment of vision, even blindness. SKIN: Prolonged exposure may cause skin burns. May cause allergic reaction. INGESTION: Single dose oral toxicity is extremely low. Small amounts swallowed are not likely to cause injury; swallowing large amounts may. May cause gastrointestinal irritation or ulceration. May cause burns of mouth and throat. INHALATION: Excessive exposure may cause irritation to upper respiratory tract.

Emergency and First Aid Procedures: Eyes: Flush eyes with large amounts of water for at least 15 minutes. If irritation persists, seek medical attention. SKIN: Wash off with soap and water. If irritation persists, seek

Section V – Health Hazard Data (con't)

medical attention. **INHALATION:** Remove from exposure. If breathing is difficult or discomfort persists, seek medical attention. **INGESTION:** Do not induce vomiting. Rinse mouths and dilute stomach contents with water, or preferably with milk if available.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Product can decompose at elevated temperatures.

Incompatibility: None known

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Dike spill and soak up with absorbent material and put in salvage container for disposal. Contain material to prevent contamination of the soil, surface water or ground water.

Waste Disposal Method: If material cannot be salvaged, a method of disposal has to be in accordance with state, local, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: None required in normal use.

Protective Gloves: Rubber or neoprene

Eye Protection: Chemical safety goggles or face shield

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or on clothing. Do not take internally.

Other: Store in a full-ventilated area away from oxidizer materials and acids. Always keep container closed when not in use. Never transfer to improperly marked containers.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 29-A BOILER BANKING

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Corrosive Liquid, N.O.S. (contains Potassium Hydroxide, Solution)

Hazard Class: Corrosive Material (8)

ID Number: UN1760

Label requirements: Corrosive

Health = 1
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Row 1: Potassium Hydroxide, 28%, 2 MG/M3

Section III - Physical Data

Boiling Point - complete
Specific Gravity - 1.33
Appearance and Odor -- Brown liquid with woody odor
pH (1% solution) - 14.7

Section IV - Fire and Explosion Hazard Data

Flash Point - Not combustible
Extinguishing Media - Water spray for fog, CO2 foam
Special Fire Fighting procedures: Use NIOSH approved positive pressure self-contained breathing apparatus when any material is involved in a fire.
Unusual Fire and Explosion Hazards: Highly flammable Hydrogen is formed by reaction with aluminum.

Section V - Health Hazard Data

Threshold Limit Value - Not established
Effects of Overexposure - May cause skin irritation, eye burns, or burns of the gastrointestinal tract if ingested.
Emergency and First Aid Procedures: EYES: Flush immediately with large amounts of water for at least 30 minutes, lifting lids to ensure complete washing of the entire surface. Call a physician. SKIN: Wash skin with plenty of soap and water. See a physician if skin shows signs of irritation. INHALATION: Inhalation exposure not expected unless specific use generates a mist. If adverse symptoms are experienced move the employee to fresh air. Administer oxygen if breathing is difficult. See a physician. INGESTION: Call a physician immediately if significant amounts have been swallowed. Give the employee large amounts of water or milk to drink for dilution effect. DO NOT INDUCE VOMITING.

Section VI – Reactivity Data

Stability | Unstable
| Stable (XXXXX)
| Conditions to avoid ..

Incompatibility – Aluminum and Zinc metal

Hazardous Decomposition Products – None

Hazardous Polymerization | May occur
| Will not occur (XXXXX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Prevent product from entering drinking water supplies or streams. Collect liquid or solidify liquid with absorbent material and package for disposal according to local, state, and federal regulations.

Waste Disposal Method: Check with local authorities. Use only approved disposal facilities.

Section VIII – Special Protection Information

Respiratory Protection -- None required.

Ventilation -- General industrial requirements.

Protective Gloves: Rubber gloves.

Eye Protection -- Chemical safety goggles. Do not wear contact lenses when handling chemicals.

Other: Rubber apron, rubber boots.

Section IX – Special Precautions

Precautions to be Taken in Handling and Storing – Keep away from heat, sparks and open flame. Do not transfer to improperly marked containers. Keep container closed when not in use. Do not get on skin, eyes, or clothing.

Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 358 STEAMLINE TREATMENT

Chemical Name and Synonyms: Ammonia Solution

Proper Shipping Name: Ammonia Solution

Hazard Class: Corrosive Material (8)

ID Number: UN 2672 P.G. III

Label requirements: Corrosive

Reportable Quantity:

Health = 3
Fire = 1
Reactivity = 0

Section II - Hazardous Ingredients

Table with 4 columns: Ingredient, Percent, OSHA PEL, ACGIH TLV. Row 1: Ammonium Hydroxide CAS No. 1336-21-6, 15%, 35 ppm, 25 pm

Section III - Physical Data

Boiling Point - 212°F @ 760 mmHg
Solubility in water - Soluble
Specific Gravity - 0.946 @ 77° F
Appearance and Odor - Colorless liquid, pungent odor.
Vapor Pressure - 17.500 mmHg @ 68° F
Vapor Density - < 1.000 @AIR=1
Freezing Point - N/A
Flash Point - N/A
% Volatile by Weight - 100%
pH - 13.0

Section IV - Fire and Explosion Hazard Data

Flash Point - N/A Flammable Limits In Air, % Lower: 16% N/A Upper: 25%
Extinguishing Media - Non-combustible - use water fog or spray to escape ammonia gas. AVOID CARBON DIOXIDE EXTINGUISHERS.
Special Fire fighting procedures: Use water to keep fire-exposed containers cool. Water hose streams are comparatively effective in removing ammonia gas from the atmosphere and will extinguish burning ammonia gas.
Unusual Fire and Explosion Hazards: When heated, aqua ammonia emits fumes of ammonia, which can be irritating to toxic. Ammonia increases the fire hazard from other combustible materials, including oil. Flammable limits are broadened by increasing temperature. Ammonia vapor in the range of 16-25% in air can explode on contact with ignition sources.

Section V - Health Hazard Data

Threshold Limit Value - N/A
Effects of Overexposure - INHALATION: May be irritating to respiratory tract. If inhaled, can cause nausea, vomiting, breathing difficulty, and convulsions. Shock or loss of consciousness may result. Brief exposure to 5000 ppm may be fatal. EYE CONTACT: Intensely irritating. Liquid will cause burns. SKIN CONTACT: May cause corrosive burns or blister formation. INGESTION: May cause severe burning of stomach, mouth and throat.
Chronic Overexposure: May cause damage to all body tissues.

Section V – Health Hazards Data (cont)

Emergency and First Aid Procedures – EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes, while holding eyelids apart to ensure flushing of entire surface. Call a physician. **INHALATION:** Remove to fresh air. If not breathing give artificial respiration, preferably mouth to mouth. Call a physician. **INGESTION:** Do not induce vomiting. Dilute stomach contents by drinking water. Call a physician immediately. **SKIN:** Remove contaminated clothing. Rinse skin with water. Get immediate medical attention. Launder contaminated clothing before reuse.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid – Heat increases vapor pressure. Ammonia gas may be released when aqua ammonia is heated.

Incompatibility – Strong acids, mercury, chlorine, bromine, iodine, calcium, silver oxide, or hypochlorite can form explosive compounds.

Hazardous Decomposition Products -- Gaseous ammonia upon heating. Normal combustion products of ammonia vapor are nitrogen and water.

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Remain upwind of spill or leak. Evacuate immediate area and wear appropriate protective equipment depending on concentration of ammonia in immediate area. Keep ignition sources away.

Waste Disposal Method: Dispose of in accordance with all federal, state and local regulations.

Section VIII – Special Protection Information

Respiratory Protection: If exposure limits are exceeded, or if exposure may occur, use NIOSH/MSHA respirator approved for your conditions of exposure. Refer to the most recent NIOSA publication concerning chemical hazards, or consult your safety equipment supplier.

Ventilation: Adequate ventilation is required to minimize exposure or to maintain exposure levels below OSHA/ACGIH requirements. Mechanical general ventilation is usually adequate. Local mechanical ventilation may be required.

Protective Gloves: Wear acid-resistant gauntlet gloves

Eye Protection: Chemical goggles face shield. Always wear eye protection when working with chemicals. Do not wear contact lenses when working with chemicals.

Other: Clean body covering clothing, rubber apron, and rubber boots.

Section IX – Special Precautions

Precautions to be taken in Handling and storing: Avoid all contact of liquid with the body. Minimize gas contact. Good maintenance to prevent leaks. Keep away from heat and open flame. Use good process control. Preferably store outside, otherwise in a cool, dry, well-ventilated, non-combustible location. Keep away from all possible sources of ignition and oxidizers. Protect containers from heat and corrosion.

Regulatory Information:

Reportable Quantity: 1000 pounds (454 Kilograms) (134 gallons)

TSCA: Ammonium Hydroxide (CAS #1336-21-6) is listed in the TSCA Inventory

RCRA: N/A

SARA Title III: Subject to reporting requirements of SARA (1986, Sec 313 of the Title III) and 40 CFR Part 370. Section 302 Extremely Hazardous Substance: YES (as ammonia); Section 311/312 Hazardous Categories: Immediate (Acute) Health Hazard; Section 313 Toxic Chemical: YES (Ammonia).

SARA Section 311 – EPA Hazard Categories: Immediate, Fire, Sudden Release of press., Reactive.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 4707 COOLING WATER TREATMENT

Chemical Name and Synonyms:

Proper Shipping Name: Proprietary Cooling Water Treatment

Hazardous class – Non-Hazardous

Health = 1

ID Number: None

Fire = 0

Label Requirements: None

Reactivity = 0

Reportable Quantity:

Section II – Hazardous Ingredients

Ingredient

Percent

TLV

None listed

Section III – Physical Data

Boiling Point -> 212°F

Solubility in water – Complete

Specific Gravity –1.05 – 1.08

Appearance and Odor -- Clear light yellow liquid – strong inorganic odor

pH (1% solution) –9.7

Section IV – Fire and Explosion Hazard Data

Flash Point – Non-Flammable

Extinguishing Media – Use “alcohol” foam or dry chemical

Special Fire fighting procedures: None required in normal use.

Unusual Fire and Explosion Hazards:

Section V – Health Hazard Data

Threshold Limit Value: Not established

Effects of Overexposure: EYES: May be irritating to eyes if not flushed immediately. SKIN: May be irritating to skin if prolonged exposure exists. INHALATION: Airborne concentrations of dust, mist, or spray can cause damage to the upper respiratory tract.

Emergency and First Aid Procedure: EYES: Immediately flush eyes with large quantities of water for a 15 minute period, periodically lifting upper and lower lids to ensure washing of the entire surface. Seek medical attention. SKIN: Immediately wash contaminated area with plenty of soap and water. If irritation persists, seek medical attention. INHALATION: Remove person from contaminated area to fresh air. If breathing has stopped, give artificial respiration. Seek medical attention. INGESTION: DO NOT INDUCE VOMITING. Give large quantities of water or several glasses of milk if available. Never give anything by mouth to a unconscious person. Seek medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility: Strong acids without dilution or agitation, metal alloys, chlorinated hydrocarbons.

Hazardous Decomposition Products: N/A

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Neutralize spill with dilute inorganic acids such as hydrochloric, sulfuric, nitric, phosphoric or acetic acid. The spill area should then be flushed with water followed by a liberal covering of sodium bicarbonate.

Waste Disposal Method: If not diluted and neutralized, this product can become a hazardous waste as designated by the EPA under authority of the Resource Conservation and Recovery Act.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Local exhaust – Provide ventilation to maintain airborne concentration below OSHA limitations.

Protective Gloves: Rubber

Eye Protection: Chemical safety goggles or face shield

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Keep container closed when not in use.

Other: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Safety shower, eye bath and washing facilities should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 4709 COOLING WATER TREATMENT

Chemical Name and Synonyms: Proprietary Water Treatment

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Sulfuric Acid)

Hazard Class: Corrosive (8)

ID Number: UN1760

Health = 1

Label requirements: Corrosive

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
Sulfuric Acid-Case #7664-93-9	15%	1 mg / m ³
Phosphoric Acid- Case #7664-38-2	2%	110 mg / m ³
Hydroxyethylidene- Case #2809-21-4	1.5%	

Section III – Physical Data

Boiling Point –

Solubility in water – Complete

Specific Gravity – 1.12

Appearance and Odor -- Clear in color and no odor

pH (1% solution) – 1.6

Section IV – Fire and Explosion Hazard Data

Flash Point – Will not burn

Extinguishing Media – Use water spray; dry chemical for fires adjacent to containers of material.

Special Fire fighting procedures: Do not use solid streams near ruptured drums. At high temperatures sulfur trioxide gas can be released from vented or ruptured containers.

Unusual Fire and Explosion Hazards: Flammable and potentially explosive hydrogen gas can be generated inside metal drums and storage tanks.

Section V – Health Hazard Data

Threshold Limit Value – N/A

Effects of Overexposure – May irritate

Emergency and First Aid Procedures – Eyes & Skin: Immediately apply large quantities of running water for prolonged period. Remove all clothing touched by the material. Call a physician. **Ingestion:** Do not induce vomiting. Have patient drink large quantities of water or milk immediately. Call a physician. Do not give carbonates. Do not give anything by mouth to an unconscious person. If vomiting occurs spontaneously, Keep head below hips to prevent aspiration of vomitus into lungs.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility – Avoid contact with organic materials, which may be combustible. Mixing with water or alkalis causes a severe exothermic reaction. Avoid contact with organic materials and strong alkalis.

Hazardous decomposition Products --

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In case material is spilled or released: Contain spills and leaks to prevent discharge to the environment.

Waste Disposal Method: Dilute and neutralize with limestone or soda ash before disposal. Dispose of in accordance with federal, state, and local regulations.

Section VIII – Special Protection Information

Respiratory Protection -- Not usually required.

Ventilation: Local exhaust used only as good industrial exhaust.

Protective Gloves: Rubber gloves

Eye Protection: Chemical safety glasses or goggles.

Other: Rubber apron, and rubber boots.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities.

Other: Eye wash and quick drench shower facilities protected from freezing should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: April, 2014

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 4714 COOLING WATER TREATMENT

Chemical Name and Synonyms: Proprietary water Treatment

Proper Shipping Name: Cooling Water Treatment

Hazard Class: Non-Hazardous

ID Number: None

Health = 1

Label requirements: None Required

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Content: None Listed.

Section III - Physical Data

Boiling Point -

Solubility in water - Complete

Specific Gravity - 1.04

Appearance and Odor - Light amber liquid strong inorganic odor

pH (1% solution) - 9.0 - 9.6

Section IV - Fire and Explosion Hazard Data

Flash Point - Will not burn

Extinguishing Media - Use water spray, dry chemical for fires adjacent to containers of material.

Special Fire fighting procedures: Do not use solid streams near ruptured drums. At high temperatures sulfur trioxide gas can be released from vented or ruptured containers.

Unusual Fire and Explosion Hazards: Flammable and potentially explosive hydrogen gas can be generated inside metal drums and storage tanks.

Section V - Health Hazard Data

Threshold Limit Value - N/A

Effects of Overexposure - May irritate

Emergency and First Aid Procedures - Eyes & Skin: Immediately apply large quantities of running water for prolonged period. Remove all clothing touched by the material. Call a physician. Ingestion: Do not induce vomiting. Have patient drink large quantities of water or milk immediately. Call a physician. Do not give carbonates. Do not give anything by mouth to an unconscious person. If vomiting occurs spontaneously, Keep head below hips to prevent aspiration of vomitus into lungs.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility – Avoid contact with organic-material which may be combustible. Mixing with water or alkalies causes a severe exothermic reaction. Avoid contact with organic materials and strong alkalies.

Hazardous decomposition Products --

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In case material is spilled or released: Contain spills and leaks to prevent discharge to the environment.

Waste Disposal Method: Dilute and neutralize with limestone or soda ash before disposal. Dispose of in accordance with federal, state, and local regulations.

Section VIII – Special Protection Information

Respiratory Protection -- Not usually required.

Ventilation: Local exhaust used only as good industrial exhaust.

Protective Gloves: Rubber gloves

Eye Protection: Chemical safety glasses or goggles

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and storing: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities.

Other: Eye wash and quick drench shower facilities protected from freezing should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: July, 2004

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 592-L OXYGEN SCAVENGER

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Oxygen Scavenger

Hazard Class: Non-Hazardous

Health = 1

ID Number: None

Fire = 0

Label Requirements: None

Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV

None listed

Section III - Physical Data

Boiling Point: 220 F

Solubility in Water: Complete

Specific Gravity: 1.19

Appearance and Odor: Purple liquid -- no odor

pH (1% solution): 6.9

Section IV - Fire and Explosion Hazard Data

Flash Point -- None

Extinguishing Media - As appropriate to adjacent fire

Special Fire Fighting Procedures --Pressure demand self-contained breathing apparatus should be used by firefighters.

Unusual Fire and Explosion Hazards - Protective clothing for skin and eye protection should be worn to protect against this highly alkaline chemical.

Section V - Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: Inhalation: Liquid is irritating to eyes. May be harmful if swallowed or absorbed through skin.

Emergency and First Aid Procedures: Eyes: Flush eyes for 15 minutes and get medical attention. Skin: Wash thoroughly with soap and water and get medical attention if irritation or redness develops. Launder clothes before reuse. Ingestion: Give 2 or 3 glasses of water, induce vomiting by tickling back of throat with finger. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –Keep away from sparks, heat, and open flame.

Incompatibility – Avoid contact with strong oxidizing agents and acids.

Hazardous Decomposition Products –

Hazardous Polymerization | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Extinguish all sources of ignition. Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Incinerate in an incinerator equipped with an after-burner and scrubber or bury in an approved landfill.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Use adequate local exhaust ventilation where mist, dust or spray may be generated.

Protective Gloves: Rubber

Eye Protection: Face shield or goggles

Other: Rubber boots and apron if possibility of contact during use exists.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away from heat, sparks, and open flame.

Other: Do not transfer to improperly marked containers. Keep container closed when not in use.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling abuse, or misuse, are beyond our control, Walter Louis Fluid Technologies makes no warranty, either express or implied with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: February, 1998

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 595 OXYGEN SCAVENGER
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: Bisulfites, Aqueous Solution N.O.S.

Hazard Class: 8 (Corrosive) Health = 1
ID Number: UN2693 Fire = 0
Label Requirements: Corrosive Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV

None listed

Section III - Physical Data

Boiling Point: 212° F
Solubility in Water: Complete
Specific Gravity: 1.30
Appearance and Odor: Clear liquid - pungent odor
pH (1% solution): 5.6

Section IV - Fire and Explosion Hazard Data

Flash Point -- Non-Flammable
Extinguishing Media -- Use "alcohol" foam or dry chemical
Special Fire Fighting Procedures: None required in normal use.
Unusual Fire and Explosion Hazards:

Section V - Health Hazard Data

Threshold Limit Value: Not Established
Effects of Overexposure: Eyes: May be irritating to eyes if not flushed immediately. Skin: May be irritating to skin if prolonged exposure exists. Inhalation: Airborne concentrations of dust, mist, or spray can cause damage to the upper respiratory tract.

Emergency and First Aid Procedures: Eyes: Immediately flush eyes with large quantities of water for a 15 minute period, periodically lifting upper and lower lids to ensure washing of the entire surface. Skin: Immediately wash contaminated area with plenty of soap and water. Inhalation: Remove person from contaminated area to fresh air. Ingestion: Give large quantities of water or several glasses of milk if available. Induce Vomiting. Never give anything by mouth to a unconscious person.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid

Incompatibility – Strong Acids without dilution or agitation, metal alloys, chlorinated hydrocarbons.

Hazardous Decomposition Products – N/A

Hazardous Polymerization | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Neutralize spill with dilute inorganic acids such as hydrochloric, sulfuric, nitric, phosphoric or acetic acid. The spill area should then be flushed with water followed by a liberal covering of sodium bicarbonate.

Waste Disposal Method: If not diluted and neutralized, this product can become a hazardous waste as designated by the EPA under authority of the Resource Conservation and Recovery Act.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Provide ventilation to maintain airborne concentration below OSHA limitations.

Protective Gloves: Rubber

Eye Protection: Chemical safety goggles or face shield

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Keep container closed when not in use.

Other: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities. Safety shower, eye bath and washing facilities should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and Government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: October, 2006

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 7116 COOLING WATER TREATMENT

Chemical Name and Synonyms: Proprietary water Treatment

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Hydroxyphosphono-Acetic Acid)

Hazard Class: Corrosive (8)

ID Number: UN1760

Health = 1

Label Requirements: Corrosive

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
1-Hydroxyethylidene-1,1-Diphosphonic Acid	>10%	
Case #2809-21-4		

Section III – Physical Data

Boiling Point –

Solubility in Water – Complete

Specific Gravity – 1.08

Appearance and Odor -- Blue-green Liquid

pH (1% solution) – 2.8

Section IV – Fire and Explosion Hazard Data

Flash Point – Will not burn

Extinguishing Media – Use water spray, dry chemical for fires adjacent to containers of material.

Special Fire Fighting Procedures: Do not use solid streams near ruptured drums. At high temperatures sulfur trioxide gas can be released from vented or ruptured containers.

Unusual Fire and Explosion Hazards: Flammable and potentially explosive hydrogen gas can be generated inside metal drums and storage tanks.

Section V – Health Hazard Data

Threshold Limit Value – N/A

Effects of Overexposure – May be irritating

Emergency and First Aid Procedures – Eyes & Skin: Immediately apply large quantities of running water for prolonged period. Remove all clothing touched by the material. Call a physician. **Ingestion:** Do not induce vomiting. Have patient drink large quantities of water or milk immediately. Call a physician. Do not give carbonates. Do not give anything by mouth to an unconscious person. If vomiting occurs spontaneously, Keep head below hips to prevent aspiration of vomits into lungs.

Section VI -- Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid --

Incompatibility -- Avoid contact with organic-material, which may be combustible. Mixing with water or alkalizes causes a severe exothermic reaction. Avoid contact with organic materials and strong alkalies.

Hazardous decomposition Products --

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII -- Spill or Leak Procedure

Steps To Be Taken In case Material is Spilled or Released: Contain spills and leaks to prevent discharge to the environment.

Waste Disposal Method: Dilute and neutralize with limestone or soda ash before disposal. Dispose of in accordance with federal, state, and local regulations.

Section VIII -- Special Protection Information

Respiratory Protection -- Not usually required.

Ventilation: Local exhaust used only as good industrial exhaust.

Protective Gloves: Rubber gloves

Eye Protection: Chemical safety glasses or goggles

Other: Rubber apron and rubber boots

Section IX -- Special Precautions

Precautions to be Taken in Handling and Storing: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities.

Other: Eye wash and quick drench shower facilities protected from freezing should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: **7221 COOLING TOWER TREATMENT**

Chemical Name and Synonyms: Proprietary water Treatment

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Sulfuric Acid)

Hazard Class: Corrosive (8)

ID Number: UN1760

Health = 1

Label requirements: Corrosive

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
Sulfuric Acid – Case # 7664-93-9	15%	1mg / m ³
Phosphoric Acid – Case # 7664-38-2	4%	1.0 mg / m ³
Hydroxyethylidene - Case # 2809-21-4	3%	

Section III – Physical Data

Boiling Point –

Solubility in water – Complete

Specific Gravity – 1.118

Appearance and Odor -- Clear in color and no odor.

pH (1% solution) – 1.6

Section IV – Fire and Explosion Hazard Data

Flash Point – Will not burn

Extinguishing Media – Use water spray, dry chemical for fires adjacent to containers of material.

Special Fire fighting procedures: Do not use solid streams near ruptured drums. At high temperatures sulfur trioxide gas can be released from vented or ruptured containers.

Unusual Fire and Explosion Hazards: Flammable and potentially explosive hydrogen gas can be generated inside metal drums and storage tanks.

Section V – Health Hazard Data

Threshold Limit Value – N/A

Effects of Overexposure – May be irritating

Emergency and First Aid Procedures – Eyes & Skin: Immediately apply large quantities of running water for prolonged period. Remove all clothing touched by the material. Call a physician. *Ingestion:* Do not induce vomiting. Have patient drink large quantities of water or milk immediately. Call a physician. Do not give carbonates. Do not give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of vomits into lungs.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility – Avoid contact with organic-material, which may be combustible. Mixing with water or alkalizes causes a severe exothermic reaction. Avoid contact with organic materials and strong alkalies.

Hazardous decomposition Products --

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In case material is spilled or released: Contain spills and leaks to prevent discharge to the environment.

Waste Disposal Method: Dilute and neutralize with limestone or soda ash before disposal. Dispose of in accordance with federal, state, and local regulations.

Section VIII – Special Protection Information

Respiratory Protection -- Not usually required.

Ventilation: Local exhaust used only as good industrial exhaust.

Protective Gloves: Rubber gloves

Eye Protection: Chemical safety glasses or goggles

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and storing: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities.

Other: Eye wash and quick drench shower facilities protected from freezing should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: April, 2007

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 7351 COOLING WATER TREATMENT

Chemical Name and Synonyms: Proprietary water Treatment

Proper Shipping Name: Cooling Water Treatment

Hazard Class: Non-Hazardous

ID Number: None Health = 1

Label requirements: None Required Fire = 0

Reportable Quantity: Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Content: None Listed

Section III - Physical Data

Boiling Point -

Solubility in water - Complete

Specific Gravity - 1.068

Appearance and Odor -- Amber liquid -- inorganic odor

pH (1% solution) - 9.0 to 9.5

Section IV - Fire and Explosion Hazard Data

Flash Point - Will not burn

Extinguishing Media - Use water spray, dry chemical for fires adjacent to containers of material.

Special Fire fighting procedures: Do not use solid streams near ruptured drums. At high temperatures sulfur trioxide gas can be released from vented or ruptured containers.

Unusual Fire and Explosion Hazards: Flammable and potentially explosive hydrogen gas can be generated inside metal drums and storage tanks.

Section V - Health Hazard Data

Threshold Limit Value - N/A

Effects of Overexposure - May cause severe burns or irritation

Emergency and First Aid Procedures - Eyes & Skin: Immediately apply large quantities of running water for prolonged period. Remove all clothing touched by the material. Call a physician. Ingestion: Do not induce vomiting. Have patient drink large quantities of water or milk immediately. Call a physician. Do not give carbonates. Do not give anything by mouth to an unconscious person. If vomiting occurs spontaneously, Keep head below hips to prevent aspiration of vomits into lungs.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility – Avoid contact with organic-material, which may be combustible. Mixing with water or alkalizes causes a severe exothermic reaction. Avoid contact with organic materials and strong alkalies.

Hazardous decomposition Products --

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In case material is spilled or released: Dilute with plenty of water. Neutralize residue with soda ash or lime.

Waste Disposal Method: Dilute and neutralize with limestone or soda ash before disposal. Dispose of in accordance with federal, state, and local regulations.

Section VIII – Special Protection Information

Respiratory Protection -- Not usually required.

Ventilation: Local exhaust used only as good industrial exhaust.

Protective Gloves: Rubber gloves

Eye Protection: Chemical safety glasses

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and storing: Minimize skin contact. Wash with soap and water before eating, drinking, smoking or using toilet facilities.

Other: Eye wash and quick drench shower facilities protected from freezing should be available.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 839 CLOSED SYSTEM INHIBITOR

Chemical Name and Synonyms: Corrosive Inhibitor

Proper Shipping Name: Non-Hazardous Closed System Inhibitor

Hazardous class – None

Health = 1

ID Number: None

Fire = 0

Label Requirements: None

Reactivity = 0

Reportable Quantity:

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
None		

Section III – Physical Data

Boiling Point – 212

Solubility in water – Complete

Specific Gravity – 1.222

Percent, volatile by volume: N/A

Evaporation Rate: N/A

Appearance and Odor -- Pinkish color – strong inorganic odor

pH (1% solution) – 11.4-11.8

Section IV – Fire and Explosion Hazard Data

Flash Point – N/A

Extinguishing Media – None

Special Fire fighting procedures: Not Flammable

Unusual Fire and Explosion Hazards: None

Section V – Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: Liquid is irritating to eyes. May be harmful if swallowed or absorbed through skin.

Emergency and First Aid Procedure: *EYES:* Flush eyes for 15 minutes and get medical attention. *SKIN:* Wash skin thoroughly with soap and water and get medical attention if irritation or redness develops. Launder clothes before reuse. Follow good industrial hygiene practices.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Keep away from heat, sparks and open flame.

Incompatibility: Avoid contact with strong oxidizing agents, reducing agents, cyanides, amines, ammonium compounds, and acids.

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Extinguish all sources of ignition. Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Incinerate in an incinerator equipped with an after burner and scrubber or bury in an approved landfill.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation:

Protective Gloves: Rubber

Eye Protection: Face shield or goggles

Other: Rubber boots and apron if possibility of contact during use exists.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away from heat, sparks and open flame.

Other: Do not transfer to improperly marked containers. Keep container closed when not in use. Wash with soap and water before eating, drinking or using toilet facilities.

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MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: **89-L BOILER COMPOUND**

Chemical Name and Synonyms: Proprietary Corrosion Inhibitor

Proper Shipping Name: Amines, Liquid, Corrosive, N.O.S. (contains Diethylaminoethanol and Cyclohexylamine)

Hazard Class: Corrosive (8)

ID Number: UN 1760 PGII I

Label Requirements: Corrosive

Reportable Quantity:

Health = 2

Fire = 0

Reactivity = 0

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
2-diethylaminoethanol CAS #100-37-8	2.5 – 10%	
Cyclohexylamine CAS #108-91-8	2.5 – 10%	

Section III – Physical Data

Specific Gravity -- 1.0094

Appearance and Odor -- Yellowish liquid; amine-like odor

pH (1% soln) – 10.4

Density at 20^o C – ca. 0.98 g/cm³

Solubility in Water – Readily soluble

Section IV – Fire and Explosion Hazard Data

Flash Point -- None.

Extinguishing Media – Water spray or fog; CO₂ foam

Special Fire Fighting Procedures -- Wear full protective suit. Wear alkaline resistant protecting clothing. Put on breathing apparatus.

Unusual Fire and Explosion Hazards -- Fire can cause release of Carbon Monoxide & Nitrogen Oxides. Cool endangered containers with water spray jet. Collect contaminated fire fighting water separately. It must not enter drains.

Section V – Health Hazard Data

Threshold Limit Value -- None listed.

Effects of Overexposure -- Causes severe skin burns and eye damage. Suspected of damaging fertility. May cause respiratory irritation.

Emergency and First Aid Procedures -- EYES: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eye lids frequently. Call a physician. Continue flushing with water if medical attention is not immediately available. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Continue

Emergency and First Aid Procedures (con't) --

flushing with water if medical attention is not available. Wash clothing and shoes before reuse.
 INHALATION: Supply fresh air and see medical attention. INJECTION: Rinse out mouth and then drink plenty of water (approx. 500 ml) DO NOT induce vomiting; seek medical attention.

Section VIII – Stability and Reactivity

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid – No further relevant information available.

Incompatibility – Avoid contact with strong acids.

Hazardous Decomposition Products – N/A

Hazardous Polymerization | May occur
 | Conditions to avoid --
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case of Material Spilled or Released: Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Use neutralizing agent. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection -- None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation -- Maintain adequate ventilation.

Protective Gloves: Rubber

Eye Protection -- Face shield or goggles.

Other -- Wear rubber apron and rubber boots if possibility of contact exists during use.

Section IX – Special Precautions

Precautions to be Taken in Handling and Storing -- Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away from heat, sparks and open flame. Store away from heat, sparks and open flame.

Other -- Do Not transfer into improperly marked containers. Keep container closed when not in use.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling abuse, or misuse, are beyond our control, Walter Louis Fluid Technologies makes no warranty, either express or implied with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to this particular use.

Revised Date: August., 2012

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 96 CLOSED SYSTEM CLEANER

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Closed system cleaner

Hazard Class: Non-Hazardous

ID Number: None Health = 1

Label requirements: None Required Fire = 0

Reportable Quantity: Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV
None Listed

Section III - Physical Data

Boiling Point - N/A

Solubility in water - Complete

Specific Gravity - 1.093

Appearance and Odor -- Clear liquid with light yellow tint; slight organic odor

pH (1% solution) - 7.0 - 7.5

Section IV - Fire and Explosion Hazard Data

Flash Point - Non-Combustible

Extinguishing Media - Not applicable

Special Fire fighting procedures: N/A

Unusual Fire and Explosion Hazards: N/A

Section V - Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: Human industrial experience has shown no significant inhalation hazard or skin irritation when good personal hygiene practices are followed.

Emergency and First Aid Procedures: Eyes: Flush eyes with large amounts of water for at least 15 minutes. If irritation persists, seek medical attention. Wash off with soap and water. If irritation persists, seek medical attention. INHALATION: Remove from exposure. If breathing is difficult or discomfort persists, seek medical attention. INGESTION: Rinse mouths and dilute stomach contents with water, or preferably with milk if available. DECONTAMINATION PROCEDURE: Wash with water. NOTES TO PHYSICIAN: Large does may cause nausea, vomiting and diarrhea.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – Strong oxidizers, acids

Incompatibility: None

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Dike spill and soak up with absorbent material and put in salvage container for disposal.

Waste Disposal Method: If material cannot be salvaged, a method of disposal has to be in accordance with state, local, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: None required in normal use.

Protective Gloves: Rubber or neoprene

Eye Protection: Chemical safety goggles or face shield

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or on clothing. Do not take internally.

Other: Store in a full-ventilated area away from oxidizer materials and acids. Always keep container closed when not in use. Never transfer to improperly marked containers.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 996 RESIN CLEANER
Chemical Name and Synonyms: Proprietary Boiler Compound
Proper Shipping Name: Non-Hazardous Resin Cleaner
Hazard Class: Non-Hazardous
ID Number: None
Label requirements: None Required
Reportable Quantity:

Health = 1
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV
None Listed

Section III - Physical Data

Boiling Point - N/A
Solubility in water - Complete
Specific Gravity - 1.093
Appearance and Odor -- Clear liquid with light yellow tint; slight organic odor
pH (1% solution) - 7.0 - 7.5

Section IV - Fire and Explosion Hazard Data

Flash Point - Non-Combustible
Extinguishing Media - Not applicable
Special Fire fighting procedures: N/A
Unusual Fire and Explosion Hazards: N/A

Section V - Health Hazard Data

Threshold Limit Value: N/A
Effects of Overexposure: Human industrial experience has shown no significant inhalation hazard or skin irritation when good personal hygiene practices are followed.
Emergency and First Aid Procedures: Eyes: Flush eyes with large amounts of water for at least 15 minutes. If irritation persists, seek medical attention. Wash off with soap and water. If irritation persists, seek medical attention. INHALATION: Remove from exposure. If breathing is difficult or discomfort persists, seek medical attention. INGESTION: Rinse mouths and dilute stomach contents with water, or preferably with milk if available. DECONTAMINATION PROCEDURE: Wash with water. NOTES TO PHYSICIAN: Large does may cause nausea, vomiting and diarrhea.

Section VI – Reactivity Data

Stability | Unstable
| Stable (X)
| Conditions to avoid – Strong oxidizers, acids

Incompatibility: None

Hazardous Decomposition Products: None

Hazardous Polymerization: | May occur
| Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Dike spill and soak up with absorbent material and put in salvage container for disposal.

Waste Disposal Method: If material cannot be salvaged, a method of disposal has to be in accordance with state, local, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: None required in normal use.

Protective Gloves: Rubber or neoprene

Eye Protection: Chemical safety goggles or face shield

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, or on clothing. Do not take internally.

Other: Store in a full-ventilated area away from oxidizer materials and acids. Always keep container closed when not in use. Never transfer to improperly marked containers.

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Revised Date: August 8, 2007

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: AM-50 BIOCID

Chemical Name and Synonyms:

Proper Shipping Name: Algaecide A

Hazard Class: Non-Hazardous

Health = 1

ID Number: None Required

Fire = 0

Label Requirement: None

Reactivity = 0

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
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None listed

Section III – Physical Data

Boiling Point – > 220° F

Solubility in Water – Complete

Specific Gravity – 1.05

Appearance and Odor --Clear to amber colored liquid – slight odor

pH (1% solution) –

Section IV – Fire and Explosion Hazard Data

Flash Point – N/A

Extinguishing Media – Water fog, carbon dioxide, foam, dry chemical

Special Fire fighting procedures – None

Section V – Health Hazard Data

Thresh-hold Limit value – N/A

Effects of Overexposure – No hazard due to dermal absorption or inhalation. Irritating to the eyes, produces reversible minimal effects in the form of erythema, chmosis, and discharge. Not listed in any of the OSHA Standard, Section 1910.1200 sources as carcinogenic.

Emergency and First Aid Procedures: Flush eyes with clean, cool water for 15 minutes. See a physician if irritation occurs. Wash skin with soap and water. See a physician if irritation occurs. Remove and wash contaminated clothing. Remove to fresh air if inhaled.

Section VI – Reactivity Data

Stability | Unstable
| Stable (XX)
| Conditions to avoid –

Incompatibility –N/A

Hazardous decomposition products: None

Hazardous Polymerization -- | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Flush liquid to sewer with copious amounts of water.

Waste Disposal Method: Product is not a hazardous waste. It can be disposed of in any approved landfill. Offer container for recycling or triple rinse and dispose of in an approved landfill.

Section VIII – Special Protection Information

Respiratory Protection -- None required

Ventilation –None required

Protective Gloves: Rubber gloves as good industrial practice

Eye Protection -- Chemical safety goggles as good industrial practice.

Other:

Section IX – Special Precautions

Precautions to be taken in Handling and Storing –Keep container closed when not in use.

Other:

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Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: AM-545 MICROBIOCIDE

Chemical Name and Synonyms: Glutaraldehyde, 45% Aqueous Solution

Proper Shipping Name: Corrosive Liquid, Acidic, Organic, NOS

Hazardous class – Corrosive Material (8)

ID Number: UN3265 PG II

Label Requirements: Corrosive

Reportable Quantity:

Health = 3
Fire = 1
Reactivity = 0

Section II – Hazardous Ingredients

<u>Ingredient</u>	<u>CAS #</u>	<u>Percent</u>
Glutaraldehyde	111-30-8	45%
Methanol	67-56-1	<= 0.5%

Section III – Physical Data

Viscosity (centistokes) @ 20C N/A
Solubility in water 100%
Specific Gravity (H20=1) 1.118
Appearance and Odor Transparent colorless liquid; sharp, fruity, medicinal odor
pH (1% solids solution 2 25C): 3.1 – 4.5
Boiling Point ~ 100.5° C ~ 213°F (as product)
Freezing Point -17° C 1.4°F
Evaporation Rate 1.0
Melting Point N/A

Section IV – Fire and Explosion Hazard Data

Extinguishing Media – Non-flammable (aqueous solution): After water evaporates, remaining material will burn. Use alcohol-type or all-purpose foam, applied by manufacturer's recommendation techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

Special Fire fighting procedures: Use self-contained breathing apparatus and protective clothing.

Burning can produce the following products: Carbon monoxide and/or carbon dioxide. Carbon monoxide is highly toxic if inhaled; carbon dioxide in sufficient concentrations can act as an asphyxiate.

Section V – Health Hazard Data

Threshold Limit Value: N/A

Emergency and First Aid Procedure: INHALATION: Vapor is irritating to the respiratory tract, causing stinging sensations in the nose and throat, discharge from the nose, possibly bleeding from the nose, coughing, chest discomfort and tightness, difficulty with breathing and headache. Heating the solution may cause in more severe irritant effects. EYES: Liquid will cause a severe and persistent conjunctivitis, seen as excess redness and marked swelling of the conjunctiva with profuse discharge. Severe corneal injury may develop, which could permanently impair vision if prompt first-aid and medical treatment are not obtained. Vapor will cause stinging sensations in the eye with excess tear production, blinking and possibly a slight excess redness of the conjunctiva. SKIN: Brief contact will cause itching with

Section V – Health Hazard Data (Con't)

mild to moderate local redness and possible swelling. Prolonged contact may result in pain, severe redness and swelling, with ulceration, tissue destruction, and possibly bleeding into the inflamed area. Contact with solutions of glutaraldehyde may cause a harmless yellow or brownish discoloration of the skin. Prolonged or widespread contact may result in the absorption of potentially harmful amounts of material. **INGESTION:** Moderately toxic. May cause moderate to marked irritation and possibly chemical burns of the mouth, throat, esophagus, and stomach. There will be discomfort or pain the chest and abdomen, nausea, vomiting, diarrhea, dizziness, faintness, drowsiness, thirst, weakness, circulatory shock, collapse and coma. Aspiration into the lungs may occur during ingestion or vomiting, resulting in lung injury.

First Aid Procedures: **INHALATION:** Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, oxygen may be given by qualified personnel. Obtain medical attention. **EYES:** Immediately flush eyes with water and continue washing for at least 15 minutes. DO NOT remove contact lenses, if worn. Obtain medical attention without delay, preferably from an ophthalmologist. **SKIN:** Immediately remove contaminated clothing and shoes. Wash skin with soap and water. Obtain medical attention. Wash clothes before reuse. Discard contaminated leather articles such as shoes and belt. **INGESTION:** DO NOT INDUCE VOMITING. Do not give anything to drink. Obtain medical attention without delay.

Note to Physician: Due to the severely irritating or corrosive nature of the material, swallowing may lead to ulceration and inflammation of the upper alimentary tract with hemorrhage and fluid loss. Also, perforation of the esophagus or stomach may occur, leading to mediastinitis or peritonitis and resultant complication. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration.

Section VI – Reactivity Data

Incompatibility: Avoid high temperature and evaporation of water. Strong alkalies and acids catalyze an aldol-type condensations.

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Very low concentrations (5 ppm or less of glutaraldehyde) can be degraded in a biological wastewater treatment system. Thus, small spills can be flushed with large quantities of water. Large quantities or “slugs” can be harmful to the treatment system. Thus, large spills should be collected for disposal. It may also be possible to decontaminate spilled material by careful application of aqueous Sodium Hydroxide, Ammonium or Sodium Bisulfite. Depending on conditions, considerable heat and fumes can be liberated by the decontamination reaction.

Waste Disposal Method: Atomize into a very hot incinerator fire or mix with a suitable flammable solvent, and incinerate where permitted under appropriate Federal, State and Local regulations. High water content may dampen flame. Dispose in accordance with all applicable Federal, State, Provincial and Local environmental regulations. Empty containers should be recycled or disposed of through an approved waste management facility.

Section VIII – Special Protection Information

Respiratory Protection: Use self-contained breathing apparatus in high vapor concentrations. If self-contained breathing apparatus is not available, a MSHA/NIOSH approved air-purifying respirator equipped with an organic vapor cartridge should be used.

Ventilation: General (mechanical) room ventilation is expected to be satisfactory if this material is kept in covered equipment or if the solution is highly diluted.

Section VIII – Special Protection Information (Con't)

Protective Gloves: Nitrile (NBR) Butyl

Eye Protection: Wear chemical safety goggles and have eye baths immediately available where there is potential for eye contact.

Other: Wear chemical apron

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Do not get in eyes, on skin, on clothing. Avoid breathing vapor. Do not swallow. Wear goggles, protective clothing and gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Other: This product in its undiluted form must not be used in a spray or aerosol application. If dilutions or mixtures of this product are used in a spray application, full personal protective equipment is strongly recommended to prevent exposure. Do not handle or empty container in the presence of flammable vapors.

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Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: AM-66 INDUSTRIAL MICROBIOCIDE

Chemical Name and Synonyms: Biocide

Proper Shipping Name: Oxidizing Solid, N.O.S. (contains Bromo-Chloro-Dimethylhydantoin)

Hazard Class: 5.1 (Oxidizer)

ID Number: UN1479 PGI

Label Requirement: Oxidizer

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>CASE #</i>
1-Bromo-3-Chloro-5,5-Dimethylhydantoin	60%	126-06-7
1,3-Dichloro-5,5-Dimethylhydantoin	27.4%	118-52-5
1,3-Dichloro-5-ethyl-5-methylhydantoin	10.6%	89415-87-2
Inerts	2.0%	

Section III – Physical Data

Boiling Point – N/A

Solubility in Water – 0.34 OMS/1000ms @25 C

Specific Gravity – 1.0 @ 25 C

Appearance and Odor -- Very slight pungent odor

pH (1% solution) – 3.6

Section IV – Fire and Explosion Hazard Data

Flash Point – Decomposes @ 155 C

Extinguishing Media – Foam, CO₂, dry chemical or water

Special Fire fighting procedures – In a fire this material is combustible with the potential for generating noxious gases requiring the use of self-contained respiratory apparatus by firefighters. To minimize the progressive generation of noxious gases, flood the burning material with very large quantities of water.

Unusual Fire and Explosion Hazards – This material is a strong oxidizing and corrosive chemical.
.....

Section V – Health Hazard Data

Effects of Overexposure – INGESTION: Harmful if swallowed. SKIN: Causes burns. EYES: Severe irritant, corrosive to the peripheral eye tissue. May produce irreversible cellular damage in the eye. INHALATION: Not expected to be toxic. Do not breathe fumes from fires or decomposition.

Emergency and First Aid Procedures: EYES: Immediately flush eyes with large amounts of running water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. Get medical attention immediately. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. INHALATION: Move victim to fresh air. If not breathing, supplemental oxygen may be given, preferably with a physicians advice. Get medical attention immediately. INGESTION: Immediately give several glasses of water. Do not induce vomiting. Get medical attention.

MATERIAL SAFETY DATA SHEET – AM-66 INDUSTRIAL MICROBIOCIDE

Section VI – Reactivity Data

Stability | Unstable (x) If heated above 165C
| Stable
| Conditions to avoid – N/A

Incompatibility –Organic materials.

Hazardous decomposition products: Chlorine and Bromine gases

Hazardous Polymerization -- | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Do not touch spilled material. WET SPILL: Deactivate with dilute sodium bisulfate or sodium thiosulfate at pH > 7, and flush away with water in accordance with local wastewater ordinances. Deactivate and neutralized spills may also be absorbed with sand and treated as a dry spill. DRY SPILL: Shovel into clean, dry container; deactivate area.

Waste Disposal Method: Dispose of in accordance with your local, state and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection -- None under normal conditions. Dry dust masks, full face masks with Wilson G-S canisters; or self-contained breathing apparatus, depending on dust levels of the process.

Ventilation -- Local exhaust preferred to control dust.

Protective Gloves: Use Impervious gloves.

Eye Protection -- Chemical safety goggles

Other: Safety shower and eye bath

Section IX – Special Precautions

Precautions to be taken in Handling and Storing –Avoid breathing dust. Store in a cool, dry place, isolated from all organic material. Product is a strong oxidizer and is corrosive. Avoid heat and direct sunlight.

Other: NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock as well as oxygen and measures to support breathing manually or mechanically may be needed. If persistent, convulsions may be controlled by the cautious intravenous injection of a short acting barbiturate drug.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use or misuse are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: September, 2006

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: AM-714 MICROBIOCIDE

Chemical Name and Synonyms:

Proper Shipping Name: Corrosive Liquid, Acidic, Organic, NOS (contains Glutaraldehyde)

Hazard Class: 8 Health = 3

ID Number: UN3265 Fire = 1

Label Requirement: Corrosive Reactivity = 0

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
Glutaraldehyde CAS #111-30-8	14.0%	
Water CAS #7732-18-5	<= 83.0%	
Quaternary ammonium compounds, benzyl-C12-16-Alkyldimethyl, chlorides CAS #68424-85-1	2.5%	
Methanol CAS #67-56-1	<= 0.14%	
Ethanol CAS #64-17-5	>= 0.3%	

Section III – Physical Data

Boiling Point – 212°F

Solubility in Water – Complete

Specific Gravity – 1.035

Appearance and Odor --Transparent pale yellow – fruity odor

pH (1% solution) – 3.1 – 4.5

Section IV – Fire and Explosion Hazard Data

Flash Point – Non-Flammable

Extinguishing Media – Use water fog, carbon dioxide, dry chemical or foam

Special Fire fighting procedures – Isolate fire and deny unnecessary entry. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain the fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the “Accidental Release Measures” and the “Ecological Information” sections of this MSDS.

Unusual Fire and Explosion Hazards – Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant section.

Section V – Health Hazard Data

Threshold Limit Value – Not established

Effects of Overexposure – EYES: May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur. Vapor may cause eye irritation experienced as mild discomfort and redness. SKIN: Brief contact may cause skin burns. Symptoms may include pain, severe local redness and tissue damage. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Skin contact may cause an allergic skin reaction in a small proportion of individuals. Based on information for component(s): Has caused allergic skin reactions when tested in guinea pigs. Has demonstrated the potential for contact allergy in mice. INHALATION: Vapor may cause severe irritation of the upper respiratory tract (nose and throat). Vapor from heated material may cause serious adverse effects, even death. Case reports and medical surveys link asthma and respiratory irritation to glutaraldehyde exposure, primarily in medical personnel. Asthma-like symptoms may occur in people prone to respiratory disorders or other allergies. Asthma-like symptoms may include coughing, difficult breathing and a feeling of tightness in the chest. Occasionally, breathing difficulties may be life threatening. May cause allergic respiratory response in a small proportion of individuals. INGESTION: Low toxicity if swallowed. Swallowing may result in irritation or burns of the mouth, throat, and gastrointestinal tract. Swallowing may result in irritation or ulceration. Excessive exposure may cause: Headache, Dizziness, Anesthetic effects, drowsiness, unconsciousness and other central nervous system effects. Aspiration to the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Emergency and First Aid Procedures: EYES: Immediately flush eyes with large quantities of water for a 30 minute period, periodically lifting upper and lower lids to ensure washing of the entire surface. Seek medical attention. SKIN: Immediately wash contaminated area with plenty of soap and water. If irritation persists, seek medical attention. INHALATION: Remove person from contaminated area to fresh air. If breathing has stopped, give artificial respiration. Seek medical attention. INGESTION: DO NOT INDUCE VOMITING. Do not give any liquid to the person. Never give anything by mouth to a unconscious person. Seek medical attention.

Section VI – Reactivity Data

Stability | Unstable

| Stable (XX)

| Conditions to avoid: Active ingredients decompose at elevated temperatures.

Incompatibility – Avoid contact with: Amines, Ammonia, Strong Acids, Strong bases, strong oxidizers. Avoid contact with metals such as: Aluminum, carbon steel, copper, iron, mild steel.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials.

Hazardous Polymerization -- | May occur

| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Evacuate area. Keep upwind of spill. Ventilate area of leak or spill. Only trained and properly protected personnel must be involved in clean-up operations. Use appropriate safety equipment. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater.

Avoid making contact with spilled material, glutaraldehyde will be absorbed by most shoes. Always wear the correct protective equipment, consisting of splashproof monogoggles, or both safety glasses with side shields and a wraparound full-face shield, appropriate gloves and protective clothing. A self-contained breathing apparatus or respirator and absorbents may be necessary, depending on the size of the spill and the adequacy of ventilation. Small Spills: Wear the correct protective equipment and cover the liquid with absorbent material.

Collect and seal the material and the dirt that has absorbed the spilled material in polyethylene bags and place in a drum for transit to an approved disposal site. Rinse away the remaining spilled material with water to reduce odor, and discharge the rinsate into a municipal or industrial sewer. Large spills: In case of nasal and respiratory irritation, vacate the room immediately. Personnel cleaning up should be trained and equipped with a self-contained breathing apparatus, or an officially approved or certified full-face respirator equipped with an organic vapor cartridge, gloves and clothing impervious to glutaraldehyde, including rubber boots or shoe protection. Deactivate with sodium bisulfite (2-3 parts (by weight) per part of active substance glutaraldehyde), collect the neutralized liquid and place in a drum for transit to an approved disposal site.

Waste Disposal Method: Dispose of in an approved landfill.

Section VIII – Special Protection Information

Respiratory Protection -- Use an approved air-purifying respirator.

Ventilation: Provide ventilation to maintain airborne concentration below OSHA limitations.

Protective Gloves: Rubber

Eye Protection -- Chemical Safety goggles or face shield

Section IX – Special Precautions

Precautions to be taken in Handling and Storing –Keep out of reach of children. Do not get in eyes, on skin, on clothing. Do not swallow. Avoid prolonged or repeated contact with skin. Avoid breathing vapor. Keep container closed. Use with adequate ventilation. Wear goggles, protective clothing and butyl or nitrile gloves. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Other: Do not spray or aerosolize the undiluted form of this product. Do not store in: Aluminum carbon steel, copper, mild steel or iron.

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MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: CTT COOLING TOWER TABLETS

Chemical Name and Synonyms: Organic/Inorganic Tower Treatment

Proper Shipping Name: Cooling Tower Tablets

Hazard Class: Non-Hazardous

ID Number: None

Health = 2

Label Requirements: None

Fire = 0

Reportable Quantity:

Reactivity = 0

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
Sodium Phosphate CAS #68915-31-1	43.4%	N/D
Sodium Metasilicate CAS #6834-92-0	22.00%	N/D
Synthetic Camphor CAS #76-22-2	4.0 %	N/D
Benzotriazole CAS #95-14-7	1.0%	N/D

Section III – Physical Data

Boiling Point – N/A

Solubility in Water – Soluble

Specific Gravity – Solid

Appearance and Odor -- Blue Tablet / Camphor Odor

Vapor Pressure (mm Hg) - N/D

Melting Point – N/D

Evaporation Rate (Ethyl Acetate = 1) – N/D

Section IV – Fire and Explosion Hazard Data

Flash Point – None

Extinguishing Media – Non-combustible. Use agents appropriate for surrounding fires.

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

Section V – Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: May cause irritation to skin, eyes and respiratory tract. May be harmful if swallowed or inhaled. Many of the systemic effects given below were taken from toxicity information for other phosphates. **INHALATION:** May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath. **EYE CONTACT:** May cause irritation, redness and pain. **SKIN:** May cause skin irritation. **INGESTION:** Phosphates are slowly and incompletely absorbed when ingested, and seldom result in systemic effects. Such effects, however, have occurred. Symptoms may include vomiting, lethargy, diarrhea,

blood chemistry effects, heart disturbances and central nervous system effects. The toxicity of phosphates is because of their ability to sequester calcium. Systemic acidosis may result as this material is believed to hydrolyze into phosphoric acid when ingested. **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Individuals with pre-existing or chronic diseases of the eyes, skin, respiratory system, cardiovascular system, gastrointestinal system, liver, or kidney may have increased susceptibility to excessive exposure.

Emergency and First Aid Procedures: **INHALATION:** If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential. **SKIN:** Immediately wash with soap and water. Remove and wash any contaminated clothing. **EYES:** Flush eyes with large amounts of water for 15 minutes. Get medical attention if irritation persists. **INGESTION:** If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid – None

Incompatibility: Not Known

Hazardous Decomposition Products: N/A

Hazardous Polymerization: | May occur
 | Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is Spilled or released: Sweep up excess material to prevent footing hazard. Discard in trash.

Waste Disposal Method: Waste from this product is not is not considered hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Dispose of in accordance with Federal, State and Local regulation regarding pollution.

Section VIII – Special Protection Information

Respiratory Protection: Normally none required. Use NIOSH/MSHA approved particulate respirator for dust.

Ventilation: Local exhaust: Acceptable

Protective Gloves: Rubber or neoprene

Eye Protection: Face shield or chemical safety goggles

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be Taken in Handling and Storing: Store in a dry place.

Other: Avoid prolonged or repeated contact with skin or clothing.

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MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: HT-1 THERMOGUARD HEAT TRANSFER FLUID

Chemical name and synonyms: Corrosion Inhibitor

Proper Shipping Name: Corrosion Inhibitor

Hazard Class: Non-Hazardous

ID Number: None Required

Health = 1

Label requirements: None Required

Fire = 1

Reportable Quantity:

Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV
None listed

Section III - Physical Data

Boiling Point - N/A

Solubility in water - Complete

Specific Gravity -1.16

Appearance and Odor -- Fluorescent Pink

Evaporation rate-8.3

Section IV - Fire and Explosion Hazard Data

Flash Point - Not combustible

Extinguishing Media - Apply alcohol type or all purpose type foams by manufacturers recommended techniques for large fires. Use water spray, carbon dioxide or dry chemical media for small fires. If a leak or spill has not ignited use a water spray to disperse the vapors and to provide protection for persons attempting to stop the leak.

Special Fire Fighting procedures: Cool exposed containers with water.

Unusual Fire and Explosion Hazards: N/A

Section V - Health Hazard Data

Threshold Limit Value - N/A

Effects of Overexposure: Liquid is irritating to eyes. If swallowed, will cause loss of consciousness.

Emergency and First Aid Procedures: Remove contaminated clothing and shoes. Flush affected area with plenty of water. If in eyes, hold eyelids open and flush with plenty of water. If swallowed, and victim is conscious, have victim drink water or milk and have victim induce vomiting. If swallowed and victim is unconscious or having convulsions, do nothing except keep victim warm.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility – Keep away from heat, sparks, open flames and strong oxidizing conditions. Avoid strong oxidizers, strong acids, permanganates, peroxides, dichromates, reactive sodium compounds, sulfur compounds, alkali metals & nitrates.

Hazardous decomposition products— Carbon Monoxide and carbon dioxide

Hazardous Polymerization: | May occur
 | Will not occur(XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection -- None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation: Maintain adequate ventilation. Local exhaust is dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection: Side shield safety goggles or chemical safety goggles. Do not wear contacts.

Other: Wear rubber apron and rubber boots if possibility of contact during use exists.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing – Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away from heat, sparks and open flame.

Other: Do not transfer to improperly marked containers. Keep container closed when not in use.

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Revised Date: May, 2007

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: ISA-10 ACID CLEANER

Chemical Name and Synonyms: Inorganic Acid

Proper Shipping Name: Sulfamic Acid

Hazard Class: Corrosive (8)

ID Number: UN2967 PG III

Label requirements: Corrosive

Reportable Quantity:

Health = 1
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Row 1: Sulfamic Acid, 90%,

Section III - Physical Data

Boiling Point - N/A
Solubility in water - Complete
Specific Gravity -
Appearance and Odor - Off White crystalline
pH - 1.3

Section IV - Fire and Explosion Hazard Data

Flash Point - Non-Flammable
Extinguishing Media: Water, chemical foam or carbon dioxide
Special Fire fighting procedures: If safe, remove containers from fire area, or wear self-contained breathing apparatus and fully protective gear.
Unusual Fire and Explosion Hazards: Sulfuric dioxide and Sulfur Trioxide may be released in fire. Water solution of sulfamic acid is tronly acidic, run-off from fire may cause water pollution.

Section V - Health Hazard Data

Threshold Limit Value - N/A
Effects of Overexposure: - Can cause eye burns, irritation of nose, throat and skin.
Emergency and First Aid Procedures: EYE: Flush immediately with copious amounts of water (under lids) for 15 minutes. See physician. SKIN: Wash thoroughly with copious amounts of water. INHALATION: Remove to fresh air. Aid in breathing if necessary and call physician. INGESTION: DO NOT INDUCE VOMITING. Drink large amounts of water and call a physician at once.

Section VI – Reactivity Data

Stability | Unstable
| Stable (XX)
| Conditions to avoid – Hazardous reaction in aqueous solution may occur with Chlorine, Hypochlorous Acid, Hypochlorites, Cyanides or Sulfide.

Incompatibility –

Hazardous Decomposition Products—Sulfur Trioxide, Sulfur dioxide, Nitrogen, Sulfuric Acid and ammonia.

Hazardous Polymerization: | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Sweep up spillage and flush area with large amounts of water to waste water treatment system. Neutralize with Alkalies.

Waste Disposal Method: Should be neutralized with Alkalies. Dispose of in accordance with local, state, and federal authorities.

Section VIII – Special Protection Information

Respiratory Protection – NIOSH/MSHA approved respirator for toxic dust.

Ventilation: Maintain TWA for local exhaust. Maintain TWA for mechanical exhaust.

Protective Gloves: Rubber

Eye Protection: Chemical splash goggles, face shield.

Other: Rubber apron, and rubber boots.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Store in dry, cool area. (To prevent caking) Keep away from Cyanides, Sulfides, Chlorine, Hypochlorous Acids or Hypochlorites.

Other: Use with adequate ventilation and maintain good personal hygiene.

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Revised Date: November, 2003

Prepared By: MSDS Coordinator



MATERIAL SAFETY DATA SHEET

ISO-15

Walter Louis Fluid Technologies
530 South 5th St.
Quincy, IL 62301

EMERGENCY TELEPHONE NUMBERS
217-223-2017 - WLFT (weekdays)
800-424-9300 - CHEMTREC (24 Hours)

Date: January 31, 2000

PRODUCT IDENTIFICATION

Other Trade Names: AMA[®]-215, KATHON[®], KTND[®], BUSAN 1078[®]

Active ingredients Formula: C₄H₄CINOS CAS Nos: 26172-55-4/2682-20-4

Chemical Names/Synonyms: 5-chloro-2-methyl-4-isothiazolin-3-one/ 2-methyl-4-isothiazolin-3-one

DOT Shipping Name: Corrosive liquid, acidic organic, NOS , 8, UN 3265, PG II

PHYSICAL DATA (TYPICAL)

Appearance: Pale yellow to green liquid

Odor: Mild aromatic odor

Specific Gravity (H₂O=1): 1.02

pH: 3.2

Solubility In Water: Complete

Boiling Point: 212°F

Viscosity: 3 cps @ 77°F

Vapor Pressure: 17 mm Hg @ 70°F

HAZARDOUS INGREDIENTS

<u>Components</u>	<u>%</u>	<u>TLV</u>
5-chloro-2-methyl-4-isothiazolin-3-one	1.11	Not established
2-methyl-4-isothiazolin-3-one	0.39	Not established
Magnesium Nitrate (CAS 10377-60-3)	~1.75	Not established

FIRE AND EXPLOSION DATA

Flash Point : > 200°F

Extinguishing Media: No fire hazard.

Special Fire Fighting Procedures: Not applicable.

Unusual Fire And Explosion Hazards: None.

HEALTH HAZARD DATA

Effects Of Overexposure: Contact with eyes causes severe irritation and corneal injury. Skin irritation effects, including corrosive burns, may be delayed for hours. Material is a skin sensitizer.

Emergency First Aid Procedures:

Eyes: Flush with plenty of water for at least 15 minutes. Get prompt medical attention.

Skin: Wash thoroughly with soap and water. Remove and wash contaminated clothing before reuse. Get medical attention if irritation develops.

Ingestion: Do not induce vomiting. Drink promptly a large quantity of milk, egg whites, gelatin solution or if these are not available, drink large quantities of water. Avoid alcohol. Call a physician immediately.

Inhalation: Move immediately to fresh air. If not breathing, apply artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Physicians Note: Probable mucosal damage may contraindicate the use of gastric lavage.

REACTIVITY DATA

Stability: Material is stable.

Incompatibility: Nitrates.

Hazardous Decomposition Products: Hydrogen chloride and oxides of sulfur.

Hazardous Polymerization: Will not occur.

SPILL OR LEAK PROCEDURES

Steps To Be Taken In Event Material Is Released Or Spilled: Collect all spilled material. Do not flush directly to watercourses. In industrial facilities, spill residuals may be flushed into sewers from which the discharge is regulated under NPDES (or comparable) permits

Waste Disposal Method: Material is corrosive. Disposal controlled by EPA Resource Conservation and Recovery Act (RCRA D002).

SPECIAL PROTECTION INFORMATION

Specific Personal Protective Equipment:

Eyes: Chemical goggles which are dust- and splash-proof or face shield.

Skin: Impervious clothing, rubber gloves and boots.

Other: Have knowledge of location of nearest safety shower/eye wash.

Ventilation Requirements: Mechanical ventilation is recommended if working with this product in enclosed areas

SPECIAL PRECAUTIONS

Precautions To Be Taken In Handling And Storing: Keep from freezing and temperatures >140°F. Store in a cool well ventilated area.

Other Precautions: Insure containers are tightly closed when not in use.

REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA): All components of this product are listed in the Toxic Substances Control Act inventory.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA): If this product is to be discarded, it is classified as a hazardous waste (D002 - corrosive); as such, it has a reportable quantity of 100 pounds.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA Title III) - Section 311 Hazard Categories:

Acute Health:	Yes
Chronic Health:	No
Fire:	No
Sudden Release of Pressure:	No
Reactive:	No

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA Title III) - Section 313: Components of this product subject to reporting: *Magnesium nitrate (CAS 10377-60-3) as a nitrate compound.*

The information and recommendations contained in this Material Safety Data Sheet have been compiled from sources believed to be reliable and to represent the best opinion on the subject as of the date on this sheet. However, no warranty, guarantee or representation, express or implied, is made by Walter Louis Fluid Technologies as to the correctness or sufficiency of this information or to the results to be obtained from the use thereof.

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: LC-25 CAUSTIC SODA LIQUID 25%

Chemical Name and Synonyms: Sodium Hydroxide Solution

Proper Shipping Name: Sodium Hydroxide Solution

Hazard Class: Corrosive Material

ID Number: UN1824 PG:II

Label requirements: Corrosive

Reportable Quantity:

Health = 3
Fire = 0
Reactivity = 1

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Row 1: Sodium Hydroxide, 25%, 2 MG/M3 - Ceiling

Case # 1310-73-2

Section III - Physical Data

Boiling Point: 288 F
Solubility in Water: Complete
Specific Gravity: 1.28
Appearance and Odor: Clear and colorless
Evaporation Rate: Slower than ether
Vapor Density: Heavier than air
pH (1% solution) - 50%

Section IV - Fire and Explosion Hazard Data

Flash Point: Not applicable
Extinguishing Media:
Special Fire fighting procedures: Wear self-contained breathing apparatus with a full face-piece operated in pressure-demand or other positive pressure mode and full body protective clothing when fighting fires.
Unusual Fire and Explosion Hazards: Can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, ect. To release hydrogen gas which can form explosive mixtures with air.

Section V - Health Hazard Data

Threshold Limit Value: 2 MG/M3 - Ceiling
Effects of Overexposure: EYES: Causes severe damage and even blindness very rapidly. SKIN: Causes burns, possible deep ulceration. BREATHING: Mist can cause damage to nasal and respiratory passages. SWALLOWING: Results in severe damage to mucous membranes and deep tissues.

Emergency and First Aid procedures: SKIN: Immediately flush exposed area with water for at least 15 minutes, get medical attention. Remove contaminated clothing. Launder contaminated clothing before re-use. Discard contaminated shoes. EYES: Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get immediate medical attention. If physician is not immediately available, continue flushing with water. Do not use chemical antidote. IF SWALLOWED: Do not induce vomiting. Vomiting will cause further damage to the throat. Dilute by giving water. Give milk of magnesia. Keep warm and quite. Get medical attention immediately. IF BREATHED: If affected remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped give artificial respiration. Keep person warm, quiet and get medical attention.

Section VI – Reactivity Data

<i>Stability</i>		Unstable
		Stable (X)

Incompatibility – Avoid contact with strong mineral acids, reactive metals such as aluminum and magnesium, organic materials, water, strong organic acids, copper.

Hazardous decomposition products: N/A

Hazardous Polymerization -- | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Small spill: Neutralize and mop up solution. Large spill: Collect and add slowly to large volume of water. Persons not wearing protective equipment should be excluded from area of spill until cleanup is completed. Stop spill at source. Dike to prevent spreading. Pump to salvage tank.

Waste Disposal Method: Small Spill: dispose of in accordance with Local, State, and Federal regulations. Large spill: pour into a large tank of water and neutralize. Flush to drain with large excess of water in accordance with applicable regulations.

Section VIII – Special Protection Information

Respiratory Protection -- If TLV of the product or any component is exceeded, a NIOSH/MSHA jointly approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators under specified conditions.

Ventilation: Provide sufficient mechanical (general and /or local exhaust) ventilation to maintain exposure below TLV(s).

Protective Gloves: Wear resistant gloves such as Neoprene, Nitrite rubber, Polyvinyl Chloride, Polyethylene.

Eye Protection -- Chemical splashes goggles and face shield.

Other: Wear impervious clothing and boots.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: N/A

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use or misuse are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: February, 1998

Prepared By: MSDS Coordinator

-3-

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
 530 South 5th Street, Quincy, IL 62301-4896
 Phone: 217/223-2017
 CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: LC-50 CAUSTIC SODA LIQUID 50%

Chemical Name and Synonyms:

Proper Shipping Name: Sodium Hydroxide Solution

Hazard Class: Corrosive Material

ID Number: UN1824 PG:II Health = 3

Label requirements: Corrosive Fire = 0

Reportable Quantity: Reactivity = 1

Section II – Hazardous Ingredients

Ingredient	Percent	TLV
Sodium Hydroxide	50%	2 MG/M3 – Ceiling

Case # 1310-73-2

Section III – Physical Data

Boiling Point: 288 F

Solubility in Water: Complete

Specific Gravity: 1.525

Appearance and Odor: Clear and colorless

Evaporation Rate: Slower than ether

Vapor Density: Heavier than air

pH (1% solution) –

Section IV – Fire and Explosion Hazard Data

Flash Point: Not applicable

Extinguishing Media:

Special Fire fighting procedures: Wear self-contained breathing apparatus with a full face-piece operated in pressure-demand or other positive pressure mode and full body protective clothing when fighting fires.

Unusual Fire and Explosion Hazards: Can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, ect. To release hydrogen gas which can form explosive mixtures with air.

Section V – Health Hazard Data

Threshold Limit Value: 2 MG/M3 - Ceiling

Effects of Overexposure: EYES: Causes severe damage and even blindness very rapidly. SKIN: Causes burns, possible deep ulceration. BREATHING: Mist can cause damage to nasal and respiratory passages. SWALLOWING: Results in severe damage to mucous membranes and deep tissues.

Emergency and First Aid procedures: SKIN: Immediately flush exposed area with water for at least 15 minutes, get medical attention. Remove contaminated clothing. Launder contaminated clothing before re-use. Discard contaminated shoes. EYES: Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get immediate medical attention. If physician is not immediately available, continue flushing with water. Do not use chemical antidote. IF SWALLOWED: Do not induce vomiting. Vomiting will cause further damage to the throat. Dilute by giving water. Give milk of magnesia. Keep warm and quite. Get medical attention immediately. IF BREATHED: If affected remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped give artificial respiration. Keep person warm, quiet and get medical attention.

MATERIAL SAFETY DATA SHEET - LC-50 CAUSTIC SODA LIQUID 50%

Section VI – Reactivity Data

Stability		Unstable
		Stable (X)

Incompatibility – Avoid contact with strong mineral acids, reactive metals such as aluminum and magnesium, organic materials, water, strong organic acids, copper.

Hazardous decomposition products: N/A

Hazardous Polymerization -- | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Small spill: Neutralize and mop up solution. Large spill: Collect and add slowly to large volume of water. Persons not wearing protective equipment should be excluded from area of spill until cleanup is completed. Stop spill at source. Dike to prevent spreading. Pump to salvage tank.

Waste Disposal Method: Small Spill: dispose of in accordance with Local, State, and Federal regulations. Large spill: pour into a large tank of water and neutralize. Flush to drain with large excess of water in accordance with applicable regulations.

Section VIII – Special Protection Information

Respiratory Protection -- If TLV of the product or any component is exceeded, a NIOSH/MSHA jointly approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators under specified conditions.

Ventilation: Provide sufficient mechanical (general and /or local exhaust) ventilation to maintain exposure below TLV(s).

Protective Gloves: Wear resistant gloves such as Neoprene, Nitrite rubber, Polyvinyl Chloride, Polyethylene.

Eye Protection -- Chemical splashes goggles and face shield.

Other: Wear impervious clothing and boots.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Never store in unmarked containers.

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Revised Date: November, 2003

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: PAC-50

Chemical Name and Synonyms: Flocculent

Proper Shipping Name: Flocculent

Hazard Class: Non-Hazardous

ID Number: N/A

Label requirement: None

Reportable Quantity:

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
None Listed		

Section III – Physical Data

Boiling Point – ^N 100

Solubility in water: Complete

Specific Gravity – 1.34

Appearance and Odor -- Clear colorless liquid with no odor

pH(1%) – 4.5

Section IV – Fire and Explosion Hazard Data

Flash Point – None

Extinguishing Media – Non-Flammable Liquid

Special Fire Explosion Hazards – A self-contained breathing apparatus should be worn by fire fighting personnel.

Unusual Fire and Explosion Hazards – N/A

Section V – Health Hazard Data

Threshold Limit Value – 2 MG/m3

Effects of Overexposure: Repeated or prolonged exposure may cause skin and eye irritation. Highly toxic if swallowed.

Emergency and First Aid Procedures – *Skin:* Remove contaminated clothing. Wash skin with soap and water for 5 minutes. *Eyes:* Flush eyes with copious amounts of water for at least 15 minutes.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)
 | Conditions to avoid:

Incompatibility: Avoid contact with alkalis. Precipitates aluminum hydroxide.

Hazardous Decomposition Products: At temperatures > 500 F, Hydrogen Chloride gas will be liberated.

Hazardous Polymerization | May occur
 | Will not occur (XX)

Section VII – Spill or leak Procedure

Steps To Be Taken In Case of Material Spilled or Released: Dike and absorb spill with inert material such as sand, earth, or vermiculite and transfer to a suitable container for disposal. Flush area with water.

Waste Disposal Method: Incinerate in a furnace or bury in an approved landfill according to state, local regulations. Dispose of as a hazardous waste in accordance with local, state and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection -- None required in normal use.

Ventilation -- Local exhaust is preferred

Protective Gloves: Rubber

Eye Protection -- Face shield or chemical safety goggles

Other: Rubber apron and rubber boots

Section IX – Special Precautions

Precautions to be taken in Handling and Storing – Keep container closed when not in use. Wash hands thoroughly after handling chemical.

Other:

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MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: SULFURIC ACID

Chemical Name and Synonyms: Sulfuric Acid

Proper Shipping Name: Sulfuric Acid

Hazard Class: Corrosive Material (8)

ID Number: UN 1830 PG-II

Label requirements: Corrosive

Reportable Quantity:

Health = 3

Fire = 0

Reactivity = 2

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Rows include Hydrogen Sulfate (93%, OSHA 1 mg/m3) and Water (7%, AOGIH 1 mg/m3).

Section III - Physical Data

Boiling Point -279 C

Solubility in water - Complete

Specific Gravity -H2O=1 - 1.84

Appearance and Odor -- Colorless to light brown oily liquid. Odorless

Vapor Pressure @ 20 C essentially 0

Section IV - Fire and Explosion Hazard Data

Flash Point - N/A Flammable Limits: LEL * UEL *

Extinguishing Media - Dry chemical or carbon dioxide. Do not add water or other liquid to acid. Explosive hydrogen gas can be generated inside metal drums or storage tanks.

Special Fire fighting procedures: Wear full protective clothing. Wear self-contained breathing equipment.

Unusual Fire and Explosion Hazards: Cool exterior of storage tanks and drums of H2SO4 with water if exposed to fire to avoid rupture. Do not get water or other liquids in acid.

Section V - Health Hazard Data

Threshold Limit Value - 1 mg/m3

Effects of Overexposure - INHALATION: Inhalation of fumes or mist can result in irritation or burns to the upper respiratory tract and lungs. Pulmonary edema can also occur. Ingestion of this material will burn the mouth, throat and stomach and can cause death. Eye or skin contact will result in serious burns and may cause blindness.

Chronic Overexposure: Erosion of the teeth, mouth inflammation, tracheobronchitis, and conjunctivitis and skin lesions.

Medical conditions generally aggravated by this material: Chronic respiratory disease.

This material is considered to be carcinogenic by: NTP? NO IARC? NO OSHA? NO

Emergency and First Aid Procedures - EYE CONTACT: Immediately flush eyes with a large amount of water. Remove clothing while under the safety shower. Call a physician immediately. INHALATION: Remove to fresh air. If breathing has stopped, perform artificial respiration. Call a physician immediately. INGESTION: Do not induce vomiting. If conscious, give several glasses of milk or water. Call a physician immediately. NOTE: Pulmonary edema may occur-monitor patient.

MATERIAL SAFETY DATA SHEET – SULFURIC ACID

Section VI – Reactivity Data

Stability | Unstable
| Stable (XX)
| Conditions to avoid –

Incompatibility – With water, alkaline solutions, metals and strong oxidizing, reducing or combustible materials.

Hazardous Decomposition Products -- Contact with cyanides, carbides and sulfides will produce hazardous gases. Sulfuric acid will release sulfur dioxide at extremely high temperatures.

Hazardous Polymerization: | May occur
| Will not occur (X)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Neutralize with soda ash or lime. Adding soda ash will produce carbon dioxide – maintain adequate ventilation. Keep out of sewer.

Waste Disposal Method: Recover acid if possible. Dispose of in accordance with federal, state and local laws and regulations.

Other: This material was reported on the initial TSCA inventory.

Section VIII – Special Protection Information

Respiratory Protection -- When required use a NIOSH/MSHA approved respirator, elevated exposures may require the use of self-contained breathing equipment.

Ventilation: Use ventilation to maintain exposure levels of sulfuric acid mist or vapors within the OSHA limit.

Protective Gloves: Wear acid-resistant gauntlet gloves

Eye Protection: Wear chemical safety goggles and full-face plastic shield. For increased protection use supplied air acid hood. Do not wear contacts.

Other: Wear acid-resistant apron, protective clothing, boots and gauntlet gloves for routine use. Acid-resistant trousers and jacket will provide increased protection. Maintain eyewash fountains and safety showers where sulfuric acid is used or stored.

Section IX – Special Precautions

Precautions to be taken in Handling and storing: Vent metal containers weekly or move frequently in hot weather to prevent hydrogen gas build up. Store in a cool, ventilated area away from combustibles and reactive chemicals.

Other: Keep container closed when not in use.

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Revised Date: February, 1998

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: THERMAL-GUARD FG
Chemical name and synonyms: THERMAL-GUARD FG
Proper Shipping Name: Inhibited Propylene Glycol
Hazard Class: None
ID Number: None
Label requirements: None Required
Reportable Quantity:

Health = 1
Fire = 0
Reactivity = 0

Section II - Hazardous Ingredients

Ingredient Percent TLV
None listed

Section III - Physical Data

Boiling Point - N/A
Solubility in water - Complete
Specific Gravity -1.04
Appearance and Odor -- Clear - faint organic odor
Evaporation rate-7.6

Section IV - Fire and Explosion Hazard Data

Flash Point - 218 F
Extinguishing Media: Water fog, alcohol foam, CO2, dry chemical
Special Fire fighting procedures: Wear positive pressure self-contained breathing apparatus
Unusual Fire and Explosion Hazards: N/A

Section V - Health Hazard Data

Threshold Limit Value - N/A
Effects of Overexposure: - EYE: May cause slight transient (temporary) eye irritation. Corneal injury is unlikely. SKIN CONTACT: prolonged contact is essentially non-irritating to skin. Repeated exposure may cause slight flaking, tenderness, and softening of the skin. SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. INGESTION: Single dose oral toxicity is low. No hazards anticipated from ingestion. INHALATION: A single prolonged (hours) inhalation exposure is not likely to cause adverse effects. Mists are not likely to be hazardous. SYSTEMIC & OTHER EFFECTS: Repeated excessive ingestion may cause central nervous system effects. Did not cause cancer in long-term animal studies. Birth defects are unlikely. Exposures having no adverse effects on the mother should have no effects on the fetus. In animal studies, has been shown not to interfere with reproduction. Results of in vitro ("TEST TUBE") mutagenicity tests have been negative. Results of mutagenicity tests in animals have been negative.
Emergency and First Aid Procedures: EYES: Irrigate immediately with water for at least 15 minutes. SKIN: Wash off in flowing water or shower. INGESTION: No adverse effects anticipated by this route of exposure. INHALATION: No adverse effects anticipated by this route of exposure incidental to proper industrial handling. NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –

Incompatibility—Oxidizing material.

Hazardous decomposition products—Propionaldehyde, carbon monoxide in the presence of limited oxygen in a fire situation.

Hazardous Polymerization: | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: SMALL SPILL: Cover with absorbent material, soak up and sweep into a drum. LARGE SPILLS: Dike around spill and pump into suitable containers.

Waste Disposal Method: Re-process or burn in an approved incinerator in accordance with all federal, state, and local requirements.

Section VIII – Special Protection Information

Respiratory Protection -- When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator.

Ventilation: Good general ventilation should be sufficient.

Protective Gloves: Use impervious gloves when prolonged or frequently repeated contact should occur.

Eye Protection: Use safety glasses. Where contact with liquids is likely, chemical goggles are recommended because eye contact with this material may cause pain, even though it is unlikely to cause injury.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing – Exercise reasonable care and caution.

Other: Do not transfer to improperly marked containers.

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Revised Date: 10/2001

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

(Prepared According to 29 CFR 1910.1200)

PRODUCT NAME:**VEROX-8****Stabilized Chlorine Dioxide****SECTION I - GENERAL INFORMATION**

Manufacturer/Supplier Name: Phone: 603-773-5024

The Verox Group, LLC Emergency: 603-773-5685
 1220 Market Street, Suite 606
 Wilmington, DE 19801

Date prepared: 4/1/01

SECTION II - COMPONENT INFORMATION

<u>Chemical Name</u>	<u>CAS REG. NO.</u>	<u>PERCENT</u>	<u>LD₅₀</u>	<u>LC₅₀</u>
Stabilized Chlorine Dioxide	10049-04-4	8%	N/E	N/E

SECTION III - PHYSICAL PROPERTIES

FREEZE POINT (°C): -3 pH (25°C): 11.8

SPECIFIC GRAVITY(25°C):1.056 min. EVAPORATION RATE (BuAC=1): 1

VAPOR PRESSURE (mmHg) @ 25°C: 0.03 SOLUBILITY IN WATER: Complete

APPEARANCE & ODOR: Liquid, Pale Yellow, Odorless

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (COC): None when diluted.

FLAMMABLE LIMITS: LOWER: N/E UPPER: N/E

EXTINGUISHING MEDIA: Foam, CO₂.

SPECIAL FIREFIGHTING PROCEDURES: Wear a self-contained breathing apparatus with personal protective equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Contamination with other materials such as acids, toxic chlorine, organic chemicals, etc. may cause a chemical reaction.

SECTION V - REACTIVITY DATA

STABILITY: Stable.

INCOMPATIBILITY: Strong acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Contamination with other materials may cause a chemical reaction.

SECTION VI - HEALTH HAZARDS

ROUTE (S) OF ENTRY: EYE: ✓ INHALATION: ✓ SKIN: ✓ INGESTION: ✓

EYE: Irritant to the eyes, causes burns.
INHALATION: Can cause headache, nausea.
SKIN: Slight irritant when overexposure occurs.
INGESTION: Causes severe burns to the lungs.

SECTION VII - EMERGENCY AND FIRST AID PROCEDURES

EYE: Flush with plenty of water for at least 15 minutes. Call a physician.
INHALATION: Move victim to fresh air.
SKIN: Wash affected areas with soap and water for at least 15 minutes. If irritation persists, call a physician. Wash clothing before re-use.
INGESTION: DO NOT INDUCE VOMITING. Promptly drink a large quantity of water. Call a physician.

SECTION VIII - SPECIAL PROTECTION

RESPIRATORY PROTECTION: None required under normal use conditions.
VENTILATION REQUIREMENTS: Adequate local exhaust. Specific needs should be addressed by supervisory or health/safety personnel.
PROTECTIVE GLOVES: Neoprene.
EYE PROTECTION: Safety glasses with chemical splash goggles, face shield.
OTHER PROTECTIVE CLOTHING: Apron, coveralls, foot coverings as needed.

SECTION IX - SPILL OR LEAK HANDLING PROCEDURES

STEPS TO BE TAKEN IF RELEASED OR SPILLED: Dilute with a large quantity of water. Do not allow liquid to dry because this could present a fire hazard. In case of contamination, do not reseal container. Isolate in an open, well-ventilated area.

WASTE DISPOSAL METHODS: Dispose of in an approved waste facility according to Federal, State and Local regulations.

SECTION X - HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

OXIDIZER! CORROSIVE! Handle with care. Store in closed container in well-ventilated area.

SECTION XI - TRANSPORTATION INFORMATION

Hazard Class or Division: 8

Identification: UN-1908

Label Codes: 8

The health hazards given on the Material Safety Data Sheet apply to this product in its concentrated form (as supplied) and may differ significantly at use dilution. The signs and symptoms of overexposure apply only to negligence in handling or misuse of the concentrated product and not to the routine exposure to the diluted product under conditions of ordinary use.

The Verox Group, LLC. (TVG) warrants that the product or products described herein will conform with its published specifications. The products supplied by TVG and information related to them are intended for use by buyers having necessary industrial skill and knowledge. Buyers should undertake sufficient verification and testing to determine the suitability of the TVG materials for their own particular purpose. Since buyer's conditions of use of product are beyond TVG control, TVG does not warrant any recommendations and information for the use of such products. TVG disclaims all other warranties including the implied warranty of merchantability and fitness for any particular purpose in connection with the use of its products.

EXHIBIT F**METHOD OF PERFORMANCE**

WLFT will present a written plan for performing the requirements specified in this Request for Proposal. In presenting such information, WLFT will specifically address each of the following issues:

1. WLFT's plan for removing and disposing of all empty delivery/shipping drums and containers every thirty (30) calendar days, in compliance with all regulations and laws promulgated in the State of Missouri Department of Natural Resources, Department of Health and Senior Services, and other applicable state, local, and federal agencies. The plan should include, but not be limited to, documented identification of all chemical containers to be shipped, used, and disposed of during a year, including construction type, size, contents, and DOT designation and specific unit identification.

WLFT Policy & Procedure for Tracking all Containers for RFP: B3Z14153

Every container (drums and barrels) remains property of WLFT. Every container leaving the possession of WLFT Staff will be monitored through our *Container Delivery and Retrieval* process (CDR). This means that all drums and barrels dropped off at each location are accounted for through careful attention to the CDR Form that is filled out by a delivery driver each and every time that containers are handled (SEE ATTACHED FORM: CDR). There will be a quarterly meeting between the Contract Manager and the state agency's Service Level Manager(s). At this meeting, the exact number of containers used during the process will be accounted for and the final destination of those containers will be exacted as well.

The CDR form is kept with all shipping papers and is further documented electronically by the Director of Operations after each delivery to each location. Such it is that at any time, upon request, WLFT will have knowledge with respect to the number of containers in any facility and how many have been retrieved at any given moment. The WLFT Security Plan states that all handling of containers must adhere to updated applicable laws and regulations by both the E.P.A and OSHA.

It is important to note that only WLFT will be handling both the drop-off and the pickup of all containers regardless if they reside inside the facility or on the delivery truck. The truck uses a lift gate regardless of weight and proper PPE is used during the handling process.

Moreover, all containers that are brought back to WLFT after use are properly cleaned outside and inside the container. Mild detergents are used to clean the containers and are also triple-rinsed and de-labeled before being sent to a recycling center based in Quincy, Illinois. At this facility, the container is shredded and recycled.

3. Provide examples of the test procedure manual and water treatment program manual.
Please reference Water Treatment Manual separate submittal
4. Outline the proposed training for state agency facility personnel.
Please reference documents in the appendix
5. Provide a description of the laboratory facilities that will be available.
5) LABORATORY SERVICES:

EPA Approved Water Analysis Utilizing:

- UV Visible Spectrophotometer Analysis
- Atomic Adsorption
- Standard Wet techniques. Deposit analysis

utilizing:

- Using ICP Spectrophotometers
- Gravimetric extractions
- Microscopy. Microbiological

Analysis:

- Standard Plate Counts
- Slime deposit analysis
- ATP counts. Corrosion

Analysis:

- Testing
- Measurement
- Corrosion Coupon Studies

Additional Laboratory & Field Capabilities:

Differential polarization analysis

Fuel Oil Analysis.

“WATER CYCLE” Predictive Modeling

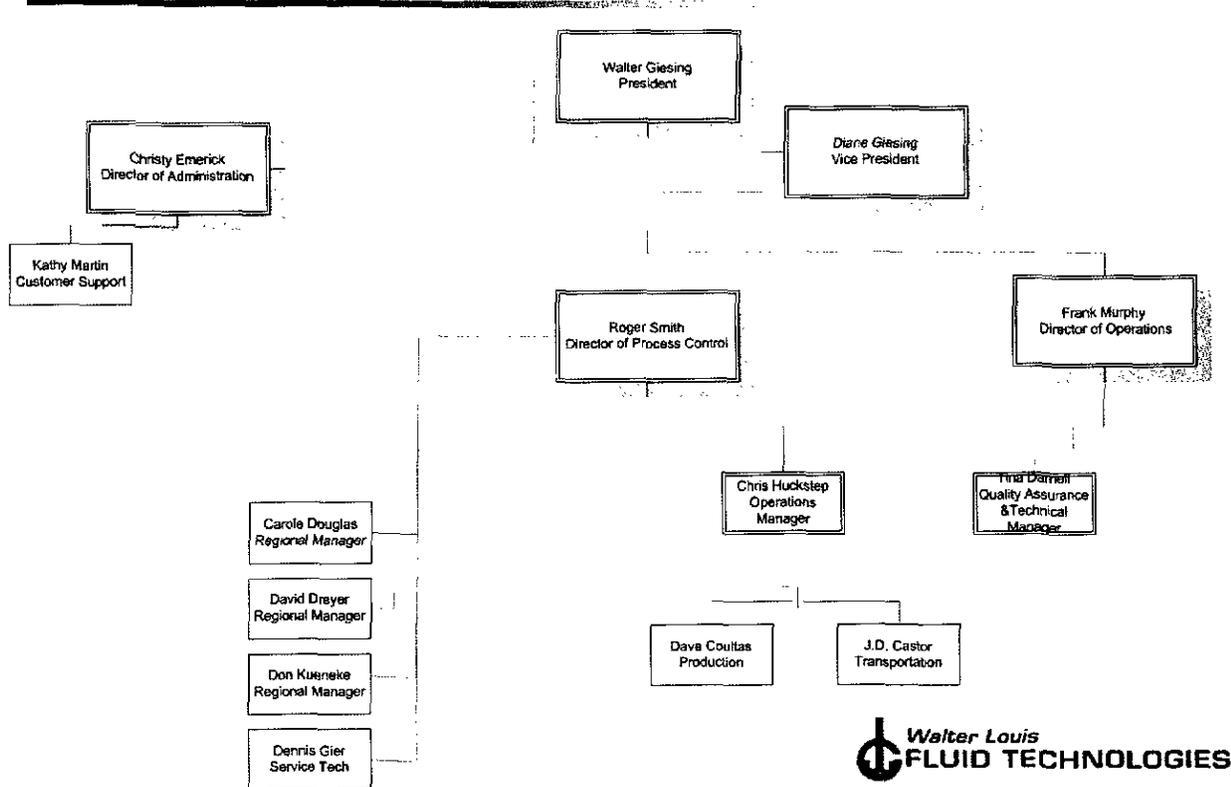
Pilot Cooling Towers for product development

Ultrasonic Pitting Analysis

Non Invasive Flow Metering/Measurement

6. Organizational Chart - WLFT will provide an organizational chart showing the staffing and lines of authority for the key personnel to be used. The organizational chart should include (1) The relationship of service personnel to management and support personnel, (2) The names of the personnel and the working titles of each, and (3) Any proposed WLFT subs including management, supervisory, and other key personnel.
 - The organizational chart should outline the team proposed for this project and the relationship of those team members to each other and to the management structure of WLFT 's organization.

Organizational Chart



7. Along with a detailed organizational chart, WLFT will describe the following:
 - How services of the contract will be managed, controlled, and supervised in order to ensure satisfactory contract performance.
 - Total Personnel Resources - WLFT will provide information that documents the depth of resources to ensure completion of all requirements on time and on target. If WLFT has other ongoing contracts that also require personnel resources, WLFT should document how sufficient resources will be provided to the State of Missouri.

WLFT has no other contracts that would interfere with the execution of the Missouri OA Facilities contract. WLFT has been executing this contract for 16 years and this contract has been a major priority in the lives of every Walter Louis employee since 1998. We throw every resource we have into this contract. We have designated areas in our Plant, Shop, Office, and Lab for the entire contract. We specifically hired the Field Reps we have in order to execute this contract. Every time OA

amends the contract and makes it bigger, we increase our resources to meet demand. We even hire more people when its necessary and we fire people who don't execute this contract to near perfection. The depth of resources it takes to execute this contract are immense. However, in 16 years of providing service, we have only improved with time. That is why our current Quarterly Reports are solid and that is why the people at the top of the MO Office of Administration love working with us. You can ask any member of the OA team about how they feel about working with Walter Louis Fluid Technologies. The answer will be positive. We have strict policies with our delivery program. We are almost never late. We almost never have product imperfections. We have a 97% perfection record internally in terms of Quality of product and we have a 99% perfection record in terms of Quality of Product outside WLFT. Our resources are vast. We own our own trucks and equipment. We take enormous pride in our ability to service the entire state of Missouri. We have zero debt. We are a thriving full service water treatment facility and it makes us personally very happy to associate ourselves with the 100 facilities we currently service in the state of Missouri.

8. Economic Impact to Missouri - WLFT will describe the economic advantages that will be realized as a result of WLFT performing the required services. WLFT will respond to the following:
- Provide a description of the proposed services that will be performed and/or the proposed products that will be provided by Missourians and/or Missouri products.
 - Provide a description of the economic impact returned to the State of Missouri through tax revenue obligations.
 - Provide a description of the company's economic presence within the State of Missouri (e.g., type of facilities: sales offices; sales outlets; divisions; manufacturing; warehouse; other), including Missouri employee statistics.

Walter Louis Fluid Technologies (WLFT) has provided water treatment services to the State Missouri for nearly 20 years. This has included delivery of products as well as on site testing and consultation. Three primary service representatives as well as two office staff are residents of Missouri. In addition, all of WLFT's major raw material providers are headquartered in or have production or warehouse facilities within the State of Missouri. These include V.L Clark Co. Vertex Chemical, Harcross Chemical, Brentag Chemical, and Buckman Labs.

WLFT has a large customer base in the State of Missouri. All products are delivered on WLFT trucks generating significant fuel tax revenue. Walter Louis Fluid Technologies has three sales Offices and two employees residing in Missouri as well as the large amount of business conducted within Missouri. This combination of employee tax contribution and business generated revenue amount to a significant tax revenue to the State of Missouri. Walter Louis is currently doing site search to expand our production and distribution, in the State of Missouri.

EXHIBIT G
PARTICIPATION COMMITMENT

Minority Business Enterprise/Women Business Enterprise (MBE/WBE) and/or Organization for the Blind/Sheltered Workshop and/or Service-Disabled Veteran Business Enterprise (SDVE) Participation Commitment – If WLFT is committing to participation by or if WLFT is a qualified MBE/WBE and/or organization for the blind/sheltered workshop and/or a qualified SDVE, WLFT must provide the required information in the appropriate table(s) below for the organization proposed and must submit the completed exhibit with WLFT 's proposal.

For Minority Business Enterprise (MBE) and/or Woman Business Enterprise (WBE) Participation, if proposing an entity certified as both MBE and WBE, WLFT must either (1) enter the participation percentage under MBE or WBE, **or** must (2) divide the participation between both MBE and WBE. If dividing the participation, do not state the total participation on both the MBE and WBE Participation Commitment tables below. Instead, divide the total participation as proportionately appropriate between the tables below.

MBE Participation Commitment Table		
<i>(The services performed or the products provided by the listed MBE must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract.)</i>		
Name of Each Qualified Minority Business Enterprise (MBE) Proposed	Committed Percentage of Participation for Each MBE (% of the Actual Total Contract Value)	Description of Products/Services to be Provided by Listed MBE <i>WLFT should also include the paragraph number(s) from the RFP which requires the product/service the MBE is proposed to perform and describe how the proposed product/service constitutes added value and will be exclusive to the contract.</i>
1. NONE	%	Product/Service(s) proposed: ----- RFP Paragraph References:
2.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
3.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
4.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
Total MBE Percentage:	%	

EXHIBIT G (continued)
PARTICIPATION COMMITMENT

WBE Participation Commitment Table		
<i>(The services performed or the products provided by the listed WBE must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract.)</i>		
Name of Each Qualified Women Business Enterprise (WBE) proposed	Committed Percentage of Participation for Each WBE (% of the Actual Total Contract Value)	Description of Products/Services to be Provided by Listed WBE <i>WLFT should also include the paragraph number(s) from the RFP which requires the product/service the WBE is proposed to perform and describe how the proposed product/service constitutes added value and will be exclusive to the contract.</i>
1. V.L. Clark Chemical Co., Inc.	5%	Product/Service(s) proposed: Water Treatment Chemicals ----- RFP Paragraph References:
2.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
3.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
4.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
Total WBE Percentage:	5%	

EXHIBIT G (continued)
PARTICIPATION COMMITMENT

Organization for the Blind/Sheltered Workshop Commitment Table		
<i>(The services performed or the products provided by the listed Organization for the Blind/Sheltered Workshop must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract.)</i>		
Name of Organization for the Blind or Sheltered Workshop Proposed	Committed Participation (\$ amount or % of total value of contract)	Description of Products/Services to be Provided by Listed Organization for the Blind/Sheltered Workshop <i>WLFT should also include the paragraph number(s) from the RFP which requires the product/service the organization for the blind/sheltered workshop is proposed to perform and describe how the proposed product/service constitutes added value and will be exclusive to the contract.</i>
1. None		Product/Service(s) proposed: Office Supply Products, Cleaners, etc. ----- RFP Paragraph References:
2.		Product/Service(s) proposed: ----- RFP Paragraph References:

SDVE Participation Commitment Table		
<i>(The services performed or the products provided by the listed SDVE must provide a commercially useful function related to the delivery of the contractually-required service/product in a manner that will constitute an added value to the contract and shall be performed/provided exclusive to the performance of the contract.)</i>		
Name of Each Qualified Service-Disabled Veteran Business Enterprise (SDVE) Proposed	Committed Percentage of Participation for Each SDVE (% of the Actual Total Contract Value)	Description of Products/Services to be Provided by Listed SDVE <i>WLFT should also include the paragraph number(s) from the RFP which requires the product/service the SDVE is proposed to perform and describe how the proposed product/service constitutes added value and will be exclusive to the contract.</i>
1. NONE	%	Product/Service(s) proposed: ----- RFP Paragraph References:
2.	%	Product/Service(s) proposed: ----- RFP Paragraph References:
Total SDVE Percentage:	%	

EXHIBIT H

DOCUMENTATION OF INTENT TO PARTICIPATE

If the offeror is proposing to include the participation of a Minority Business Enterprise/Women Business Enterprise (MBE/WBE) and/or Organization for the Blind/Sheltered Workshop and/or qualified Service-Disabled Veteran Business Enterprise (SDVE) in the provision of the products/services required in the RFP, the offeror must either provide a recently dated letter of intent, signed and dated no earlier than the RFP issuance date, from each organization documenting the following information, or complete and provide this Exhibit with the offeror's proposal.

- Copy This Form For Each Organization Proposed -

Offeror Name:

WALTER LOUIS FLUID TECHNOLOGIES

This Section To Be Completed by Participating Organization:

By completing and signing this form, the undersigned hereby confirms the intent of the named participating organization to provide the products/services identified herein for the offeror identified above.

Indicate appropriate business classification(s):

 MBE WBE Organization for the Blind Sheltered Workshop SDVE

Name of Organization:

V.L. CLARK CHEMICAL Co. INC.

(Name of MBE, WBE, Organization for the Blind, Sheltered Workshop, or SDVE)

Contact Name:

ANN P. KASTENDIEK

Email:

ANN@VCLARK.COM

Address (if SDVE, provide MO Address):

PO Box 87

Phone #:

636-583-4304

City:

UNION

Fax #:

636-583-5218

State/Zip:

MO 63084

Certification #

W02428

SDVE's Website

Certification

(or attach copy of certification)

Address:

Expiration Date:

1/1/2016

Service-Disabled Veteran's (SDV) Name:

SDV's Signature:

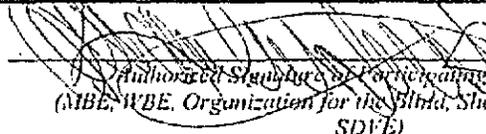
(Please Print)

PRODUCTS/SERVICES PARTICIPATING ORGANIZATION AGREED TO PROVIDE

Describe the products/services you (as the participating organization) have agreed to provide:

CHEMICALS FOR WATER TREATMENT

Authorized Signature:


Authorized Signature of Participating Organization
(MBE, WBE, Organization for the Blind, Sheltered Workshop, or SDVE)

01/13/2014
Date
(Dated no earlier than the RFP issuance date)



State of Missouri
Office of Administration
Office of Equal Opportunity

Doug Nelson
Acting Commissioner of Administration

Celisse Metcalf
Director

This is to certify V. L. Clark Chemical Company, Inc. qualifies as a Woman-Owned Business Enterprise that has met the eligibility criteria established by the State of Missouri, Office of Administration on.

Celisse Metcalf
Celisse Metcalf, Director, Office of Equal Opportunity

Certification Number W02428 Date of Issue 1/8/2013 Date of Expiration 11/2/2016

EXHIBIT I, continued

AFFIDAVIT OF WORK AUTHORIZATION:

WLFT who meets the section 285.525, RSMo, definition of a business entity must complete and return the following Affidavit of Work Authorization.

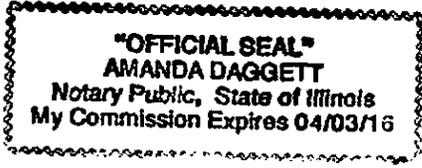
Comes now Walter L. Giesing (Name of Business Entity Authorized Representative) as President (Position/Title) first being duly sworn on my oath, affirm Walter Louis Chemicals & Assoc. (Business Entity Name) is enrolled and will continue to participate in the E-Verify federal work authorization program with respect to employees hired after enrollment in the program who are proposed to work in connection with the services related to contract(s) with the State of Missouri for the duration of the contract(s), if awarded in accordance with subsection 2 of section 285.530, RSMo. I also affirm that Walter Louis Chemicals & Assoc. (Business Entity Name) does not and will not knowingly employ a person who is an unauthorized alien in connection with the contracted services provided under the contract(s) for the duration of the contract(s), if awarded.

In Affirmation thereof, the facts stated above are true and correct. (The undersigned understands that false statements made in this filing are subject to the penalties provided under section 575.040, RSMo.)

<u><i>Walter L. Giesing</i></u> Authorized Representative's Signature	<u>Walter L. Giesing</u> Printed Name
<u>President</u> Title	<u>7/11/2014</u> Date
<u>wgiesing@walterlouis.com</u> E-Mail Address	<u>200950</u> E-Verify Company ID Number

Subscribed and sworn to before me this 11th of July, 2014. I am
(DAY) (MONTH, YEAR)
commissioned as a notary public within the County of Adams, State of
(NAME OF COUNTY)
Illinois, and my commission expires on 4-3-16.
(NAME OF STATE) (DATE)

Amanda Daggett
Signature of Notary
7-11-14
Date





E-VERIFY IS A SERVICE OF DHS

Company ID Number: 200950

To be accepted as a participant in E-Verify, you should only sign the Employer's Section of the signature page. If you have any questions, contact E-Verify at 888-464-4218.

Employer **Walter Louis Chemicals**

Frank J Murphy

Name (Please Type or Print)

Title

Electronically Signed

Signature

03/25/2009

Date

Department of Homeland Security - Verification Division

USCIS Verification Division

Name (Please Type or Print)

Title

Electronically Signed

Signature

03/25/2009

Date

EXHIBIT I, continued

(Complete the following if you have the E-Verify documentation and a current Affidavit of Work Authorization already on file with the State of Missouri. If completing Box C, do not complete Box B.)

BOX C - AFFIDAVIT ON FILE - CURRENT BUSINESS ENTITY STATUS

I certify that Walter Louis Chemicals & Assoc. (Business Entity Name) **MEETS** the definition of a business entity as defined in section 285.525, RSMo pertaining to section 285.530, RSMo and have enrolled and currently participates in the E-Verify federal work authorization program with respect to the employees hired after enrollment in the program who are proposed to work in connection with the services related to contract(s) with the State of Missouri. We have previously provided documentation to a Missouri state agency or public university that affirms enrollment and participation in the E-Verify federal work authorization program. The documentation that was previously provided included the following:

- ✓ The E-Verify Employment Eligibility Verification page OR a page from the E-Verify Memorandum of Understanding (MOU) listing WLFT 's name and the MOU signature page completed and signed by WLFT and the Department of Homeland Security – Verification Division
- ✓ A current, notarized Affidavit of Work Authorization (must be completed, signed, and notarized within the past twelve months).

Name of Missouri State Agency or Public University* to Which Previous E-Verify Documentation Submitted: OA-MO State of Missouri Department of Purchasing

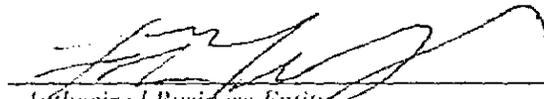
(*Public University includes the following five schools under chapter 34, RSMo: Harris-Stowe State University – St. Louis; Missouri Southern State University – Joplin; Missouri Western State University – St. Joseph; Northwest Missouri State University – Maryville; Southeast Missouri State University – Cape Girardeau.)

Date of Previous E-Verify Documentation Submission: 6/26/2012

Previous Bid/Contract Number for Which Previous E-Verify Documentation Submitted: B2Z09010(if known)

Frank Murphy

 Authorized Business Entity Representative's
 Name (Please Print)



 Authorized Business Entity
 Representative's Signature

Walter Louis Chemicals & Assoc.

 Business Entity Name

7/11/2014

 Date

frank@walterlouis.com

 E-Mail Address

200950

 E-Verify MOU Company ID Number

FOR STATE OF MISSOURI USE ONLY

Documentation Verification Completed By:

 Buyer

 Date

EXHIBIT K

**Certification Regarding
Debarment, Suspension, Ineligibility and Voluntary Exclusion
Lower Tier Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98 Section 98.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988, Federal Register (pages 19160-19211).

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS FOR CERTIFICATION)

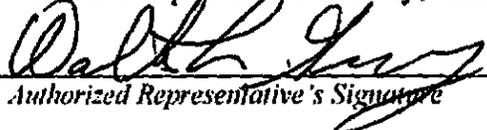
- (1) The prospective recipient of Federal assistance funds certifies, by submission of this proposal, that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Walter Louis Chemicals & Assoc.
Company Name

06-464-7928
DUNS # (if known)

Walter L. Giesing
Authorized Representative's Printed Name

President
Authorized Representative's Title


Authorized Representative's Signature

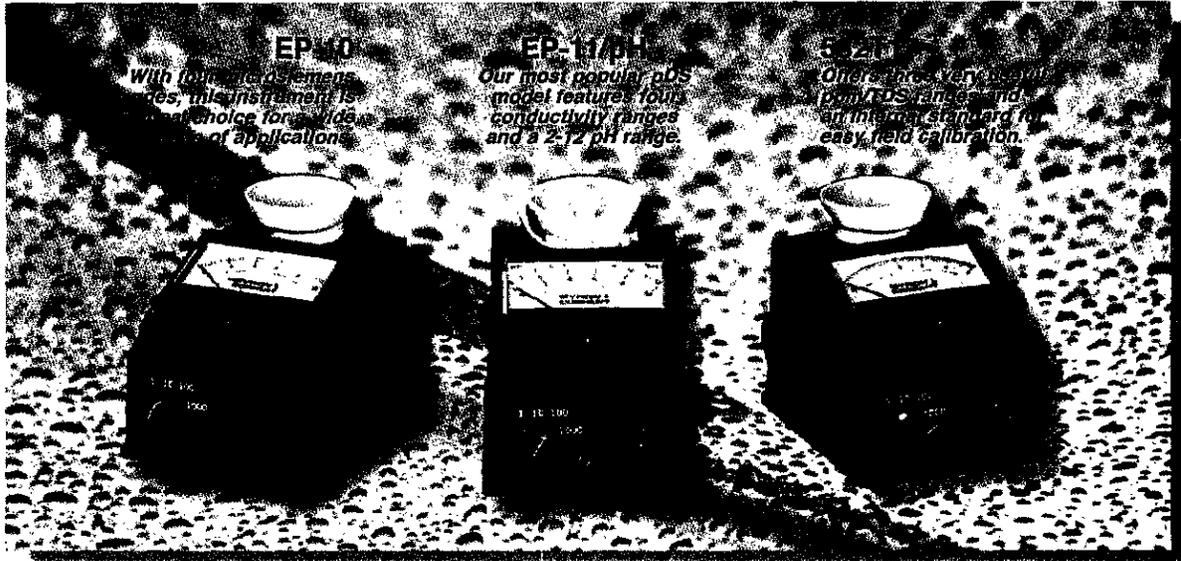
7/11/2014
Date

Instructions for Certification

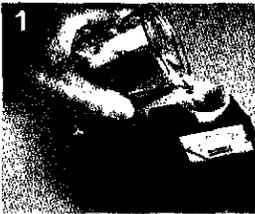
- 1. By signing and submitting this proposal, the prospective recipient of Federal assistance funds is providing the certification as set out below.
- 2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department of Labor (DOL) may pursue available remedies, including suspension and/or debarment.
- 3. The prospective recipient of Federal assistance funds shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- 4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- 5. The prospective recipient of Federal assistance funds agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the DOL.
- 6. The prospective recipient of Federal assistance funds further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- 7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to check the List of Parties Excluded from Procurement or Nonprocurement Programs.
- 8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- 9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the DOL may pursue available remedies, including suspension and/or debarment.

DS and pDS METERS

Conductivity and pH for Professionals



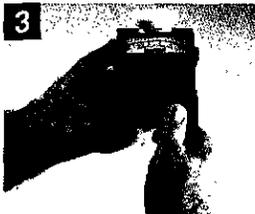
ACCURATE READINGS IN 3 EASY STEPS



1 Rinse and fill cell cup



2 Select conductivity/TDS range



3 Push button, take reading

APPLICATIONS

- Boilers
- Cooling towers
- Deionization
- Reverse osmosis
- Chemical concentrations
- Printing fountain solutions
- Swimming pools
- Water pollution control
- Wastewater

READINGS YOU CAN COUNT ON

No water supply is completely pure. Every industrial, commercial, or natural source contains dissolved solids or salts. These impurities contribute to scale, corrosion, poor taste, and environmental pollution that endanger animal and plant life.

Myron L Company has two proven ways to measure such impurities. Our DS Meters provide fast, accurate, on-the-spot measurement of total dissolved solids (TDS) or conductivity. pDS Meters test conductivity or TDS, plus pH. Readings from their highly stable circuitry help prevent equipment damage, assure product quality, and verify in-line instrumentation in a wide range of applications.

RELIABILITY BUILT IN

Breakage is one of the major causes of sensor failure in a typical pH or conductivity instrument. Myron L instruments provide maximum protection for both the pH and conductivity electrodes inside the cell cup. The user-replaceable pH electrode features a chemical resistant, liquid junction.

UNIQUE FIELD-TESTED DESIGN

Our unique, durable, field-tested design has evolved over more than 40 years, making Myron L instruments among the most reliable and popular of their kind in the world.

They're lightweight and compact. Yet Myron L's DS and pDS Meters are also tough, with rugged, taut-band meter movements.

Put our meters to the test. Even after years of rough field service, they'll surpass your expectations of accurate, reliable readings.

**MYRON L
COMPANY**
Water Quality Instrumentation
Accuracy • Reliability • Simplicity

SPECIFICATIONS

Ranges	Conductivity: 1, 3, 4 or 5 depending on model pH: 2-12 pH (pDS Meters only) (see table below)	Calibration	Conductivity, pH Zero
Readout:	2 1/2" taut-band shock resistant meter	Controls:	and pH Gain
Units of Measure*:	Choice of parts per million (ppm)/TDS or micromhos (μ M) (microsiemens (μ S)) conductivity	Electrodes (built-in):	pH: KCl gel-filled, field replaceable Conductivity: Never need replatinizing
Accuracy	$\pm 2\%$ full scale	Cell Cup:	Chip and crack resistant polyethylene
pH:	± 0.2 pH units	Circuitry:	Very stable; requires minimal recalibration
Repeatability:	$\pm 1\%$	Batteries:	One or two 9 volt batteries supplied; good for 2000 tests/1 year
Temperature Compensation:	Automatic (to 25°C) for conductivity samples between 50° and 160°F (10-71°C)	Dimensions:	3.4"W x 4.5"D x 4.0"H (86 x 114 x 102 mm)
		Weight:	One pound (0.45 kg)

* 1μ M (micromho) = 1μ S (microsiemen)

DS METERS

Model:	512T4*	512M5*	512T5*	512T10*	532M1*	532T1*	532T2*	EP-10	EP	T6/pH*	M6/pH	T2/pH*	EP11/pH
Range (s):	0-2500	0-5000	0-5000	0-10,000	0-50	0-50	0-25	0-10	0-0.5	2-12 pH	2-12 pH	2-12 pH	2-12 pH
					0-500	0-500	0-250	0-100	0-5	0-5000 ppm	0-5000 μ S	0-50 ppm	0-10 μ S
					0-5000	0-5000	0-2500	0-1000	0-50			0-500 ppm	0-100 μ S
								0-10,000	0-500			0-5000 ppm	0-1000 μ S
Units									0-5000				0-10,000 μ S
Measured:	ppm**	μ M	ppm	ppm**	μ M	ppm	ppm	μ M	μ M, MC	pH, ppm	pH, μ M	pH, ppm	pH, μ M
Recommended NIST Standard Solutions: (All pDS Models Also Use 4, 7, 10 pH Buffers)													
Key (see below):	F	G	G	O	B,D,G	B,D,G	A,C,F	K,M,O		B,D,G	G	G	B,D,G K,M,O

* These models feature the Internal Standard for easy field conductivity calibration and range doubling.

** Also available in micromhos

pDS METERS

ACCESSORIES

NIST Standard Solutions & pH Buffers

All Myron L instruments are factory calibrated with standard solutions of known conductivity/



Porta-Kit with EP11/pH

National Institute of Standards and Technology primary solutions. Your instrument will be kept most accurate by periodic recalibration with the appropriate Conductivity Standard Solution and pH Buffers. See the table above for recommendations.



Conductivity & Buffer Solutions

Note: pH 7 buffer is especially important and should be used every 1-2 weeks.

KEY - ORDER # - VALUES

(Specify Quarts or Gallons)

- A 442-15 (15 ppm/24 μ S)
- B 442-30 (30 ppm/47 μ S)
- C 442-150 (150 ppm/229 μ S)
- D 442-300 (300 ppm/445 μ S)
- E 442-1000 (1000 ppm/1417 μ S)
- F 442-1500 (1500 ppm/2060 μ S)*
- G 442-3000 (3000 ppm/3900 μ S)*
- H 442-15,000 (15,000 ppm/16,630 μ S)
- I 442-30,000 (30,000 ppm/30,100 μ S)
- J KCl-18 (11 ppm/18 μ S)
- K KCl-70 (45 ppm/70 μ S)
- L KCl-180 (116 ppm/180 μ S)
- M KCl-700 (478 ppm/700 μ S)
- N KCl-1800 (1294 ppm/1800 μ S)*
- O KCl-7000 (5687 ppm/7000 μ S)*
- P KCl-18,000 (16,462 ppm/18,000 μ S)

pH Buffers

- pH 4* (red)
- pH 7* (yellow)
- pH 10* (blue)
- pH Sensor Storage Solution*

*Available in 2 oz. bottles

Range Extender: Model RE-10 increases the conductivity/TDS range 10 times when inserted into the sample-filled cell cup. Not available for model 512T10.

Porta-Kit: (pDS only). Sturdy foam-lined case with 2 oz. bottles of pH 4, 7 and 10 buffers and conductivity standard solution. (Order Model PK3 for models M6/pH, T2/pH and T6/pH; Model PK7 for model EP11/pH).

Porta-Pak Carrying Case: Model PTP can be used with all DS and pDS meters. Foam-lined and molded of sturdy ABS plastic. No solutions/buffers included.

Replacement pH Sensor: Model RPY is a unique non-refillable KCl gel-filled combination pH electrode, featuring a liquid junction.

NIST Certification: Certificates are available which confirm NIST traceability of an instrument (Order #MC) or standard solution/pH buffer (Order #SC).

Note: Both MC Certificates and/or SC Solution Certificates must be specified when placing instrument/solution orders.

LIMITED WARRANTY: All Myron L DS Meters and pDS Meters have a two-year warranty, excluding the pH sensors, which have a six-month limited warranty. Warranty is limited to the repair or replacement of the DS Meter or pDS Meter only, at our discretion. The Myron L Company assumes no other responsibility or liability.

2450 Impala Drive
Carlsbad, CA 92008-7226 USA
Tel: 760-438-2021
Fax: 800-869-7668 / 760-931-9189
www.myronl.com

Built On Trust. Founded in 1957, the Myron L Company is one of the world's leading manufacturers of water quality instruments. Because of our commitment to product improvement, changes in design and specifications are possible. You have our assurance any changes will be guided by our product philosophy: accuracy, reliability, and simplicity.

Water Quality Instrumentation
Accuracy • Reliability • Simplicity

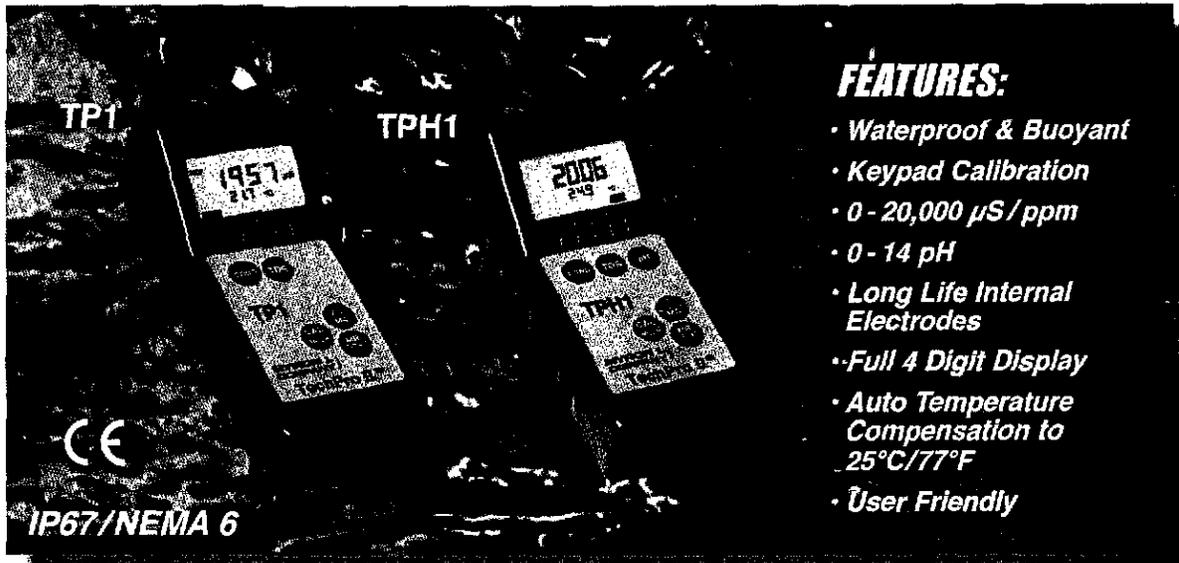


© Myron L Company 2005

DS/pDS/DS 2-05

TECHPRO II™

Measuring Conductivity, TDS, pH and Temperature



FEATURES:

- Waterproof & Buoyant
- Keypad Calibration
- 0 - 20,000 $\mu\text{S/ppm}$
- 0 - 14 pH
- Long Life Internal Electrodes
- Full 4 Digit Display
- Auto Temperature Compensation to 25°C/77°F
- User Friendly

ACCURATE READINGS IN 2 EASY STEPS



1
Rinse and fill cell cup



2
Push button to display reading

APPLICATIONS:

- Boilers & Cooling Towers
- Reverse Osmosis
- Fountain Solutions
- Swimming Pools & Spas
- Plating and Parts Washing
- Pulp and Paper
- Plus many more!

MEASUREMENTS YOU CAN COUNT ON

Obtain reliable and accurate measurements of your water source with the value-priced TechPro II™. Ideal for water treatment testing as well as other industrial and commercial applications, these instruments reflect Myron L's 40-plus years experience designing and building quality conductivity, TDS and pH measuring instrumentation.

PORTABLE & EASY TO USE

The TechPro II is handheld, lightweight and simple to operate. Measuring conductivity, TDS, pH and temperature, the highly stable circuitry



delivers the accurate readings needed to assure product quality, prevent equipment damage or verify in-line instrumentation in a wide range of applications. The TPH1 is designed with an internal pH sensor to prevent breakage and prolong the sensor's useful life. The rugged, waterproof case on both models protects the electronics of the instrument and fits comfortably in your hand. This model also features auto shut-off to prolong battery life.

Industrial and commercial users all over the world rely on Myron L's proven quality instruments for their water measurement needs.

To find out more about TechPro II or locate the Myron L distributor nearest you, visit our website at:

www.myronl.com

**MYRON L
COMPANY**
Water Quality Instrumentation
Accuracy • Reliability • Simplicity

SPECIFICATIONS

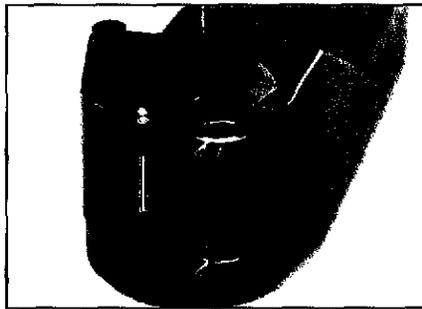
Display	4 Digit Liquid Crystal Display	pH sensor well capacity	1.2 ml/0.04 oz.
Dimensions	196 x 68 x 64 mm/7.7 x 2.7 x 2.5 in.	Power	9V alkaline battery
Weight	320 g/11.2 oz.	Battery life	>100 hours (5000 readings)
Case/Cell material	ABS	Operating/storage Temperature	0 – 55°C/32 – 132°F
Cond/TDS cell capacity	5 ml/0.2 oz.	Protection ratings	IP67/NEMA 6 WATERPROOF

PARAMETERS

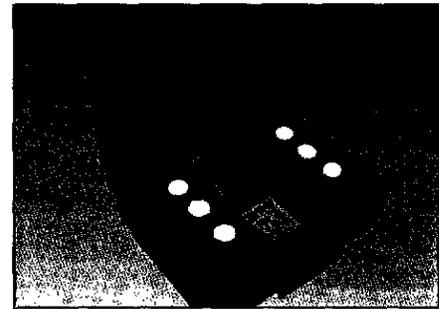
Model	RANGES				ACCURACY		
	Conductivity	TDS	pH	TC - 25°C/77°F	Conductivity/TDS	pH	Temperature Reading
TP1	0 – 9999 μ S 10 – 20.00 mS	0 – 9999 ppm 10 – 20.00 ppt	—	0 – 71°C 32 – 160°F	\pm 1% of reading	—	\pm 0.1°C/F
TPH1	0 – 9999 μ S 10 – 20.00 mS	0 – 9999 ppm 10 – 20.00 ppt	0 – 14	0 – 71°C 32 – 160°F	\pm 1% of reading	\pm 0.02 pH	\pm 0.1°C/F



The TechPro Line of Accessories: pH Buffers, Standard Solution, Replacement pH Sensor, & choice of Soft or Hard Protective Carry Case



The pH sensor chamber protects a large-capacity, long life KCl reservoir.



This foam-lined case (model PKU) provides extra protection and portability, making it easier to carry your TechPro instrument in the field.

ACCESSORIES

Porta-Kit: (Above) This hard protective carry case is a rugged all plastic foam-lined case that includes 2 oz. each pH 4, 7, & 10 Buffers, pH Sensor Storage Solution, and 442-3000 and KCl-7000. *Model: PKU*

Hard Protective Case: Small protective carry case. *Model: UPP*

Soft Protective Case: Constructed of padded nylon and features a belt clip for hands-free mobility. *Models: UCC (Blue), UCCDT (Desert Tan)*

NIST Standard Solutions & pH Buffers: All Myron L Instruments are factory calibrated with Standard Solutions of known conductivity/TDS value and (when appropriate) with pH buffer values 4, 7, and 10. These solutions and buffers are traceable to the U.S. Government's National Institute of Standards and Technology. Periodic recalibration with the appropriate Conductivity Standard Solution and pH Buffers will help maintain the accuracy of your instrument. See the following list for recommendations.

Order # - Values:
(Specify Quarts or Gallons)

- 442-15 (15 ppm/24 μ S)
- 442-30 (30 ppm/47 μ S)
- 442-150 (150 ppm/229 μ S)
- 442-300 (300 ppm/445 μ S)
- 442-1000 (1000 ppm/1417 μ S)
- 442-1500 (1500 ppm/2060 μ S)
- 442-3000 (3000 ppm/3900 μ S)*
- 442-15,000 (15,000 ppm/16,630 μ S)
- KCL-18 (18 μ S/11 ppm)
- KCL-70 (70 μ S/45 ppm)
- KCL-180 (180 μ S/116 ppm)
- KCL-700 (700 μ S/478 ppm)
- KCL-1800 (1800 μ S/1294 ppm)
- KCL-7000 (7000 μ S/5687 ppm)*
- KCL-18,000 (18.00 mS/16,462 ppm)
- NACL-14.0 (14.0 mS/7864.7 ppm)

* Recommended value

pH Buffers:

- pH 4 • pH 10
- pH 7 • pH Sensor Storage Solution

Replacement pH Sensor: Non-refillable KCl gel-filled combination pH sensor featuring a chemical resistant, porous liquid junction. *Model: RPG*

NIST Certification: Certificates are available that confirm NIST traceability. Instrument Certificate:
(Order #MC-TP1/MC-TPH1)

Standard Solution/pH Buffer Certificate:
(Order #SC-XX)

Note: Both MC instrument certificates and/or SC solution certificates must be specified when placing instrument/solution orders.

LIMITED WARRANTY

All Myron L TechPro II Instruments have a Two (2) Year Limited Warranty, excluding the pH sensors, which have a Six (6) Month Limited Warranty. Warranty is limited to the repair or replacement of the TechPro II Instrument only, at our discretion. The Myron L Company assumes no other responsibility or liability.

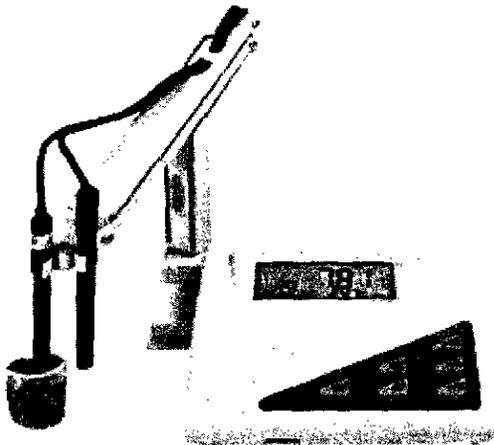
2450 Impala Drive
Carlsbad, CA 92010-7226 USA
Tel: +1-760-438-2021
Fax: +1-800-869-7668 / +1-760-931-9189
www.myronl.com

Built On Trust. Founded in 1957, the Myron L Company is one of the world's leading manufacturers of water quality instruments. Because of our commitment to product improvement, changes in design and specifications are possible. You have our assurance any changes will be guided by our product philosophy: accuracy, reliability, and simplicity.



Technical Data Bulletin

Benchtop Conductivity / TDS / Salinity Meter - 860032



Rugged housing with large LCD displaying the parameter being read together with time, date and temperature (in °C or °F)

- Automatic or manual temperature compensation
- Automatic or manual ranging
- Automatic buffer recognition
- Digital and analog outputs
- Min/Max and 99 data points
- Data Hold
- 5 calibration points on Conductivity and TDS (total dissolved solids) and 2 for Salinity
- Electrode status indication

Operates on AC voltage (no batteries) Comes ready to use with ATC conductivity electrode, electrode holder arm, AC adaptor, computer cable and software

Dimensions: 8 1/2" x 7" x 2 1/4" (216 x 178 x 57 mm)

Dimensions with Holder Arm: 16" x 8" x 9" (254 x 203 x 229 mm)

Weight: 18.7 oz (530 g)

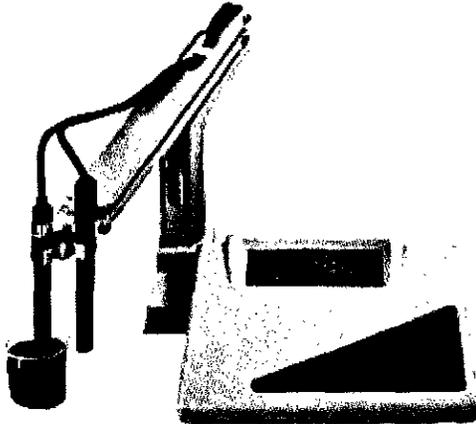
Optional Accessories:

Conductivity Probe - 850038P

RS232 to USB Adaptor Cable - 810094

Technical Data Bulletin

Benchtop pH / MV Meter - 860031



Rugged housing with large LCD displaying the parameter being measured together with time, date and temperature (in °C or °F)

- Automatic or manual temperature compensation
- Automatic or manual ranging
- Automatic buffer recognition
- Digital and analog outputs
- Min/Max and 99 data points
- Data Hold
- 5 calibration points
- Electrode status indication

Operates on AC voltage (no batteries). Comes ready to use with ATC pH electrode, electrode holder arm, AC adaptor, computer cable and software. Also accepts any pH or ORP probe with a standard BNC connector.

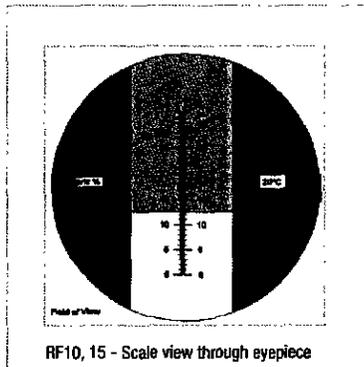
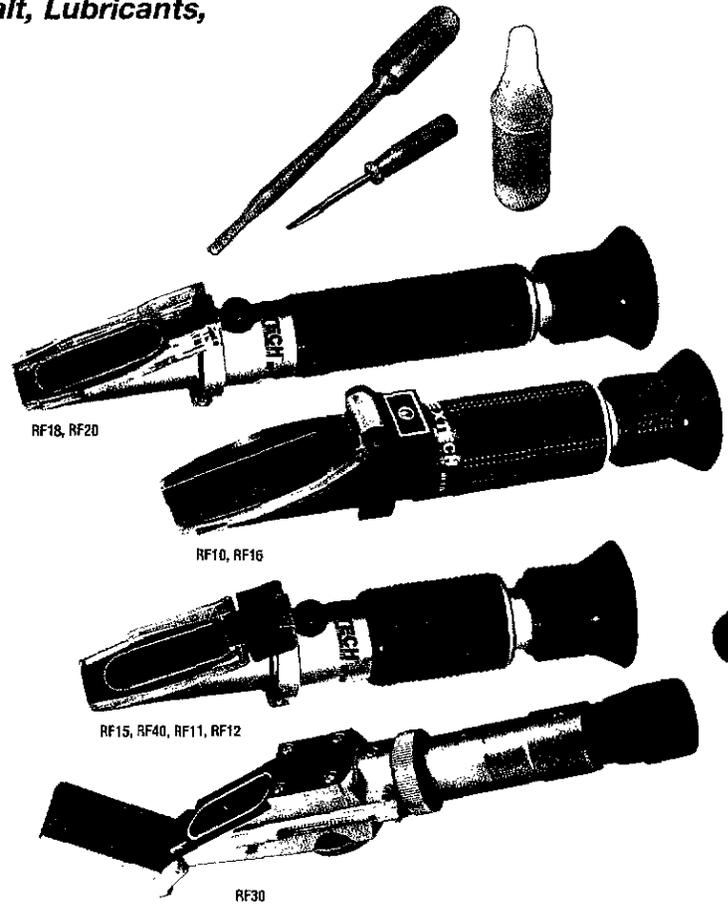
Dimensions: 8½" × 7" × 2¼" (216 × 178 × 57 mm)
Dimensions with Holder Arm: 10" × 8" × 9" (254 × 203 × 229 mm)
Weight: 18.7 oz (530 g)

Portable Refractometers

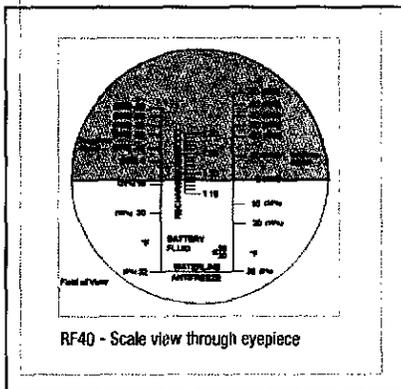
✓ **Measure the concentration of Sugar, Salt, Lubricants, Antifreeze, Cutting Fluids & more**
Available with or without Automatic Temperature Compensation

Features:

- Easy to operate refractometers provide accurate and repeatable measurements on easy to read scales
- Automatic temperature compensation models available for sugar, salt, lubricants, cutting fluids, and antifreeze
- Requires only 2 or 3 drops of solution
- The prism and lens with a simple focus adjustment provides repeatable results
- Complete with case, calibration screwdriver, and calibration solution



RF10, 15 - Scale view through eyepiece



RF40 - Scale view through eyepiece

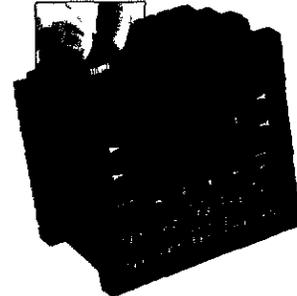
Ordering Information:

- RF160 to 10% Brix Refractometer
- RF110 to 10% Brix Refractometer with ATC
- RF180 to 18% Brix Refractometer
- RF120 to 18% Brix Refractometer with ATC
- RF100 to 32% Brix Refractometer
- RF150 to 32% Brix Refractometer with ATC
- RF20Salinity Refractometer with ATC
- RF40Battery Coolant/Glycol Refractometer with ATC (°F)
- RF41Battery Coolant/Glycol Refractometer with ATC (°C)
- RF30Triple Range General Service Brix Refractometer

Model	Type	Ranges	Resolution	Accuracy
RF16	Sucrose	0 to 10% Brix	0.1	±0.1%
RF11	Sucrose (ATC)	0 to 10% (10 to 30°C)	0.1	±0.1%
RF18	Lubricants/Cutting fluids	0 to 18% Brix	0.2	±0.2%
RF12	Lubricants/Cutting fluids (ATC)	0 to 18% Brix (10 to 30°C)	0.2	±0.2%
RF10	Sucrose	0 to 32% Brix	0.2	±0.2%
RF15	Sucrose (ATC)	0 to 32% Brix (10 to 30°C)	0.2	±0.2%
RF20	Salt (ATC)	0 to 100ppt (10 to 30°C)	0.001	±0.1%
		1.000 to 1.070 Refractive Index		
RF40	Coolant (ATC)	-60 to 32°F Propylene Glycol freeze point	2°F	±2%
		-60 to 25°F Ethylene Glycol freeze point	2°F	±2%
		1.15 to 1.30 Specific Gravity of Battery Acid	0.01	
RF41	Coolant (ATC)	-50 to 0°C Propylene Glycol freeze point	1°C	±2%
		-50 to 0°C Ethylene Glycol freeze point	1°C	±2%
		1.15 to 1.30 Specific Gravity of Battery Acid	0.01	
RF30	Triple Range General Service	0 to 41% Brix	0.2	±0.2%
		42 to 71% Brix	0.2	±0.2%
		72 to 90% Brix	0.2	±0.2%
Dimensions/WT		RF10/RF15: 6.6 x 1.6 x 1.2" (170 x 40 x 30mm)/ 7oz (200g); RF11/RF16: 7.5 x 1.6 x 1.2" (190 x 40 x 30mm)/ 6.5oz (185g); RF12/RF18: 6.7 x 1.6 x 1.2" (170 x 40 x 30mm)/ 6.5oz (185g); RF20: 7.6 x 1.5 x 1.5" (194 x 38 x 38mm)/ 8oz (227g); RF40/RF41: 6.2 x 1.6 x 1.2" (160 x 40 x 30mm)/ 6.3oz (180g); RF30: 7.9 x 1.5 x 1.1" (200 x 38 x 28mm)/ 21.86oz (620g)		

Process Control Station

The WLFT Process Control Station (PCS) was created in order to provide water treatment professionals a single mechanism that can be programmed to handle a variety of water treatment control parameters.



The PCS unit is based on a General Electric Operator Control Station, ships in a NEMA 4X fiberglass enclosure with a mix of analog (sensors & proportional control valves) and discreet (level switches & solenoid valves) I/O.

Minimum Capabilities

- 4 Analog sensor inputs (4-20mA)
- 8 On/Off inputs
- 8 On/Off Relay Outputs
- Nearly unlimited internal timers and control logic capabilities
- Monochrome backlit Screen with 20 customizable pushbuttons
- 2 GB MicroSD Card Slot for data-logging parameters (Excel® format)
- All components UL Certified
- Serial connection for external modem, MODBUS protocol (*allows for remote monitoring and connection to building automation systems*)

Due to adaptability of programming software and the wide availability of input sensors almost any process can be controlled and/or monitored

Sample Setup:

PCS configured for Boiler Chemistry Control

Model # PCS-B2

Contacting head water meter controlling inhibitor feed pump output

Conductivity sensor controlling Blowdown valve output and conductivity display

Outputs for automatic sample cooler operation

Port for external modem option allowing offsite monitoring and control



Walter Louis Fluid Technologies

530 South 5th
Quincy, IL 62301-4896
Engineering Dept.

Phone: (217) 223-2017
Fax: (217) 223-7734
Email: sales@walterlouis.com
Web: www.walterlouis.com

The Pulsatron Series A Plus offers manual function controls over stroke length and stroke rate as standard with the option to select external pace for automatic control.

Ten distinct models are available, having pressure capabilities to 250 PSIG (17 BAR) @ 12 GPD (1.9 lph), and flow capacities to 58 GPD (9.1 lph) @ 100 PSIG (7.0 BAR), with a standard turndown ratio of 100:1, and optional ratio of 1000:1. Metering performance is reproducible to within $\pm 3\%$ of maximum capacity.

Features

- Manual Control by on-line adjustable stroke rate and stroke length.
- Highly Reliable timing circuit.
- Circuit Protection against voltage and current upsets.
- Solenoid Protection by thermal overload with auto-reset.
- Water Resistant, for outdoor and indoor applications.
- Internally Dampened To Reduce Noise.
- Guided Ball Check Valve Systems, to reduce back flow and enhance outstanding priming characteristics.
- Few Moving Parts and Wall Mountable.
- Safe & Easy Priming with durable leak-free bleed valve assembly (standard).
- Optional Control: External pace with auto/manual selection.

Controls



Manual Stroke Rate

Manual Stroke Length

External Pacing - Optional

External Pace With Stop - Optional (125 SPM only)

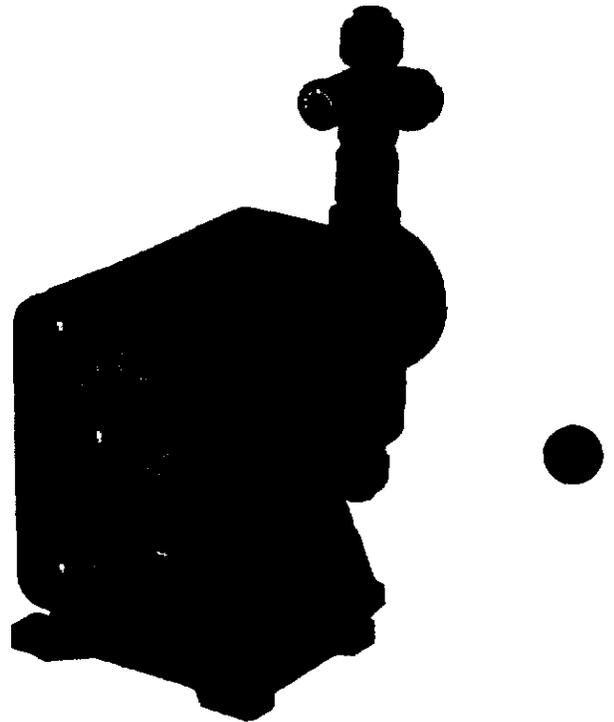
Controls Options		
Feature	Standard Configuration	Optional Configuration ¹
External Pacing	—	Auto / Manual Selection ²
External Pace w/ Stop (125 SPM only)	—	Auto / Manual Selection ²
Manual Stroke Rate	10:1 Ratio	100:1 Ratio
Manual Stroke Length	10:1 Ratio	10:1 Ratio
Total Turndown Ratio	100:1 Ratio	1000:1 Ratio

Note 1: On S2, S3 & S4 sizes only.

Note 2: Not available on 1000:1 turndown pumps.

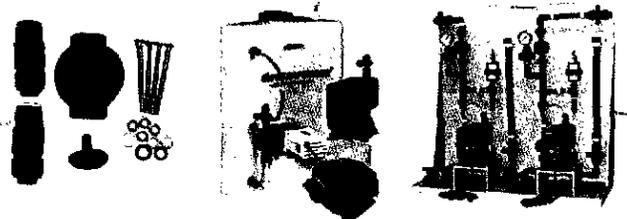
Operating Benefits

- Reliable metering performance.
- Rated "hot" for continuous duty.
- High viscosity capability.
- Leak-free, sealless, liquid end.



Aftermarket

- KOPkits
- Gauges
- Dampeners
- Pressure Relief Valves
- Tanks
- Pre-Engineered Systems
- Process Controllers (PULSAblue, MicroVision)



PULSAtron® Series A Plus
 Electronic Metering Pumps

PULSAtron® Series A Plus

Specifications and Model Selection

MODEL		LBC2	LB02	LBC3	LB03	LB04	LB64	LBC4	LBS2	LBS3	LBS4	
Capacity Nominal (max.)	GPH	0.25	0.25	0.42	0.50	1.00	1.25	2.00	0.50	1.38	2.42	
	GPD	6	6	10	12	24	30	48	12	33	58	
	LPH	0.9	0.9	1.6	1.9	3.8	4.7	7.6	1.9	5.2	9.14	
Pressure ³ (max.)	GFPP, PVDF, 316SS or PVC (W code) w/TFE Seats	PSIG (Bar)	250 (17)	150 (10)	250 (17)	150 (10)	100 (7)	100 (7)	50 (3.3)	250 (17)	150 (10)	100 (7)
	PVC (V code) Viton or CSPE Seats / Degas Liquid End		150 (10)							150 (10)		
Connections:	Tubing	1/4" ID X 3/8" OD					3/8" ID X 1/2" OD			1/4" ID X 3/8" OD		
	Piping	1/4" FNPT										
Strokes/Minute	SPM	125					250					

Note 3: Pumps with rated pressure above 150 PSI will be de-rated to 150 PSI Max, when selecting certain valve options, see Price Book for details.

Engineering Data

Pump Head Materials Available: GFPP, PVC, PVDF, 316 SS
Diaphragm: PTFE-faced CSPE-backed
Check Valves Materials Available:
Seats/O-Rings: PTFE, CSPE, Viton
Balls: Ceramic, PTFE, 316 SS, Alloy C

Fittings Materials Available:

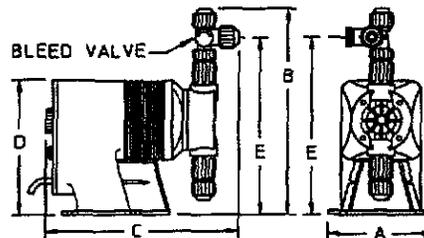
Bleed Valve: Same as fitting and check valve selected, except 316SS
Injection Valve & Foot Valve Assy: Same as fitting and check valve selected
Tubing: Clear PVC, White PE

Important: Material Code - GFPP=Glass-filled Polypropylene, PVC=Polyvinyl Chloride, PE=Polyethylene, PVDF=Polyvinylidene Fluoride, CSPE=Generic formulation of Hypalon, a registered trademark of E.I. DuPont Company. Viton is a registered trademark of E.I. DuPont Company. PVC wetted end recommended for sodium hypochlorite.

Dimensions

Series A PLUS Dimensions (Inches)						
Model No.	A	B	C	D	E	Shipping Weight
LB02 / S2	5.0	9.6	9.5	6.5	8.2	10
LBC2	5.0	9.9	9.5	6.5	8.5	10
LBC3	5.0	9.9	9.5	6.5	8.5	10
LB03 / S3	5.0	9.9	9.5	6.5	8.5	10
LB04 / S4	5.0	9.9	9.5	6.5	8.5	10
LB64	5.0	9.9	9.5	6.5	8.5	10
LBC4	5.0	9.9	9.5	6.5	8.5	10

NOTE: Inches X 2.54 = cm

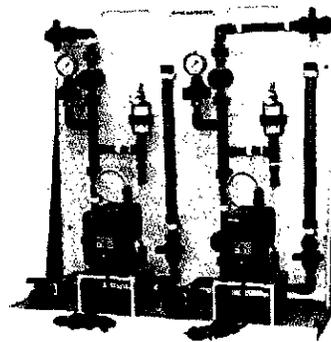


Engineering Data

Reproducibility: +/- 3% at maximum capacity
Viscosity Max CPS: 1000 CPS
Stroke Frequency Max SPM: 125 / 250 by Model
Stroke Frequency Turn-Down Ratio: 10:1 / 100:1 by Model
Stroke Length Turn-Down Ratio: 10:1
Power Input: 115 VAC/50-60 HZ/1 ph, 230 VAC/50-60 HZ/1 ph

Average Current Draw:
@ 115 VAC; Amps: 0.6 Amps
@ 230 VAC; Amps: 0.3 Amps
Peak Input Power: 130 Watts
Average Input Power @ Max SPM: 50 Watts

Custom Engineered Designs – Pre-Engineered Systems



Pre-Engineered Systems

Pulsafeeder's Pre-Engineered Systems are designed to provide complete chemical feed solutions for all electronic metering applications. From stand alone simplex pH control applications to full-featured, redundant sodium hypochlorite disinfection metering, these rugged fabricated assemblies offer turn-key simplicity and industrial-grade durability. The UV-stabilized, high-grade HDPE frame offers maximum chemical compatibility and structural rigidity. Each system is factory assembled and hydrostatically tested prior to shipment.



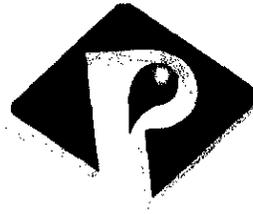
27101 Airport Rd
 Punta Gorda, FL 33982
 Phone: ++1(941) 575-3800
 Fax: ++1(941) 575-4085

An ISO 9001 and ISO 14001 Certified Company

pulsafeeder.com



EMP025 I13



PEABODY
engineering

No Boundaries.™

Gemini™ Tank Systems

Chemical Treatment Dual Containment Tank Systems

Features and Benefits of Gemini Tank System

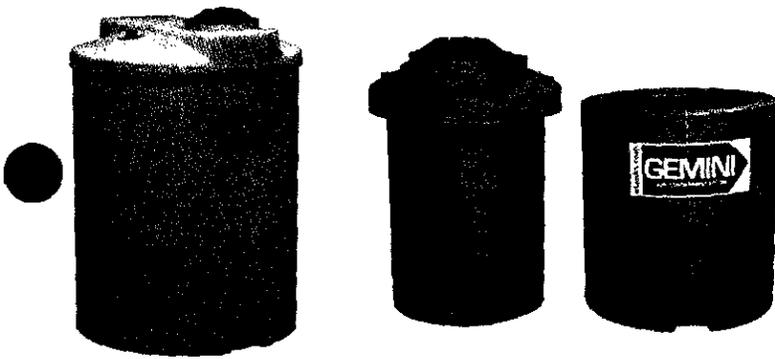
- ☛ **Specifically designed for the Water Treatment Industry**
- ☛ **Linear polyethylene construction. Polypropylene, XLPE and PVDF available**
Superior chemical resistance for acids, caustics, sodium hypochlorite, biocides, etc.
Handles aggressive applications that stainless steel and crosslink polyethylene will not.
- ☛ **Heavy duty dual wall construction** - Rated for liquids of 1.5 or 2.0 specific gravity. "Tank in a Tank" designed for instances where the primary tank fails; the chemical will then be safely contained in secondary tank.
- ☛ **Integral pump mounting platform** - Lid has 240 pound rating allowing for use with metering pump or mixer mounted directly to tank lid. Sump reservoir collects and drains pump spilled liquid back to primary.
- ☛ **Pump pick-up tube port** - Install pump suction line with check valve quickly and easily. Once installed, tank contents are sealed from outside environment.
- ☛ **Integral mouse door** - Molded directly into most Gemini models, recessed mouse door allows for inexpensive installation of optional bottom bulkhead fitting for flooded suction connection or bottom fill.
- ☛ **Custom colors and mold-in graphics** - Custom colors available, subject to minimum order quantity. Private label mold-in graphic is molded directly into tank and wont weather, crack, peel, or deteriorate.



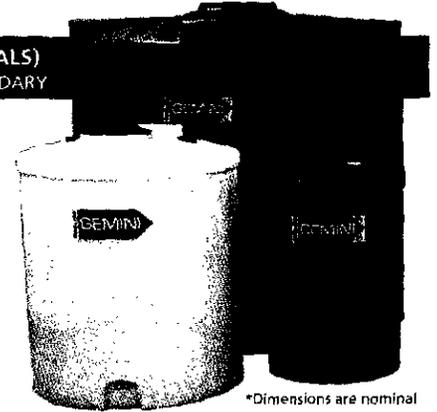
GEMINI

Dual Containment Tanks

Corrosion Resistant Construction



PART #	DIMENSIONS (DIA. x HT.)	DESCRIPTION	CAPACITY (GALS)	
			PRIMARY	SECONDARY
01-28907	19.5" x 27"	15 Gallon Dual Containment Tank System	15	25
01-14871	22.25" x 25.5"	20 Gallon Dual Containment Tank System	20	28
01-14874	22.25" x 38.5"	40 Gallon Dual Containment Tank System	40	51
01-14877	25.5" x 37"	62 Gallon Dual Containment Tank System	62	73
01-14870	32.5" x 46"	120 Gallon Dual Containment Tank System	120	142
01-14872	48" x 48"	220 Gallon Dual Containment Tank System	220	278
01-14873	48" x 59"	300 Gallon Dual Containment Tank System	300	375
01-14876	61" x 64.5"	500 Gallon Dual Containment Tank System	500	650



*Dimensions are nominal

Wide Range of Sizes

Gemini Tanks are available from 15 to 500 gallon capacities. Other styles and sizes of Dual Containment Tanks are available up to 10,500 gallon capacities.

Standard Fittings

Gemini Tanks come standard with 8" vented twist lid. Pump suction pick up port and return drain built into pump mounting shelf and sump. Multiple connection fittings standard on lid top.

Common Accessories

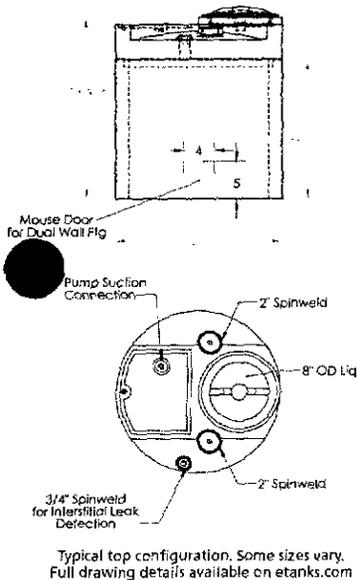
Common attachments and accessories include pre fitted at-a-glance visual float gauge, quick coupler dry brake fill adapter, pumps, ultrasonic liquid level sensor, remote web-based ultrasonic sensor system Tank WATCH-IT, interstitial leak detectors and more.

Light Weight and Durable

Easy to move without heavy equipment. Excellent impact resistance, built to last for many years of service. Strong dome lid handles heavy pumps and attachments.

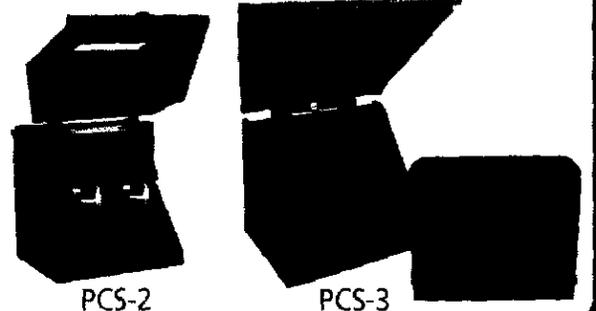
- ☛ Simplified chemical handling
- ☛ Improved employee safety
- ☛ No drum disposal costs
- ☛ Continuous chemical feed
- ☛ Integrated molded-in features
- ☛ Private labeling option available
- ☛ Exceed's EPA secondary containment requirements (49 CFR)

For smaller footprint ask about our Gemini² Square Dual Containment Tanks...



Have you seen our Pump Containment Shelf?

Store 1, 2 or 3 pumps and safely contain accidental spray and discharges to prevent worker injury and chemical spills.



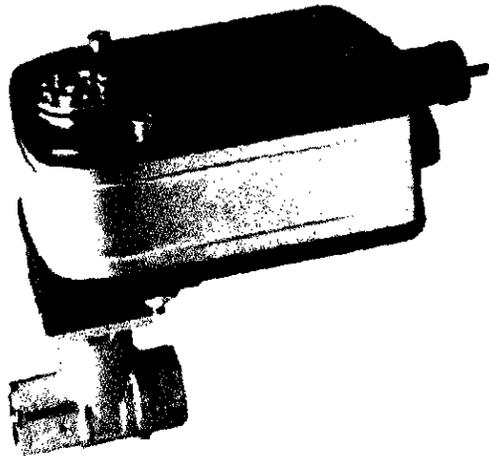
13435 Estelle Street Corona, CA 92879
ph: 951-734-7711 | fx: 951-734-4111

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www.etanks.com
sales@etanks.com



MBV Series (1/2" - 1") Spring Return Motorized Ball Valve



Application

Spring Return Motorized Ball Valves are highly recommended by Quantrol as an alternative to solenoid valves for cooling tower bleed off applications. These fully ported ball valves pass suspended particulate more efficiently than solenoid valves, thus are less likely to stick open or closed. Maintenance requirements are reduced and reliability is significantly increased.

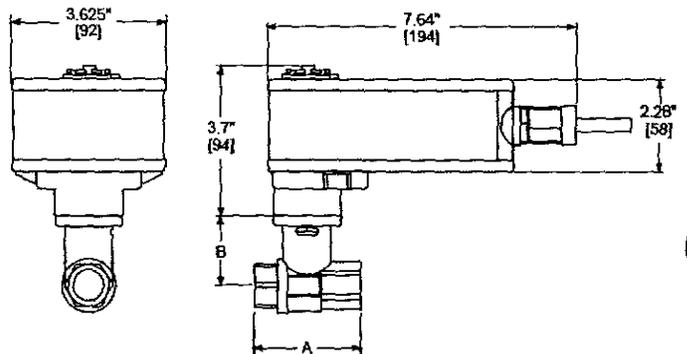
The powerful LF Series actuator used on the 1/2, 3/4 and 1" valves creates 35 inch pounds of torque to ensure the valve opens and closes as required.



Nominal Size Dimensions Inches (mm)

Valve Body	Inches	A	B
MBVSR-1/2	1/2"	2.38" (60.4)	1.72" (43.7)
MBVSR-3/4	3/4"	2.73" (69.3)	1.81" (45.9)
MBVSR-1.0	1"	3.09" (78.4)	1.81" (45.9)

Dimensions with 2-Way Valve



Actuator Technical Data

Control	On/Off
Power Supply LF120	120VAC +/- 10% 50/60 Hz 24 VAC / DC optional
Power Consumption LF120	Running 5.5 W Holding 3.5 W
Transformer Sizing LF120	7.5 VA, class 2 power source
Electrical connection	3 ft (1m), 18 GA appliance cord
Position indication	Visual indicator 0° to 90°
Running time	motor <40 to 75 sec. (on-off) spring <25 sec. @ -4° F to 122° F <60 sec. @ -22° F
Ambient temperature	-22° F to 122° F
Housing	NEMA 2
Agency listings	UL 873, CSA C22.2 No. 24 cert, CE
Quality standard	ISO 9001

Valve Technical Data

Service	Chilled or hot water, 60% glycol
Flow Characteristic	Full Port, Normally Closed
Sizes	1/2", 3/4", 1"
Type of end fitting	NPT female ends
Materials:	
Body	Forged brass, nickel plated
Ball (1/2", 3/4")	Chrome plated brass
Stem (1/2", 3/4")	Nickel plated brass
Ball (1")	Stainless steel
Stem (1")	Stainless steel
Seats	PTFE
Characterizing disc	Tefzel®
Packing	2 EPDM O-rings, lubricated
Body Pressure rating	600psi
Media temp. range	0° F to 212° F (-18° C to 100° C)
Close off pressure	200psi
Max differential pressure	30 psi for typical applications



Walter Louis **FLUID TECHNOLOGIES**

Specialists in Water Treatment and Process Automation

Let's face it...

you can buy water treatment products in a myriad of different ways. The question of *value becomes one of reliability and service after the sale. Will it work in my situation and how do I know when it's not working? Is the company representative attentive to our needs and responsive if we have questions? Will they still be in business next year when I need them? All legitimate questions you need to be asking. Sure, price is important, but often it is not the single-most important factor when considering a water treatment company.*

At Walter Louis Fluid Technologies, we are dedicated to providing solutions that help reduce operating costs, increase overall plant productivity, and meet environmental requirements. Our experience and common-sense approach to problems offers our customers solutions matched to their individual needs. Custom-designed water and wastewater treatment programs feature products and technology designed by our engineers and formulators for maximum performance, durability and ease of utilization.

*Plus, over the course of the last thirty years, we have grown into a company poised to offer our customers many advantages our competitors only dream about, both in terms of products and services. How many can offer you stack gas analysis or burner tuning, burner repair or even total replacement? Whose representative can offer you chemicals for your cooling towers *and* build you a reverse osmosis pre-treatment system or a wastewater remediation system turn-key? We can...*

I hope you'll take the time to read the information contained within this brochure. WLFT has developed a reputation as problem-solvers, and we put that reputation on the line every day. We're pleased to be able to offer you all the value-added services contained within. Let's talk... let us show you how we can help.



Walter Louis FLUID TECHNOLOGIES

Field Service Capabilities

- On-Site lab testing of water supplies and industrial process water systems
- ATP and dip slide analysis for control of Legionella and biofouling organisms
- Inventory control and documentation
- System troubleshooting
- Comprehensive operator training
- Detailed test reporting and coordination of recommendations with on-site staff
- Equipment cleaning and preparation for storage
- Insuring that process monitoring and test equipment are operating properly
- Product dosage determination and audits
- Quick, accessible response and support

Boiler and Chiller Efficiency Analysis

- Boroscope and Ultrasound field service
- Combustion testing (O₂, CO₂, Stack temperatures, CO, SO₂)
- Gas Handling Equipment Analysis and Leak Detection
- Fuel Oil Quality and Piping Analysis
- Burner Analysis and Start-Up
- Nitrous Oxide Analysis and CO₂/O₂ Ratios
- Corrosion coupon testing and analysis

Control Systems

- Design, installation, and programming of process automation systems
- Troubleshooting and debugging of existing control systems
- PLC programming for GE-Fanuc., Allen-Bradley, Automation Direct
- HMI programming in Microsoft Access, Cimplicity, InTouch, and LXF Track-2

Bulk Chemical Delivery & Equipment

- Chlorine
- Boiler and Cooling Tower Products
- *Thermal-Guard*[®] Glycol Heat Transfer Fluids

Custom Repair Services

- Refurbishing of existing equipment
- Repair & Refurbishing of control systems
- Custom metal fabrication
- Ion exchange carbon and filter media cleaning and replacement
- Consulting and engineering services
- Parts & Services for laboratory equipment
- "Zero Downtime" & "On the Fly" service capability



Walter Louis FLUID TECHNOLOGIES

Manufacturing Processes

- Customized components- aluminum, stainless steel, carbon steel, and plastics.
- Lathe turning of small critical dimension components
- Hot-gas process polymer plastic welding
- Mechanical fusion process plastic welding
- Tungsten-Inert Gas (TIG) process metal welding
- Metal-Inert Gas (MIG) wire-feed process metal welding
- Conventional Stick (SMAW) process metal welding

Documentation & Support

- Technical service manual writing with CADD-generated schematics
- Field consulting and troubleshooting services
- Technical and Product Use Seminars

Equipment

Pumps:

- Ingersoll-Dresser centrifugal pumps
- Grundfos centrifugal pumps
- Pulsafeeder electronic metering pumps
- LMI electronic metering pumps
- Neptune hydraulic diaphragm pumps
- Wilden air-actuated diaphragm pumps

Controllers:

- Pulsafeeder Electronic Controls
- Liquid Metronics (LMI) Controls
- GE-Fanuc Programmable Logic Controllers
- Great Lakes Instruments

Miscellaneous:

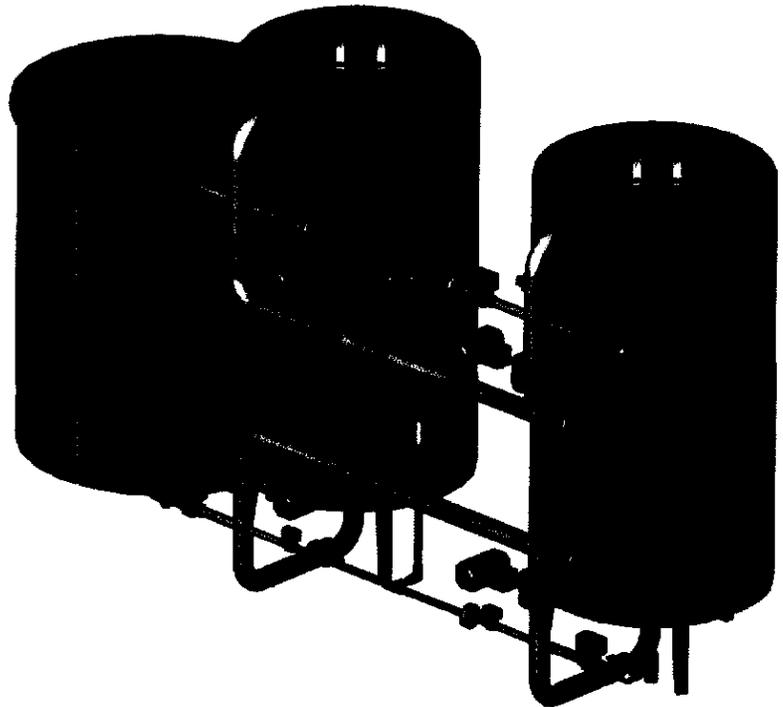
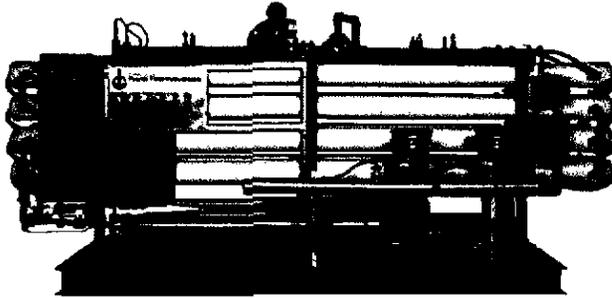
- Fleck softeners & filters
- Autotrol softeners & filters
- Harmsco filters
- Barnstead-Thermolyne laboratory equipment
- Snyder polymer plastic storage tanks
- Structural Fibers & Raven fiberglass-reinforced plastic tanks
- Delta Cooling Towers
- ASCO solenoid valves
- Aquamatic diaphragm valves
- Worcester power-actuated ball & butterfly valves



Walter Louis FLUID TECHNOLOGIES

Custom-Built Equipment

- Resin-based systems (softeners, dealkalizers, deionizers)
- Reverse Osmosis systems
- Chemical containment, feed, & distribution piping systems
- Control, PLC & DCS monitoring packages, upgrades and rebuilds
- Turnkey equipment installation and upgrade



Walter Louis Fluid Technologies
539 South 5TH
Quincy, IL 62301
Engineering Dept.

Phone: (217)223-2017
Fax : (217)223-7734
Email: sales@walterlouis.com

Experience and Reliability

Walter Louis Fluid Technologies (WLFT) originated in 1968 in Quincy, Illinois. Our founder, Walter J. Giesing, was the Director of Power for Packaging Corporation of America where he was responsible for the design and operation of five paper mill power plants. He developed a unique coking process utilizing "traveling grate stokers", and was recognized for his achievement as a recipient of a Power magazine award in 1962.

Upon his retirement, he established offices in Quincy, IL, and served as a consultant to the power and manufacturing industries with a specialization in water treatment chemical applications and services.

In the mid-1970's, under the name "Walter Louis Chemicals", our Quincy facilities manufactured customized water treatment equipment, initially focusing on water softening and filtration processes. Realizing a market niche, we expanded to include deionized water and reverse osmosis, as well as other specialized equipment applications.

As we grew, we expanded our chemical formulation capabilities, which led to the development and manufacture of acrylic polymers, the primary building blocks for a complete line of water and wastewater treatment chemicals for commercial and industrial applications.

In 1987, we underwent a plant expansion at our Quincy manufacturing facility, resulting in the development of a unique process to synthesize organic phosphonate. With these developments, Walter Louis Chemicals could now effectively produce a fully competitive line of water treatment chemicals and chemical feed equipment.

During the 1990's we once again expanded our manufacturing and technical service departments. Some key features:

- Modified our product delivery system to include "tote-tank" (mini-bulk) and bulk storage capabilities. This reduced our customers' handling of hazardous chemicals and ensured an economically consistent supply of water treatment products.

- Upgraded our technical services department to include computer design capabilities. This resulted in a major contract awarded by the U.S. Navy for mobile deionization systems for shore-based support of nuclear warships, followed closely by contracts for two high output reverse osmosis units for industries in the South.

- Expanding our manufacturing capabilities to include design manufacture and install "Turnkey" projects, Walter Louis manufactured and installed a sea water Reverse Osmosis system For the Kingdom of Saudi Arabia on the Persian gulf

- Implemented our WLFT "Full Service Program" as a commitment to provide our customers with the highest level of technical services possible, including:

- On-call service for critical applications [24 hrs/7 day a week]
- After the sale warranty and service
- Commitment to ongoing training and education
- Implementation of technological advancements such as Water Cycle®, predictive modeling software for cooling water scaling potential, corrosion rate, and inhibitor dosing.

As Walter Louis entered the 21st Century our products and capabilities continued to evolve. After a successful installation of a DCS computer based control system at the USDA Research center in Ames Iowa, three years ago. WLFT was specified as the vendor for a second system which is now being finished. Walter Louis has already been specified as the vendor for a third system scheduled to be started next year.

Our diversity and attention to customer needs became the cornerstone of our reputation, as evidenced by our growing customer base and our success as manufacturers' representatives. Our mission statement was, is, and always will be to provide the highest quality products and services at the lowest possible price.

Our first contract with the Department of Correction initiated the *Mini Bulk* program. After years of purchasing chemical by the drum, Walter Louis transitioned the DOC to the program that is still *successfully in use today*

During the last 12 years, WLFT has been awarded two competitive contracts and 7 individual yearly renewals. We have obtained excellent overall results, and maintained a professional working relationship with DOC personnel.

The Problems with Low Bids:

All state-supported water treatment programs in Illinois are administered by the Illinois Water Survey in Champaign. WLFT has provided boiler, cooling water and closed system inhibitor products to Illinois Water Survey for over 20 years. Previous to our association with them, the Water Survey struggled with poor quality products provided by competitive vendors based entirely on low bid evaluations. WLFT has a proven track record of providing uniform quality materials at the lowest possible price and our relationship with Illinois Water Survey is strong.

Training Requirements

WATER TREATMENT TRAINING AGENDA

SAFTY TRAINING

Safety in Handling Water Treatment Chemicals
Proper precautions and procedures in handling using storing and disposal of chemicals
Proper OSHA EPA emergency measures

OVERVIEW

HVAC SYSTEMS
BASIC WATER CHEMISTRY
Functions of each chemical
Calculation to determine proper dosage
APPLYING WATER CHEMISTRY TO HVAC SYSTEMS
(A) CLOSED WATER SYSTEMS
(B) STEAM BOILERS
(C) CHILLERS
(D) DOMESTIC WATER SYSTEMS
(E) WASTEWATER APPLICATIONS

WATER TREATMENT

CHEMICAL TERMINOLOGY
BASIC CHEMISTRY
(A) SCALE FORMATION
(B) CORROSION/PITTING/OXIDATIONS PROCESS
Importance of pH in Condensate and closed systems
Importance of pH calcium Balance in Cooling Water
(C) BIOLOGICAL PROPERTIES
Interpretation of Plate Counts
Interpretation of ATP and other Biological indicators
Importance of Tower Hygiene
WLFT PRODUCT APPLICATIONS
TROUBLESHOOTING

CHEMICAL TREATMENT – EQUIPMENT

CHEMICAL FEED PUMPS
BOILER BLOWDOWN CONTROLS
CONDUCTICITY CONTROLLERS
AUTOMATIC VS.MANUAL CONTROLS
TROUBLESHOOTING

PRETREATMENT

PURPOSE & METHODOLOGY

TYPES:

(A) ION EXCHANGE – SOFTENERS

Operation and Maintenance

(B) DEALKALIZATION

Operation and maintenance

(C) DEAERATION

ENERGY EFFICIENCY

Methods of improving energy and operating efficiency

How to calculate production and report energy efficiency

Heat recovery

Reverse Osmosis

TEST PROCEDURES

WET CHEMISTRY

Test procedures

INSTRUMENTATION

INTERPRETATION & TROUBLESHOOTING

RECORDKEEPING

ON LINE RECORD RETRVAL

TREND ANALYSIS

WALTER LOUIS REPORTS



Report Name:
 Date: Jul 11 2014 10:50 AM PM

State of Missouri
 Department of Corrections
 301 West High Street
 Truman Office Building
 Jefferson City MO 65101-4339
 (572) 751-3224

Recorded By: Roger Smith
 (217) 223-2017
 roger@walterlouis.com

On-site: AM PM to AM PM

Water Quality Treatment - Steam Boilers

Component	Conductivity neutral	Alkalinity P	Alkalinity M	Alkalinity OH	Sulfite	Phosphate	Conductivity	pH	Page Break
Boiler 1	Units <input type="text"/> 2200-3000	<input type="text"/> 200-600	<input type="text"/> 400-600	<input type="text"/> 150-450	<input type="text"/> 20-50	<input type="text"/> 20-50			<input type="checkbox"/>
Boiler 2	Units <input type="text"/> 2200-3000	<input type="text"/> 200-600	<input type="text"/> 400-600	<input type="text"/> 150-450	<input type="text"/> 20-50	<input type="text"/> 20-50			<input type="checkbox"/>
Boiler 3	Units <input type="text"/> 2200-3000	<input type="text"/> 200-600	<input type="text"/> 400-600	<input type="text"/> 150-450	<input type="text"/> 20-50	<input type="text"/> 20-50			<input type="checkbox"/>
Softener	Units						<input type="text"/> 100-300	<input type="text"/> 7.0-8.5	<input type="checkbox"/>
Feedwater	Units						<input type="text"/> 100-300	<input type="text"/> 8.2-9.5	<input type="checkbox"/>
Condensate	Units						<input type="text"/> 50 max	<input type="text"/> 7.0-9.2	<input type="checkbox"/>

Component	Hardness total	Iron Ppm as Fe-02	ASS	Page Break
Boiler 1	Units		<input type="text"/> 0.3-0.5	<input type="checkbox"/>
Boiler 3	Units		<input type="text"/> 0.3-0.5	<input type="checkbox"/>
Softener	Units <input type="text"/> 15 max			<input type="checkbox"/>
Feedwater	Units <input type="text"/> 10 max	<input type="text"/> 0.5 max		<input type="checkbox"/>
Condensate	Units <input type="text"/> 15 max	<input type="text"/> 0.5 max		<input type="checkbox"/>

Opening Comments

- Boiler 1 OnSite Offline
- Boiler 2 OnSite Offline
- Boiler 3 OnSite Offline
- Softener OnSite Offline
- Feedwater OnSite Offline



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
12/17/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER McGowan Insurance Group, Inc. 355 Indiana Avenue Suite 200 Indianapolis IN 46204	CONTACT NAME: Emily Colwell
	PHONE (A/C No. Excl): (317) 464-5000 FAX (A/C No.): (317) 464-5001 E-MAIL ADDRESS: emilyc@mcgowaninc.com
INSURED Walter Louis Fluid Technologies 530 S. 5th Street Quincy IL 62301-4896	INSURER(S) AFFORDING COVERAGE
	INSURER A: State National Insurance NAIC # 12831
	INSURER B: FEDERAL INSURANCE COMPANY 20281
	INSURER C:
	INSURER D:
	INSURER E:

COVERAGES CERTIFICATE NUMBER: 13 Casualty REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDITIONAL INSURER	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR		MEB0692657	12/17/2013	12/17/2014	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPOP AGG \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER: <input checked="" type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOG					
B	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS					COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR EXCESS LIAB <input checked="" type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 0		93637617	12/17/2013	12/17/2014	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ 1,000,000
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR, PARTNER, EXECUTIVE OFFICER, MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N N/A				WC STATUTORY LIMITS OTH-ER E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
Blanket Additional Insured, including Completed Operations and Primary & Non-Contributory is applicable on General Liability and Excess Liability, when required by written contract. Waiver of Subrogation is included on General Liability and Excess Liability.

CERTIFICATE HOLDER State of Missouri/Office of Administration Div of Purchasing & Materials Management Attn: Contract #B3214153 P O Box 809 Jefferson City, MO 65102	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE Michael Highum/EMILY <i>Michael S. Highum</i>
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CERTIFICATE OF LIABILITY INSURANCE

WALTE-2

OP ID: JG

DATE (MM/DD/YYYY)
06/18/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must be endorsed. If **SUBROGATION IS WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Winters Insurance Group LLP 201 S. 5th Street Quincy, IL 62301 Jeffrey J. Tweedell	CONTACT NAME: PHONE (A/C, No, Ext): _____ FAX (A/C, No): _____ E-MAIL ADDRESS: _____														
	<table border="1"> <thead> <tr> <th>INSURER(S) AFFORDING COVERAGE</th> <th>NAIC #</th> </tr> </thead> <tbody> <tr> <td>INSURER A : Cincinnati Insurance Co</td> <td>10677</td> </tr> <tr> <td>INSURER B : Cincinnati Casualty Company</td> <td>28665</td> </tr> <tr> <td>INSURER C :</td> <td></td> </tr> <tr> <td>INSURER D :</td> <td></td> </tr> <tr> <td>INSURER E :</td> <td></td> </tr> <tr> <td>INSURER F :</td> <td></td> </tr> </tbody> </table>		INSURER(S) AFFORDING COVERAGE	NAIC #	INSURER A : Cincinnati Insurance Co	10677	INSURER B : Cincinnati Casualty Company	28665	INSURER C :		INSURER D :		INSURER E :		INSURER F :
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INSURER E :															
INSURER F :															
INSURED Walter Louis Chemical Company 530 South 5th Street Quincy, IL 62301															

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC		EPP0111415	12/17/2013	12/17/2014	EACH OCCURRENCE \$ _____ DAMAGE TO RENTED PREMISES (Ea occurrence) \$ _____ MED EXP (Any one person) \$ _____ PERSONAL & ADV INJURY \$ _____ GENERAL AGGREGATE \$ _____ PRODUCTS - COMP/OP AGG \$ _____ Emp Ben. \$ 1,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS		EPP0111415	12/17/2013	12/17/2014	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ _____ BODILY INJURY (Per accident) \$ _____ PROPERTY DAMAGE (PER ACCIDENT) \$ _____
A	UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ -0-		EPP0111415	12/17/2013	12/17/2014	EACH OCCURRENCE \$ 1,000,000 AGGREGATE \$ _____
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N <input type="checkbox"/> N/A	WC8985749-13	12/17/2013	12/17/2014	<input checked="" type="checkbox"/> WC STATU-TORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 100,000 E.L. DISEASE - EA EMPLOYEE \$ 100,000 E.L. DISEASE - POLICY LIMIT \$ 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

RE: CONTRACT #B3Z14153

CERTIFICATE HOLDER**CANCELLATION**

STATEMI

STATE OF MISSOURI/OFFICE OF
 ADMINISTRATION DIVISION OF
 PURCHASING & MATERIALS MGT.
 P.O. BOX 809
 JEFFERSON CITY, MO 65102

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Jeffrey J. Tweedell

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Industrial Water Treatment
Chemicals & Equipment

Policy & Procedure for Tracking all Containers for RFP: B3Z14153

Every container (drums and barrels) remains property of WLFT. Every container leaving the possession of WLFT Staff will be monitored through our *Container Delivery and Retrieval* process (CDR). This means that all drums and barrels dropped off at each location are accounted for through careful attention to the CDR Form that is filled out by a delivery driver each and every time that containers are handled (SEE ATTACHED FORM: CDR). There will be a quarterly meeting between the Contract Manager and the state agency's Service Level Manager(s). At this meeting, the exact number of containers used during the process will be accounted for and the final destination of those containers will be exacted as well.

The CDR form is kept with all shipping papers and is further documented electronically by the Director of Operations after each delivery to each location. Such it is that at any time, upon request, WLFT will have knowledge with respect to the number of containers in any facility and how many have been retrieved at any given moment. The WLFT Security Plan states that all handling of containers must adhere to updated applicable laws and regulations by both the E.P.A and OSHA.

It is important to note that only WLFT will be handling both the drop-off and the pickup of all containers regardless if they reside inside the facility or on the delivery truck. The truck uses a lift gate regardless of weight and proper PPE is used during the handling process.

Moreover, all containers that are brought back to WLFT after use are properly cleaned outside and inside the container. Mild detergents are used to clean the containers and are also triple-rinsed and de-labeled before being sent to a recycling center based in Quincy, Illinois. At this facility, the container is shredded and recycled.

*** The CDR form includes the following: Construction Type; size; contents; DOT designation and specific unit identification; date received; dates used; date removed; and disposal documentation.

IMPORTANT! READ CAREFULLY: By filling out this form, you must certify two things:
 1) Every HazMat has a MSDS accompaniment.
 2) The material in the drums/barrels is indeed what this form says it is.

Instructions for completing this form:
 Use this form to request the delivery or retrieval of HazMat or the pick-up of empty containers with HazMat residue.
Walter Louis Fluid Technologies will not take possession unless form is filled out.

Request Date:	First Name:	Last Name:
Company:	Building:	Dept:

ID # (if any)	Service Request- Pick Up or Delivery	GENERATION LOCATION- List the building number or location where HazMat is picked up.	DESCRIPTION- Describe the material by its chemical or its trade name. (include DOT designation if necessary)	# of Containers	Quantity- (amount and units) ie. 40 gallons, 20 ounces, EC (empty)	CONTAINER DESCRIPTION- (capacity and type) Examples: 55 gallon drum 5 gallon Drum

This is to certify that the above named materials are properly classified, described, packed, marked, and labeled/placarded and are in proper condition for transportation according to applicable regulations of the Department of Transportation. All items will be properly disposed.

Certified by:	Date:
Received by WLFT Staff:	Date:
WLFT 530 S. 5th Street Quincy, IL 62301	

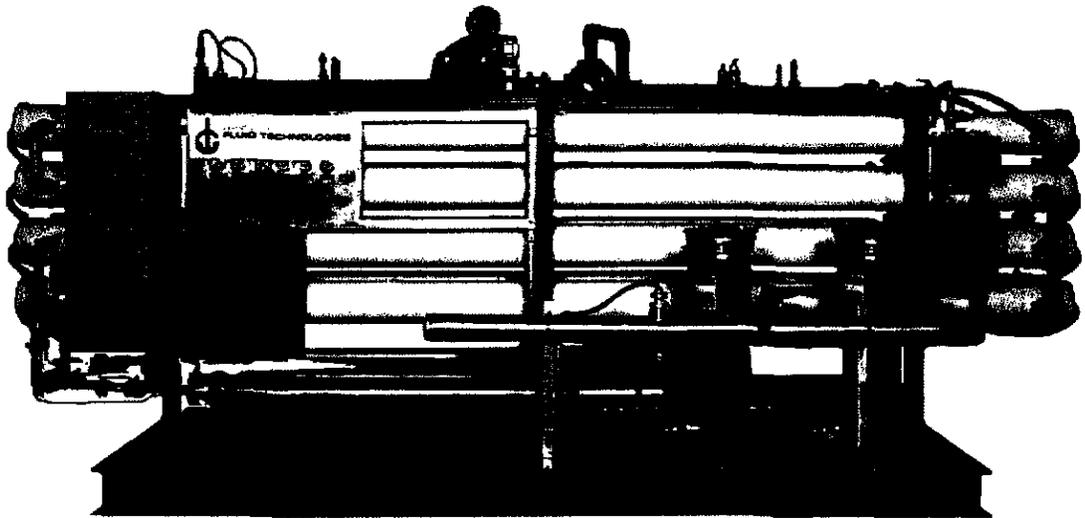


Walter Louis
FLUID TECHNOLOGIES

Engineering & Equipment
Division

RO

REVERSE OSMOSIS SYSTEMS



Walter Louis Fluid Technologies
530 South 5th
Quincy, IL 62301-4896
Engineering Dept.

Phone: (217) 223-2017
Fax: (217) 223-7734
Email: sales@walterlouis.com
Web: www.walterlouis.com

Reverse Osmosis offers a separation technique for purification of many solvent—solute systems. By the application of pressure greater than the natural osmotic pressure of the solution, the fluid will flow through the membrane leaving behind the dissolved solids. The result is a pure stream essentially free of dissolved solids, colloids, and bacteria. Many fluids can be processed; however, the most common application is the purification of water. Because no regeneration chemicals are required, the high operating costs inherent in their use and disposal is avoided. Routine maintenance is minimal and can be performed in very little time. The ability of R.O. to remove over 90% of dissolved minerals and organics, as well as colloidal matter bacteria, pyroxenes and most virus, results in many applications including:

- **Drinking water from brackish, or sea water**
- **Boiler feed water**
- **Waste water treatment (plating, rinse, cooling tower blowdown, etc.)**
- **As a component in ultra-pure water production**
- **Water for hemodialysis**

While the basic process of Reverse Osmosis appears simple, in actual operation many factors must be considered, including membrane configurations and material of construction. Walter Louis offers the standard cellulose and polyamide membranes in hollow fiber or spiral wrap configurations.

The reverse osmosis systems can be used as a stand alone process for producing low solids water or combined with other Water Louis equipment such as Ion Exchange and Ultrafiltration to produce the highest quality water.

TYPICAL R.O. SYSTEMS CONSIST OF THE FOLLOWING BASIC SECTIONS.

1. Pretreatment – The operation of the R.O. process may result in a large increase in the concentration of colloidal particles, calcium carbonate and various metallic oxide often present in the raw water. These contaminants can cause severe and often irreversible fouling of the membrane. This in turn causes a loss in output and a degeneration of the quality of the water that is produced.

2. Pressurization System - High pressure multi-stage centrifugal or positive displacement piston pumps of corrosion resistant stainless steel supply the driving force to overcome natural osmotic pressure and force the fluids through the membrane.

Typically applied pressure ranges from 200 psi to 800 psi.

Flow rates increase with an increase in applied pressure. However, Walter Louis recognizes the cost of high pressure operations and often stipulates lower than rated pressure operation.

3. Membrane - As mentioned previously, various membrane materials and configurations are available. The choice is depended on variables such as quality of the raw fluid, pH and presence of components incompatible with the membrane and configuration is evaluated for each application.

4. Instrumentation and Control - Walter Louis offers the most extensive range of instrumentation and controls as standard equipment in the industry. All packaged systems are completely prewired and pre-piped. Only one electrical hook up is required on all systems.

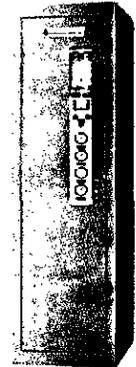
STANDARD FEATURES INCLUDE:

- Stainless steel and heavy wall plastic piping
- Epoxy coated steel frames and control panels
- Stainless steel pumps
- Cartridge pre-filter
- Chemical feed system
- pH and conductivity instrumentation
- Raw water and reject flow meter
- Automatic high and low pressure shut down

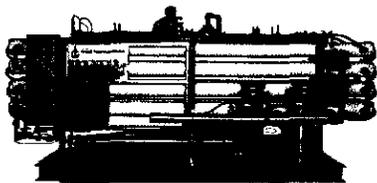
Model TE
500-20,000 GPD

These compact totally enclosed systems contains all of the features of large Walter Louis package reverse osmosis systems. All R.O. applications are possible with Model TE but the most common application include production of water of laboratory, hemodialysis and other small volume uses.

All brackish water systems are shipped ready to accept power and water supply. These systems are complete and if inlet water meets quality requirements for the given membrane they are ready to operate. If input water quality does not meet minimum standards Walter Louis can specify additional pretreatment systems to allow operation on most water supplies. Daily output for each Model is nominal and dependent on the particular membrane used and the pressure of operation. Special sizes and larger or smaller outputs are available.



System SM
20,40, & 75 GPM Modules

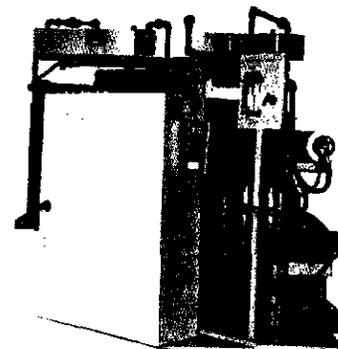


These systems are designed for easy set up operations and maintenance. All components are mounted on a single frame. Each frame can be expanded with additional modules. The modular system can be used as building blocks for very large systems.

Sea Water
From 1000 GPD

The development of membranes capable of ionic rejections of over 99% and the ability to operate at pressure greater than 800 psi have made sea water desalination by Reverse Osmosis feasible. Such higher pressures are necessary to overcome the high osmotic pressure of sea water.

Reverse Osmosis offers significant advantages over competitive techniques such as evaporation-distillation. Because of the low temperature operation scale and corrosion are minimal. Pumping energy required is less than one third that of vapor compression and only one eighth of multistage flash distillation. All sea water systems include storage tanks for potable water. Contact factory for the specific size required. Additional models are available for larger outputs or with less extensive pretreatment equipment



Chemical Equipment Services

Specialty Chemicals

- Cooling Water Corrosion & Scale Inhibitors
- Boiler Compounds
- Condensate Return Line Treatments
- Organic & Inorganic Flocculants for Water & Waste Water
- Industrial Microbiocides
- Fuel Additives
- Process Antifoams
- Oil Field Chemicals
- Chemical Intermediates

Fluid Process Equipment

- Membrane Process
- Ion Exchange
- Filtration
- Chemical Feed Systems
- Heat Recovery
- Package Water & Waste Water Systems
- Process Controllers
- Boiler Feed Systems

Analytical Services

- NPDES Monitoring
- Analytical Reagents
- Corrosion Analysis
- Laboratory Instrumentation
- Ultra Pure Water Systems

Quarterly Report submitted for the State of Missouri (OA)
For the date of June 5, 2014

Missouri Veteran's Nursing Homes

Mexico Veteran's Nursing Home

Tower: All values are within the proper control ranges.

Closed Loop: Proper chemical levels in the loop.

St. James Veteran's Nursing Home

Tower: The chemical level was a little low (still using the old product from Quality Water), we checked the chemical feed pump which needed cleaning, put a replacement pump on line.

Missouri Veterans (Cape Girardeau):

Boilers/Chillers: WLFT products now in place for cooling tower. Closed loop (hot/chilled) water systems have an adequate inventory of closed system treatment from prior vendor. WLFT chemical treatment for cooling tower is in place as of May 2014. Training on test procedures in process.

Missouri Veterans Home (St Louis):

Tests on cooling tower have been fine.

Chilled Loop: nitrite level has been in range.

Hot Loop: nitrite level is low (400 ppm) – waiting for new pot-feeder to get ordered.

Missouri Veterans Home (Cameron)

Tower: We performed a partial cleaning to start removing scale. The chemical program for the tower is in place and designed to remove scale at a low rate.

Closed loop Nitrite levels are in range

Missouri Veterans Home (Mt. Vernon)

Tower : The tower chemical levels are low. The feed rate was increased to bring the numbers within range.

Chiller : Chemical levels are minimal. No chemical has been added to the chiller to date. The free Iron numbers are higher this time at .16.

Boiler : Chemical levels are minimal. No chemical has been added to the chiller to date. The free Iron numbers are higher this time at .54.

Note: Ron would like the decision on how to proceed to be made from Jefferson City. Do we flush the system to clean any residual of the Hydrazine used in the boilers and chillers, or do we add chemical without cleaning the system?

Missouri Veterans Home (Warrensburg)

Tower: I went in and installed a loaner controller. I replaced the tubing, foot valves, and injection quills the chemical in on line.

Chiller: Chemical levels are good the system is well protected.

Boiler: Chemical levels are good the system is well protected.

Note: The "Dolphin" system is running and is dumping water sporadically. Tim would like direct and definitive direction on what Jefferson City wants to do with regards to the Dolphin and whether to let it run or disconnect it?

Department of Social Services

Division of Youth Services

Hillsboro Treatment Center (Hillsboro) Area D

Hot Closed Loop: Always well within proper nitrite range.

Hogan Street Youth Center (St. Louis) Area D

Steam Boiler: offline

Missouri Hills Area D

Closed Loop: Nitrite levels are within range.

Fulton Treatment Center (Fulton) Area C

Closed Loop: All boilers are shut down,

Montgomery Treatment Center (Montgomery City)

Closed Loop: Boiler is shut down.

W.E. Sears Youth Center (Poplar Bluff) Area B

Closed Loop: Nitrite level (1200 ppm) sufficient. No water losses.

MO. STATE HIGHWAY PATROL

MSHP TROOP – A (Lee’s Summit)

CHILLER: Corrosion levels and Glycol levels are good.

Highway Patrol Headquarters (Jefferson City)

Tower: All values are within the proper control ranges – no issues.

Closed Loop: Proper Nitrite levels in the closed loop.

Troop F (JEFFERSON CITY)

Closed Loop: Good Nitrite and Glycol levels in the closed loop.

Troop C (PARK HILLS)

Closed Loop: Nitrite and Glycol levels are within the proper control ranges.

Troop B (MACON)

Boilers: Proper Silica levels are being maintained in the boilers.

Chilled Loop: Proper Nitrite levels in the loop.

Troop I (ROLLA)

Closed Loop: Good Nitrite levels in the closed loop.

Crime Lab (SPRINGFIELD)

Closed Loop: Nitrite and Glycol values are within the proper control ranges.

State Office Facilities

Closed Loop: No Nitrite chemical in the loops

Fletcher Daniels Office Building (KANSAS CITY)

Chilled closed loop: Chilled loop is maintained within recommended limits

Towers: Tower is operating within recommendations.

KC DOLIR Building (KANSAS CITY)

Chilled closed loop: Chilled loop has a good level of corrosion inhibitor. The glycol levels are at 15% which is lower than limits.

Saint Joseph Office Building (ST. JOSEPH)

Hot loop: Good level of corrosion inhibitor.

Chilled Loop: Glycol levels low. Nitrite levels are good.

Tower: The tower numbers are different due to the makeup water change. City water is being used rather than the softener. This is due to the white rust issues from when the tower was installed and no pacification was done.

A chemical change will be required for the season until the tower white rust issues are resolved

Saint Joseph Career Center (ST. JOSEPH)

Hot closed loop: Good level of corrosion inhibitor in the loop.

The loop has a high level of entrained air. This could be a sign of failing pressure release valves. Free Iron is also high in the system at .36

Prince Hall

TOWER: Tower recently brought on line. Tests have been within proper ranges.

Boilers: offline

Closed Loops: nitrite levels have been in range.

Wainwright Building (ST. LOUIS)

Chilled Loops: Nitrite levels are always within proper ranges.

Tower: Tower recently on line. Charged and in range.

Boiler: The hot water boiler is in proper nitrite range

DEPT. OF ELEMENTARY AND SECONDARY
EDUCATION FACILITIES - DESE

Mo. School for The Deaf (FULTON)

Chilled Loops: Nitrite levels are properly maintained in the following closed loops – Rice, Merklen, Vocational, Stark, Wheeler and Resource buildings.

Towers: Towers recently put on line, all values are within proper parameters.

B.W. Robinson (ROLLA)

Closed Loop: Proper Nitrite and Glycol levels in the closed loop.

Delmar Cobble School (COLUMBIA)

Closed Loop: No issues – good Nitrite levels.

Green Valley – (SPRINGFIELD)

Closed Loop: Nitrite level was within the proper control ranges – no issues.

Prairie View School (MARSHALL)

Boiler: The chemical levels are good in this system.

Rolling Meadows – (HIGGINSVILLE)

Hot Loop: The chemical levels are a little high. The chemical levels have dropped since my last visit.

MO School for the Blind (ST. LOUIS)

Boilers: Both off-line per seasonal standby (stored with WLFT Boiler Banking).

Pool Boiler:

Chemical values are well maintained. Boiler blow down monitored and logged daily.

Tower: Main bldg – new air cooled condenser now in place; 70 Ton cooling tower removed.

Tower: 50 Ton unit – Values very consistent.

Cedar Ridge School (NEVADA)

Closed loop: Chemical levels are low at 440ppm
Need to order 5 Gallons of 839

College View School (JOPLIN)

Closed Loop: Glycol is at 15%

Note: There is no chemical in the system. The water is very dirty.

I did not add the 5 gallon container to the chiller because the water is very dirty and the system may need to be drained and flushed.

Lakeview Woods School (LEE'S SUMMIT MO)

Closed loop: Good corrosion inhibitor level here.

Oakview School (MONETT)

Chiller: Chemical levels are good.

Hot Loop: Chemical levels are low in the hot loop.

Note: The PVC used to plumb in the pot feeder in the Hot Loop appears to be schedule 40 rather than the required Carbon Steel. Adding chemical through this system while the boiler is running could cause serious problems at this facility. Once this is repaired we need to order and add 839.

Maple Valley School (KANSAS CITY)

Chilled closed loop: The chiller is down and in need of repair.
Erin said they had to put window units in the building

Trails West School (KANSAS CITY)

Closed Hot loop: Corrosion inhibitor levels are at a good level.

Tower: The chemical levels are good. The numbers are low at this time.
The system has not cycled up yet.

Verelle Peniston School (CHILLICOTHE)

Closed loops: Chilled loop was at recommended Nitrite Levels. Both Loops are high in conductivity and should be drained and flushed this summer

Boonslick State School (ST. CHARLES)

Closed Loop: Closed loop well within nitrite (1000 ppm) range.

Gateway State School (ST. LOUIS)

Closed Loop: Closed loop well within nitrite range (1100 ppm).

DEPT. OF MENTAL HEALTH

Albany Regional Office

Closed system: Nitrite Levels were on the low side, we added 3 gallons of 839. System has a lot of suspended solids. I recommend cleaning and flushing at end of cooling season.

Bellefontaine Habilitation Center

Cooling Tower: Recently brought online. Bryan was on vacation last week and the the conductivity was high. I manually bled the tower down to 2000 conductivity.

Boiler Systems:

Pool boiler was low on sulfite on last week,s visit, but all other tests were in line. Still no word on getting softeners.

Fulton State Hospital – (Fulton)

Boilers: Boiler #8 is on line, all values and blowdown are within the proper control ranges. Boiler #6 is off line and passed inspection, this boiler will be stored with lay-up corrosion inhibitor.

Towers: Hearnese and Biggs towers are on line, all chemical values are within the parameters. Hearnese is now on soft water make up and Biggs is still on hard water make up and using acid. Cremer tower is off line and is in the process of being cleaned

Higginsville Habilitation Center

Ragland: Chemical levels are a little high in the boiler. The system will be drained in the next week.

Boiler # 1: Chemical levels are a little high in the boiler. The system will be drained in the next week.

Boiler # 2: Not on line

Softener: Maintained working well

Steam line: The steam line treatment is at the level required to protect the steam lines.

Marshall Habilitation Center

Boiler # 1: Chemical levels are good conductivity is in range.

Boiler # 2: Chemical levels are good conductivity is in range.

Softener: Maintained working well

Steam line: The steam line treatment is at the level required to protect the steam lines.

Joplin Regional Office

Closed Loop : Good chemical levels in the boiler.
The system went off line the end of May.

Nevada Habilitation Center

Boiler # 1: Chemical levels and Conductivity are good this month in boiler # 1. There is a leak in need of repair that has gotten worse over the past few months. Boiler #1 will be off line in the next week or two for repairs

Boiler # 2: Off line at this time.

Softener: Softener is working as designed.

Steam line: The steam line treatment numbers are off due to the steam trap over flowing. The free Iron counts are at .18.

Tower: The chemical levels are low. All the numbers are low at this time. The system has not cycled up yet.

Hannibal Regional Office

Closed Loop: Nitrite level (1100 ppm) well within range. No water losses.

Hawthorn Habilitation Center (St. Louis):

Nitrite levels usually within range. Because of a leak, the nitrite level was low on my last visit. 839 additions brought the nitrite levels in line.

KC Regional Office - New Prospects Office Building – Peery Apartments

Closed Loops: All closed loops are maintained within recommended guidelines.

Metropolitan St. Louis Psychiatric Center-(on Delmar)

Tower: Tower recently online, all levels within range.

Boiler: The nitrite level in the hot water boiler well within range.

Northwest Missouri Psychiatric Rehabilitation Center (in St. Joseph MO)

Tower was just put on line. All chemicals were in recommended ranges

Chilled loop: All chemicals were in recommended ranges

St. Charles Habilitation Center

Closed Loop: Nitrite (1000 ppm) well within range. No water losses.

St. Louis Psychiatric Rehabilitation Center- (on Arsenal)

Tower: Admin Bldg: Recently online, but chemical pump lost prime and polymer level was low. Pump is now fine and I manually added chemical

Dome Building

Tower: Recently online, polymer level well within range. No issues.

Boilers: The chemical levels in the hot water boilers are within range. No issues.

Steam boiler: offline

Southeast Missouri Mental Health Center -Sexual Offender Rehabilitative Treatment Services (in Farmington)

Closed Loop Hctor: Nitrite level (900 ppm) within range. No losses.

Closed Loop Blair: Nitrite level (1100) within range. No losses

Southeast Missouri Mental Health Center – Acute Psychiatric Services (in Farmington)

Cooling Towers: Staples & Forensics

Staples: Tower operating properly –well maintained/excellent record keeping.

Forensics: Same as above.

Closed Loops: Nitrite levels (hot/chilled) all well within range.(1000+ ppm nitrite).

Sikeston Regional Office

Closed Loops: Nitrite level (1200 ppm) well within range. No losses.

Center for Behavioral Medicine (in Kansas City)

Hot and Chilled loops: Chilled loop and Hot Loop are being maintained with recommended guidelines.

The chilled loop is showing 2.2 free Iron. It does not appear the system was flushed after it was service and the tubes were brushed. The chiller should be flushed and cleaned. Filtration or flushing should be considered.

Tower: The Tower chemical levels are good.

Domestic Softeners: Units are performing well.

Hot and Chilled loops: Chilled loop is good. Hot Loop is being maintained with recommended guidelines..

Tower: Tower is off and tubes have been brushed. System ready for Spring.

Domestic Softeners: New units are performing well.

DEPARTMENT OF CORRECTIONS

Algoa Correctional Center (ALGOA)

Tower: All chemical values are within the proper control ranges. The water softener is still showing hard water, the maintenance operators will check the softener.

Eastern Reception & Diagnostic Correctional Center (BONNE TERRE)

Boilers: Logbook and on-site testing is properly maintained. All chemical and blowdown values are within the proper parameters.

Towers: The system is running inconsistently due to the cool weather – all chemical values are within the proper control ranges.

Closed Loops: Nitrite levels are within the proper control ranges.

Facility is in the process of switching over to a hard/soft (40 ppm) make up water for the entire facility.

Boonville Correctional Center (BOONVILLE)

Boilers: All chemical values are within the proper parameters, good reporting in the logbook. All boilers have recently been inspected and passed inspection.

Tower: Off line.

Fulton Reception & Diagnostic Correctional Center (FULTON)

Boilers: Proper nitrite levels have been maintained in the boilers.

Tower: New compressor was installed on the chiller, tower chemical values are within the proper control ranges.

Softeners: All four units were showing 0 hardness.

Fulton Community Service Center (FULTON)

Closed System: Proper levels of Nitrite in the closed loop.

Jefferson City Correctional Center (JEFFERSON CITY)

Steam Boilers: Boilers are being maintained within recommended control ranges and the logbook is in accordance with my report.

Condensate: Condensate system in conjunction with Aloga and Ameresco has been showing good pH levels (8.5), there are no issues with this system per the operators.

Tower: Tower values are within the proper control ranges – the system is now on a hard/soft water blend (40 ppm) instead of 100% soft make up water.

Closed Loops: Closed loops are maintained within recommended control range.

South Central Correctional Center (LICKING)

Steam Boiler: All chemical values and blowdown are properly being maintained. Logbook is kept up to date.

Hot Water Boiler (Wood Burning): Nitrite levels are within the proper control range.

Tower: Tower values are within the proper control ranges – no issues.

Missouri Vocational Enterprises (JEFFERSON CITY)

Hot Water Boilers: Proper maintenance and chemical values – no issues.

Tower: Tower is not on line.

Ozark Correctional Center (OZARK)

Steam Boilers: Steam boilers are maintained properly with adequate chemical and blowdown levels. Logbook is properly maintained.

Condensate Return System: pH runs a little high (9.3) due to a few leaks in the steamlines.

Tipton Correctional Center (TIPTON)

Steam Boilers: The summer steam boilers were recently put on line, values are within the proper control ranges. Logbook is in accordance with my reports.

Northeast Correctional Center (BOWLING GREEN)

Closed loop system water losses remain. Chemical additions (closed system treatment) on hold.

Women's Eastern Reception & Diagnostic Correctional Center (VANDALIA)

Tower: Chemical & dissolved solids levels well within range. Training session held for new operators.

Closed loops: Hot/chilled – nitrite levels well within parameters.

Steam boiler: All parameters well maintained; staff very attentive to details. Occasional softener inconsistencies.

Farmington Correctional Center (Farmington)

Power Plant: Steam boiler systems well maintained, monitored, recorded. Wet lay-up status excellent.

Cooling Tower (25 House): Start up mid-May; controller system well maintained/testing and record keeping intact.

Farmington Community Supervision Center (Farmington)

Closed Loop: Nitrite (1050 ppm) sufficient, well within range. No water losses, no issues.

Hannibal Community Supervision Center (HANNIBAL)

Closed Loops: Nitrite (1050 ppm) sufficient, well within range. No water losses, no issues.

Kennett Community Supervision Center (KENNETT)

Closed Loop: No water losses; nitrite level (1100 ppm) well within range.

Moberly Correctional Facility (MOBERLY)

Power Plant: Water losses sporadic. Currently 400 – 500 gallons per day.

Laundry: No issues; parameters well maintained, monitored, recorded. Inventory well controlled.

Ice Machine: No issues.

Admin Building: Offline at present (seasonal). Tower sump very clean.

Poplar Bluff Community Supervision Center (POPLAR BLUFF)

Closed Loop: Nitrite level (1100 ppm) well within range. No water losses.

St. Louis Community Release Center (ST. LOUIS)

Closed Loops: Nitrite levels are always in line.

Potosi Correctional Center (POTOSI)

Boiler: All boiler parameters well within range.

Condensate: Very good. Condensate less than 50 micromhos.

Tower: All parameters well within range. Testing and record keeping well maintained.

Closed Loop: Nitrite and conductivity within acceptable limits.

Softeners: Both softeners are operating properly.

Southeast Correctional Center (CHARLESTON)

Cooling Tower: Cooling tower parameters well within range. Testing and record keeping well maintained.

Hot Loop: Nitrite level well within range – very consistent.

Cold Loop: Nitrite level well within range.

Softener: Operating properly.

St. Louis Community Release Center (ST. LOUIS)

Closed Loops: Nitrite levels are always in line.

Western Reception Diagnostics and Correctional Center

(St. Joseph)

Towers: PowerHouse Towers #1, #2, #3 and 11 House #1 chemical levels are all within range.

Boilers: Boiler chemical levels are good.

Steam line: Chemical treatment is being maintained to protect the steam lines.

Softeners: Softeners are performing well

They are testing daily.

Chillicothe Correctional Center (Chillicothe)

Tower : Everything is within range. Hardness levels are at the top end. If they get any higher we will need to lower the control setpoint.

Both Loop are within range

Crossroads Correctional Center (Cameron)

Tower Is Online with chemical levels in range. Bleed meter is causing a restriction and may not be sufficient for High load bleed rate. They were going to see if is plugged

Chilled and Hot Loop in proper ranges

Maryville Treatment Center (MARYVILLE)

Steam boilers- Normal Operation Excellent Control

Bld. 2 Glycol Loop is at 14% Glycol.

14% Glycol has a Freeze Protection to about 25F and Burst protection to 15 F

Western Missouri Correctional Center (CAMERON)

Hot Closed Loop: See Crossroads

Laundry Steam Boiler: This boiler is now being used only for the Kitchen. Manual control is maintained by operators and electronic reporting is being done. The boiler is being turned OFF at night.



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Employer **Walter Louis Chemicals**

Frank J Murphy

Name (Please Type or Print)

Title

Electronically Signed

Signature

03/25/2009

Date

Department of Homeland Security – Verification Division

USCIS Verification Division

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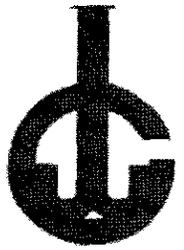
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Walter Louis

FLUID TECHNOLOGIES

WATER TREATMENT

&

TEST PROCEDURE

MANUAL

Maryville Treatment Center

July 2014

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Per RFP NO.: B3Z14153 Exhibit E

Walter Louis Fluid Technologies
530 South 5th Street
Quincy, IL 62301

Water Treatment Manual

Maryville Treatment Center

Bld. 4 Steam Boilers

Basics

The two main objectives of Steam Boiler Water Treatment are to optimize thermal efficiency and prevent corrosion.

Thermal efficiency basically translates to the amount of heat transferred from the fire side to the water side before it goes out the stack. In a steam boiler, lost thermal efficiency is primarily caused by scale buildup on the water side of the boiler.

Corrosion in a steam system is caused by a combination of low pH and high oxygen levels in the water.

In order to achieve our objectives, we must do several things. We'll start with --

Pretreatment

Calcium is the major scale former in this part of the country. The best way to prevent scale formation in the boiler is to eliminate it before it is introduced into the steam system. All steam systems should use soft water as make up. A reliable water softener on the makeup side of the system is a must.

Oxygen is also present in the makeup water, and again, should be removed before being introduced into the boiler. This is primarily done by either a deaerator (preferred) or a heated makeup tank. The higher the temperature of the feedwater, the less oxygen in it. This is the point in the process where Oxygen Scavenger (Sulfite, SO_3) is being injected.

Now that we have our makeup ready for the steam process, we will discuss the boiler.

Terms

Make-up = Raw water from softener
Feedwater = Mixture of make-up and condensate, fed to the boiler

Boiler

Several processes are going on at once in the boiler:

- Steam is produced and leaves the boiler. As this occurs, the level of dissolved solids (minerals in the water) raises. If steam or condensate is lost, then makeup water is needed to maintain the boiler operating level. This adds more solids to the mix. Once these solids reach a certain level, the boiler can start to carry over and/or scale will start to form on the tubes. To prevent this, the boiler must be "blown down". This is a process where water (not steam) is released from the boiler to drain, removing the solids.
- Oxygen Scavenger (Sulfite) is present (residual from pre-treatment) to remove any trace oxygen
- Boiler Compound is being injected. The boiler compound provides 3 functions:
 - Provide a scale inhibitor (i.e. phosphate)

- Provide a corrosion inhibitor (sodium hydroxide to raise pH and OH levels)
- Sludge Conditioner (phosphates and/or polymers) to keep solids from building in the bottom of the boiler

Steam and Condensate

Steam leaves the boiler carrying heat. That heat is discharged when the steam condenses back to water- condensate in boiler speak. The condensate is then returned to the deareator or makeup tank to be reused again. The treatment issue with steam system protection begins with the boiler water itself. Carbonates are present in all Midwestern water sources. When heated in the boiler, they decompose releasing carbon dioxide gas that mixes and leaves with the steam. When the steam condenses, the carbon dioxide gas forms carbonic acid that corrodes condensate return lines as well as the makeup tank. Thus, the reason for adding Steam Line Treatment. This is normally injected directly in the steam header, as close as possible to the boiler. This is a high pH/low boiling point material that condenses with the steam to neutralize the carbonic acid.

The success of this program is monitored by:

- Annual Boiler Inspections
- Comparing fuel usage to pounds of steam produced

Control of the chemical feeds is a direct result of daily testing. The daily tests and ranges recommended by WLFT for your system are as follows:

- Boiler Water
 - Sulfite 20-50 ppm
 - P Alkalinity 200 -500 ppm
 - M Alkalinity 400- 850 ppm
 - OH Alkalinity Calculated 2P – M
 - Phosphate 20 -50 ppm
 - Neutralized Conductivity 2200-3600 uS
- Feedwater
 - Conductivity 100-350 uS
 - pH 8.2-9.5
 - Iron .5 ppm Max
 - Hardness 5 ppm Max
- Condensate
 - Conductivity 50 uS Max

- pH 8.2-9.5
- Iron .5 ppm Max
- Hardness 5 ppm Max
- Softener
 - Conductivity 100-350 uS
 - pH 7.2-9.5
 - Hardness 5 ppm Max

Test procedures are included with this manual.
Test equipment and reagents are provided by WLFT.

Many things can affect your boiler that you have no control over. Makeup water quality and load are just two. As these vary, changes will have to be made. Your WLFT representative stands at the ready to assist you in making these changes to maintain a sound and efficient system.

Chemical Products

592-L Oxygen Scavenger

- Injected via chemical pump into the feed water tank
- Feed rate controlled by sulfite test result and parameters

1460 Boiler Compound

- Injected via chemical pump into feedwater line
- Feed rate controlled by phosphate test result and parameters

1535 Steamline Treatment

- Injected via chemical pump into the steam header
- Feed rate controlled by condensate pH test result and parameters

LC-25 Liquid Caustic Soda 25%

- Injected via chemical pump into feedwater line
- Feed rate controlled by OH alkalinity test result and parameters

Note: When adjusting feed rates, adjust in small increments and allow the system to stabilize before testing.

Product Delivery:

All of the chemical products delivered to this facility will be in 5 Gallon containers.

Method of Delivery (2 options)

- **WLFT Delivery Truck**
- **LTL Motor Carrier Freight**

Delivery Point

- West Side Loading Dock

Contact Information

Primary Service Representative

Roger Smith

217.653.7538 cell

roger@walterlouis.com

Alternate Service Representative

David Dreyer

913.972.2030 cell

david@walterlouis.com

WLFT Main Office

Phone 800.747.2019

Fax 217.223.7734

Billing Inquiries Christy Emerick

christy@walterlouis.com

Shipment Inquiries Chris Huckstep

chris@walterlouis.com

Lab Inquiries Tina Darnell

tina@walterlouis.com

Technical Data Bulletin

Interpretation of Test Results:

It is important to keep in mind that the chemical levels in the boiler water are all related to the cycles of concentration and Total Dissolved Solids (TDS), as measured in the conductivity of the water. If the conductivity is low, the level of all the other chemicals in the water will be lowered by the same proportion.

The interpretations below are based on the assumption that the conductivity is within the desired range.

Avoid adding large slugs of chemical to systems that are fed with calibrated pumps, unless chemical balances are severely out of range, resulting from perhaps a chemical drum running dry and pumping no chemical at all for an extended period. Make small adjustments to the chemical injection pumps instead, in order to maintain consistent control and best economy.

Sulfite: If lower than the desired range, increase the feed rate of the oxygen scavenging chemical. If higher than desired, reduce the feed rate. Excess sulfite is not harmful, but will artificially raise the conductivity and reduce alkalinity if in great excess.

Inhibitors and Alkalinities: If lower than the desired range, increase the feed rate of the inhibitor chemical. If higher than desired, reduce the feed rate. Greatly excess alkalinity can cause foaming, priming, and carryover of boiler water into the steam side of the plumbing. Excess polymer, chelants, and phosphonates in the inhibitor are not harmful until dosages become very high. Walter Louis chemical technicians will reformulate the proportions of ingredients in the inhibitor to maintain correct chemical balances.

Nitrite Inhibitor: Closed loops are ordinarily very tight, with little or no makeup water added for extended periods of time. The makeup water line is often metered so as to detect a leak. The nitrite level should be stable, dropping only when diluted by makeup water. A dropping nitrite level in a chilled water loop with no makeup water consumption is a sign that nitrite-eating bacteria have established a colony within the plumbing. Add a recommended dosage of biocide to kill off the bacteria, then reinhibit the system. Bacteria usually cannot survive in hot water loops unless shut down and cooled for the summer.

Technical Data Bulletin

Conductivity: Adjust skimmer blowdown to maintain conductivity at the desired level. Open the skimmer blowdown valve wider to reduce conductivity, close tighter to increase conductivity.

In the condensate, increased conductivity means that something is contaminating the steam, perhaps a heat exchanger leaking city water into the condensate return. Foaming, priming, and carryover of boiler water will show up as high conductivity and alkalinity in the condensate.

In the softened water, conductivity that is higher than the incoming water means that a valve to the brine tank is leaking, drawing salt brine into the water. Confirm this by testing for Chlorides higher than the incoming water.

Chlorides: Chlorides are fairly stable compounds in boilers, and are useful in calculating cycles of concentration, percent makeup, and percent condensate return. As a softener regenerates with sodium chloride (salt), the chloride test can help diagnose a leaking brine valve in the softener.

Hardness: As all the makeup water to the feed and boilers is run through the softener, the appearance of hard water anywhere in the circuit is cause for concern.

Low levels of hardness in the feedwater may signal that the softener is exhausting and bypassing hard water before its regeneration clock switches tanks and regenerates.

Hard water in the boiler often shows up as a cloudy water sample, as the chemical additives work to bind up the calcium carbonate and prevent scaling. Cloudiness will show up long before a hardness test comes up positive. Many boilers have an emergency makeup water line than can feed water directly from the mains in case of feedwater equipment failure. Check this line for leaks if the feedwater is soft but the boiler water is showing signs of hardness.

Hard water in the condensate return is a sure sign that an exchanger is leaking, usually in the steam bundle on a hard water domestic water heater.

Technical Data Bulletin

pH: A pH reading of 7.0 is considered neutral, neither acid nor alkaline.

If the deaerator or feedwater heater is maintaining consistent high temperatures, the feedwater pH will be elevated to 8.0 or higher, due to the bicarbonate-to-carbonate-to hydroxide reaction discussed earlier in the manual.

One of the functions of the steamline treatment is to raise the pH of the condensate and prevent the formation of corrosive carbonic acid. If the pH of the condensate is lower than the desired range of 8.5 - 9.0, increase the feed rate of the steamline treatment. If the pH exceeds 9.0, reduce the feed rate. The steamline treatment can have a detergent-like effect at high doses, and can "scrub" contaminants and pre-existing corrosion products off the plumbing, transporting them back to the feedwater and boiler. While a slow clean-up is desired, a large amount of crud returning to the water-side at once is not so desirable.

Consulting: Please do not hesitate to pick up the phone and call for advice and assistance with running tests or interpreting the results of the tests. We at Walter Louis take pride in providing excellent service. We appreciate the trust placed in us to protect a sizable capital investment in steam-generating equipment, and we pledge to do everything possible to insure that it operates as efficiently as possible and as reliably as possible.

Walter Louis Fluid Technologies

Quincy, Illinois

1-217-223-2017 8am-5pm & Answering Service after hours

1-217-223-2019 Direct line to plant after hours

1-217-223-7734 Fax 24 hours

Technical Data Bulletin

Alkalinity Tests:

As boiler water alkalinity is quite concentrated, a 10 ml sample is of adequate size to get a good reading. 25 or 50 ml should be tested for non-boiler locations.

P-Alkalinity:

1. Measure sample into casserole dish.
2. Add 5 drops Phenolphthalein Indicator solution. The sample will turn dark pink if P-Alkalinity is present. If no color change, record P-Alkalinity as "0".
3. Fill the Standard Sulfuric Acid burette and allow it to drain back to zero.
4. Add the reagent drop by drop, stirring gently, until the pink color is gone. Read the burette, and multiply by the proper factor for the sample size to get ppm.
5. Record on test sheet.
6. Do not discard the sample if also running M-Alkalinity Test.
7. Do not refill the burette. Continue from the P-Alkalinity reading.

M-Alkalinity:

1. Continue with the same sample from the P-Alkalinity test.
2. Add 5 drops Mixed Indicator solution. The sample will turn blue.
3. Add the reagent drop by drop, stirring gently, until the blue color turns to orange with no trace of blue remaining.
4. Read the burette, and multiply by the proper factor for the sample size to get ppm.
5. Record on test sheet.
6. Rinse casserole dish and stirring rod.

Sample Size	Factor
10 ml	X 100
25ml	X 40
50 ml	X 20

Calculate OH- Concentration:

Multiply P-Alkalinity times Two. Subtract M-Alkalinity from this to get OH- in ppm.

Record on Test Sheet.

Technical Data Bulletin

TOTAL HARDNESS (TH) TEST

Items required: Sample to be tested, casserole dish, stirring rod, Hardness Indicator Powder, small scoop, graduated cylinder, Hardness Titrating Solution burette assembly, Hardness Buffer Solution and log sheet.

PROCEDURE:

STEP 1: Prepare Hardness Titrating Solution burette for use by filling the burette and allowing it to drain back to the "0" mark at the top of the burette.

STEP 2: Measure a 25 ml sample of water to be tested. Add sample to casserole dish.

STEP 3: Add 13 drops "Hardness Buffer" to sample.

STEP 4: Add 1 small scoop Hardness Indicator. Presence of hardness will turn the sample to a purple color.

STEP 5: Place sample under "Hardness Titrating Solution" burette. Add the titrating solution slowly until sample changes from purple to blue (end point).

STEP 6: Record the amount of hardness titrating solution used to effect the blue color change and multiply that value by "40" to express total hardness.

STEP 7: Record the value obtained from Step 6 as parts per million (ppm) "TH" (total hardness).

STEP 7: Thoroughly rinse all glassware.

Technical Data Bulletin

TOTAL HARDNESS (TH) TEST

SULFITE (SO₃) TEST PROCEDURE

Items needed: Boiler sample (covered), casserole dish, graduated cylinder, stir rod, Potassium Iodide-Iodate Titrant, Dual Purpose Indicator, scoop.

Step 1: Measure 25 ml of boiler sample in graduated cylinder and pour into casserole dish.

Step 2: Add one scoop of "Dual Purpose Indicator" to the casserole dish. Stir.

Step 3: "Zero" burette assembly containing Potassium Iodide Iodate.

Step 4: Place casserole dish under burette, add Potassium Iodide-Iodate slowly to the sample while stirring until sample turns blue (end point).

Step 5: Multiply "mls" of Potassium Iodide-Iodate used x "40" to give parts per million (ppm) sulfite (SO₃).

Step 6: Log results.

Technical Data Bulletin

Orthophosphate Test for Boiler Water:

The Phosphate test is a pre-packaged test manufactured by Hach (Hok) Company. It reads in a narrow range of 0-5 ppm. As the desired range in the boiler water is 40-80 ppm, the sample must first be diluted with distilled or deionized water in a 1:10 ratio.

Filtering:

The boiler water must first be filtered before testing, to remove Phosphates that have already reacted with Calcium, as it will distort the true reading of the test. In the test kit is a small funnel and filter paper.

Fold the circle of paper into fourths, then open one layer of the pie-shaped folded paper to make a cone. Place the cone of filter into the funnel, and the funnel into the 10 ml graduated cylinder.

Pour boiler water into the funnel until nearly full.

Watch the filtered water flow into the 10 ml graduated cylinder. When the bottom of the meniscus (the cup-shaped curve of the water line) touches the 5 ml mark, quickly remove the funnel and filter assembly and set aside.

Making the Dilution:

Add the 5 ml of filtered boiler water to the 50 ml graduated cylinder.

Fill the 50 ml graduated cylinder with distilled or deionized water. This is now a 1:10 dilution of boiler water.

Pour the diluted sample into the two test tubes of the Hach comparator. Set the remainder aside in case the test needs to be repeated.

Proceed to the next page, "Running the Test"

Technical Data Bulletin

Orthophosphate Test, continued...

Running the Test:

Shake a packet of Hach Phos-Ver 3 Reagent powder to settle it to the bottom, tear open the top, and pour the powder into one tube of diluted sample. Cap the tube and invert several times to mix.

Set the sample aside for three minutes to allow the reaction to complete. The sample will turn blue if Orthophosphate is present.

Place the tubes of sample in the comparator, plain tube to the outside edge, colored sample in the inner hole.

Hold the comparator up to a well-lighted white surface. Turn the color wheel until the color of the wheel against the plain sample matches the color of the sample with reagent added.

Read the orthophosphate level in the window on the front of the comparator. It will read between 0.0 and 5.0.

Multiply by 10 to get the true orthophosphate reading, as the water tested was diluted 1:10. A reading from 0 to 50 will be calculated.

Record on test sheet.

Rinse test tubes, graduated cylinders, and filtering assembly. Replace in kit for storage.

Technical Data Bulletin

Iron Test (High Range, Ferro-Ver):

The Iron test is a pre-packaged test manufactured by the Hach (Hok) Company. It reads in the range of 0--5 ppm.

Iron in raw well water contaminates water softener Zeolite and reduces its ion exchange efficiency. It also forms sludge on the inside of pipes, clogs valves, and imparts a color and undesirable taste to the water. The EPA allows 0.3 ppm in drinking water.

Dissolved iron in boiler and condensate systems is a signal that there is corrosion actively occurring somewhere in the system. The usual culprit is inadequate steamline inhibitor feed, allowing the pH of the condensate to drop. Steamline treatment overfeed can also cause temporary high iron levels due to their detergent effect scrubbing pre-existing corrosion products off the inside of the plumbing and washing it back to the return tank.

Running the Test:

Pour the sample into the two test tubes of the Hach comparator.

Shake down a packet of Hach Ferro-Ver Reagent powder, tear open the top, and pour the powder into one tube of diluted sample. Cap the tube and invert several times to mix.

Set the sample aside for three minutes to allow the reaction to complete. The sample will turn orange if iron is present.

Place the tubes of sample in the comparator, plain tube to the outside edge, colored sample in the inner hole.

Hold the comparator up to a well-lighted white surface. Turn the color wheel until the color of the wheel against the plain sample matches the color of the sample with reagent added.

Read the iron level in the window on the front of the comparator. It will read between 0.0 and 5.0.

Record on test sheet.

Rinse test tubes, graduated cylinders, and filtering assembly. Replace in kit for storage.

Technical Data Bulletin

Testing with the Myron-L TPH1

Procedure for pH & Conductivity

1. Rinse the cell cup for the test to be done with DI or clean tap water.
2. Rinse the cell 3 times with the sample being analyzed.
3. Press the correct key for the test and read the the display.
4. Empty the sample cell and rinse at least 3 times with clean water.
5. Store the pH cell with 6023 pH Kcl Soak Soln. and cap.
6. The conductivity cell should be stored with DI water after rinsed or empty.
7. Calibration checks of both cells should be done periodically and if needed recalibrated with the appropriate solutions.
8. A schedule of once per month for conductivity and twice for pH is recommended by the manufacturer. Refer to the Operation manual for calibration and cleaning procedures.

Technical Data Bulletin

Procedure for Neutralized Conductivity/ TPH1

Items needed: Conductivity Meter, casserole dish, stirring rod and Neutralizing Solution.

1. Step 1: Pour 30-40 mls of water sample to be tested into casserole dish.
2. Add Neutralizing Solution to sample. Sample will turn pink if alkalinity is present. Continue to add neutralizing solution while stirring until sample returns to clear color.
3. Using neutralized sample pour sample into the conductivity cell of the meter and depress the COND button. Read and record as neutralized conductivity.
4. Empty the sample cell and rinse at least 3 times with clean water.
5. Store the pH cell with 6023 pH KCl Soak Soln. and cap.
6. The conductivity cell should be stored with DI water after rinsed or empty.
7. Calibration checks of both cells should be done periodically and if needed recalibrated with the appropriate solutions.
8. A schedule of once per month for conductivity and twice for pH is recommended by the manufacturer. Refer to the Operation manual for calibration and cleaning procedures.



WLFT 1535 STEAMLINER TREATMENT

Condensate multifunctional return line Corrosion Inhibitor

Product Use: Walter Louis 1535 Steamline Treatment is a blend of three amines formulated to protect large complex condensate return systems. For applications where multiple pressure sections may be present, corrosion protection is accomplished by the direct neutralization of carbon dioxide in the steam system.

Benefits:	Reduces iron pickup	Minimizes corrosion levels
	Conveniently handled liquid	Efficient in wide range of conditions
	Compatible with other treatments	Minimizes downtime

Dosage: In most industrial and institutional systems, use sufficient Walter Louis 1535 to maintain a condensate pH control range of 8.0 to 8.6. Condensate return rates, as well as type of deaerating heater used, affect dosage requirements due to the recycling of Walter Louis 1535. Subsequent dosages and dosage adjustments are based upon both pH and iron analysis performed regularly on the condensate. The dosage in each case should be established in cooperation with your Walter Louis water treatment specialist. Test kits for determining the residual of oxygen scavenger are also available.

Specifications

Flash Point: 150° F	Appearance: Dark Amber liquid
Freezing Point: 150° F	Odor: Mild Amine
Weight: 8.2 lbs/gal	Solubility: Highly miscible
pH: 11.0	Specific Gravity: 0.985

Handling: This product is for industrial use only and should be handled accordingly. Alkaline material – Do not take internally. If contact with skin occurs, wash with plenty of water. If eyes are affected, flush with water and get medical attention.

Packaging: 55 gallon poly drums – approximately 450 lbs.

Technical Data Bulletin

WLFT #1460 BOILER COMPOUND

Concentrated Liquid Boiler Compound

Product Use: WLFT#1460 is recommended for use in boilers of all pressure ranges to prevent calcium, magnesium and iron deposits in boilers using high quality zeolite softened water. WLFT#1460 is a blend of phosphates, polymeric dispersants and sequesterants. An effective antifoam, WLFT#1460 provides dependable means for controlling foaming and carryover. This will improve steam purity, permit faster load changes and allow higher TDS in the boiler. The dispersant blend includes terpolymers that are particularly effective in control of iron deposits. 1460 is particularly useful in low alkaline water or where a dealkalizer or reverse osmosis is used for make up water pre-treatment.

Benefits:

*Prevents boiler feedline deposits	*Permits higher TDS in boiler
*Conveniently handled liquid	*Minimizes foaming
*Highly compatible with other treatments	*Improves steam purity
*Builds Hydroxide Alkalinity	

Dosage: Your Walter Louis water treatment specialist will recommend the proper dosage and residual for your specific application. Treatment feeding equipment should be made of corrosion resistant materials.

Specifications

- * pH – 12.0-12.5
- * Appearance & Odor - Amber to brown liquid, woody odor
- * Specific Gravity – 1.22
- * Flash Point: None
- * Freezing Point: 10° F

Handling: If material contacts skin, wash with plenty of water. If eyes are affected, flush with plenty of water and get medical attention.

Packaging: 55 gallon poly drums – approximately 555 lbs.
15 gallon poly drums – approximately 150 lbs.
Bulk and Mini-bulk



WLFT#592-L LIQUID OXYGEN SCAVENGER

PRODUCT USE: Dissolved oxygen is a serious cause of corrosion in steam generating systems. WLFT#592L liquid oxygen scavenger is recommended for the fast and complete removal of dissolved oxygen in feedwater and boiler water. This product is formulated especially for larger systems that return condensate to the boiler feedwater system and employ a deaerator. In addition to a special blend of sulfites that reduce alkalinity in the feedwater, a special sequesterant specifically for iron is added to transport iron through the system and aid in iron removal through blowdown.

BENEFITS:

- * Ease of application
- * Economical
- * Pre-boiler protection
- * Fast acting
- * Helps transport iron
- * Low Toxicity

DOSAGE: Your Walter Louis Treatment Specialist will establish proper dosage requirements and control range based upon your specific operating conditions.

FEEDING: May be added with other boiler treatment chemicals that are diluted in a chemical feed tank or pump directly from the drum to the feedwater reservoir with standard corrosion resistant equipment.

PHYSICAL DATA: Colorless to amber colored liquid, no flash or fire point, freeze point 10°F.

HANDLING: Harmful if swallowed. Avoid prolonged contact with skin. Wash with plenty of water. If eyes are affected, immediately flush with water for at least 10 minutes and get medical attention.

PACKAGING: 55 gallon drums, approximately 590 lbs.



Technical Data Bulletin

WLFT# LC-25 LIQUID ALKALINITY BUILDER

Walter Louis LC-25 is a concentrated solution of Sodium Hydroxide. LC-25 is recommended for feedwater with high levels of Magnesium or for feedwater containing insufficient levels of natural alkalinity such as systems that utilize Reverse Osmosis or Dealkalization for pre-treatment. LC-25 is compatible with all boiler treatment products.

LC-25 is not prone to freezing in typical storage conditions.

APPLICATION: LC-25 should be fed at sufficient rates to maintain recommended Hydrate Alkalinity.

TYPICAL PRODUCT CHARACTERISTICS

Appearance	Clear liquid
Odor	Odorless
pH (1% soln)	12.7
Specific Gravity	1.28

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: LC-25 CAUSTIC SODA LIQUID 25%

Chemical Name and Synonyms: Sodium Hydroxide

Proper Shipping Name: SODIUM HYDROXIDE SOLUTION

Hazard Class: Corrosive Material

ID Number: UN1824 PG:II Health = 3

Label requirements: Corrosive Fire = 0

Reportable Quantity: Reactivity = 1

Section II - Hazardous Ingredients

Table with 3 columns: Ingredient, Percent, TLV. Row 1: Sodium Hydroxide, 25%, 2 MG/M3 - Ceiling

Section III - Physical Data

Boiling Point: 288 F

Solubility in Water: Complete

Specific Gravity: 1.28

Appearance and Odor: Clear and colorless

Evaporation Rate: Slower than ether

Vapor Density: Heavier than air

pH (1% solution) - 12.7

Section IV - Fire and Explosion Hazard Data

Flash Point: Not applicable

Extinguishing Media:

Special Fire fighting procedures: Wear self-contained breathing apparatus with a full face-piece operated in pressure-demand or other positive pressure mode and full body protective clothing when fighting fires.

Unusual Fire and Explosion Hazards: Can react with chemically reactive metals such as aluminum, zinc, magnesium, copper, ect. To release hydrogen gas which can form explosive mixtures with air.

Section V - Health Hazard Data

Threshold Limit Value: 2 MG/M3 - Ceiling

Effects of Overexposure: EYES: Causes severe damage and even blindness very rapidly. SKIN: Causes burns, possible deep ulceration. BREATHING: Mist can cause damage to nasal and respiratory passages. SWALLOWING: Results in severe damage to mucous membranes and deep tissues.

Emergency and First Aid procedures: SKIN: Immediately flush exposed area with water for at least 15 minutes, get medical attention. Remove contaminated clothing. Launder contaminated clothing before re-use. Discard contaminated shoes. EYES: Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Get immediate medical attention. If physician is not immediately available, continue flushing with water. Do not use chemical antidote. IF SWALLOWED: Do not induce vomiting. Vomiting will cause further damage to the throat. Dilute by giving water. Give milk of magnesia. Keep warm and quite. Get medical attention immediately. IF BREATHED: If affected remove individual to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped give artificial respiration. Keep person warm, quiet and get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (X)

Incompatibility – Avoid contact with strong mineral acids, reactive metals such as aluminum and magnesium, organic materials, water, strong organic acids, copper.

Hazardous decomposition products: N/A

Hazardous Polymerization -- | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Small spill: Neutralize and mop up solution. Large spill: Collect and add slowly to large volume of water. Persons not wearing protective equipment should be excluded from area of spill until cleanup is completed. Stop spill at source. Dike to prevent spreading. Pump to salvage tank.

Waste Disposal Method: Small Spill: dispose of in accordance with Local, State, and Federal regulations. Large spill: pour into a large tank of water and neutralize. Flush to drain with large excess of water in accordance with applicable regulations.

Section VIII – Special Protection Information

Respiratory Protection -- If TLV of the product or any component is exceeded; a NIOSH/MSHA jointly approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH/MSHA respirators under specified conditions.

Ventilation: Provide sufficient mechanical (general and /or local exhaust) ventilation to maintain exposure below TLV(s).

Protective Gloves: Wear resistant gloves such as Neoprene, Nitrite rubber, Polyvinyl Chloride, Polyethylene.

Eye Protection -- Chemical splashes goggles and face shield.

Other: Wear impervious clothing and boots.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: N/A

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use or misuse are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: December, 2006

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
 530 South 5th Street, Quincy, IL 62301-4896
 Phone: 217/223-2017
 CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1535 STEAMLINE TREATMENT

Chemical Name and Synonyms: Proprietary Corrosion Inhibitor

Proper Shipping Name: Corrosive Liquid, Flammable N.O.S. (contains Diethylaminoethanol)

Hazardous class: Corrosive Material (8)

Health = 3

ID Number: UN2920 PG II

Fire = 2

Label Requirements: Corrosive/Flammable

Reactivity = 0

Reportable Quantity:

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
Cyclohexylamine CAS #108-91-8	15%	10 ppm
Diethylaminoethanol CAS #100-27-8	20%	10 ppm
Morpholine CAS #110-91-8	10%	

Section III – Physical Data

Boiling Point- >212°

Solubility in Water- Complete

Specific Gravity – 0.98

Appearance and Odor -- Clear liquid with pungent odor

pH (1% solution) –11.1

Section IV – Fire and Explosion Hazard Data

Flash Point – None

Extinguishing Media – Water spray of fog; CO₂ foam

Special Fire fighting procedures: N/A

Unusual Fire and Explosion Hazards: None

Section V – Health Hazard Data

Threshold Limit Value: None listed

Effects of Overexposure: Liquid is irritating to the eyes. May be harmful if swallowed or absorbed through the skin.

Emergency and First Aid Procedure: EYES: Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eye lids frequently. Call a physician. Continue flushing with water if medical attention is not immediately available. SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and shoes before reuse. Call physician if irritation persists.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid

Incompatibility: Strong oxidizing agents, strong acids.

Hazardous Decomposition Products: None

MATERIAL SAFETY DATA SHEET – 1535 STEAMLINE TREATMENT

Section VI – Reactivity Data (cont.)

Hazardous Polymerization: | May occur
| Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation: Maintain adequate ventilation. Local exhaust if dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection: Side shield safety glasses or chemical safety goggles. Do not wear contacts.

Other: Wear rubber apron and rubber boots if possibility of contact exists during use.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Avoid contact with eyes, skin, and clothing. Avoid breathing vapors.

Other: Do not transfer into improperly marked containers. Keep container closed when not in use.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, Walter Louis Chemicals makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.

Revised Date: May, 2004

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 1460 BOILER COMPOUND

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Corrosive Liquid N.O.S. (contains Potassium Hydroxide Solution)

Hazard Class: Corrosive (8)

ID Number: UN 1760 PGII

Label Requirements: Corrosive

Health = 1

Fire = 0

Reactivity = 0

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
Potassium Hydroxide CAS #1310-58-3	20%	2 mg/m3

Section III – Physical Data

Boiling Point -- >212°

Solubility in Water -- Complete

Specific Gravity -- 1.205

Appearance and Odor -- Clear liquid -- pungent odor

pH (1% solution) -- 11.8

Section IV – Fire and Explosion Hazard Data

Flash Point -- Non-Flammable

Extinguishing Media -- Water Spray or fog; CO₂ foam

Special Fire Fighting Procedures -- None required in normal use.

Unusual Fire and Explosion Hazards -- N/A

Section V – Health Hazard Data

Threshold Limit Value -- N/A

Effects of Overexposure -- INHALATION: Airborne concentrations of dust, mist, or spray can cause damage to the upper respiratory tract. EYES: May cause severe blindness resulting in damage to the eyes. SKIN: May irritate the skin if prolonged exposure exists.

Emergency and First Aid Procedures -- INHALATION: Remove person from contaminated area to fresh air. If breathing has stopped, give artificial respiration. EYES: Flush with copious amounts of water for at least 15 minutes period, periodically lifting upper and lower lids to ensure washing of the entire surface. Seek medical attention. SKIN: Immediately wash contaminated area with plenty of soap and water. If irritation persists, seek medical attention. INGESTION: DO NOT INDUCE VOMITING. Give large quantities of water or several glasses of milk if available. Never give anything by mouth to an unconscious person. Seek medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid – heat
Incompatibility – Strong oxidizing agents, strong acids
Hazardous Decomposition Products – N/A
Hazardous Polymerization | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case of Material Spilled or Released: Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Dispose of in accordance with all applicable local, state, and federal regulations.

Section VIII – Special Protection Information

Respiratory Protection -- None required in normal use. However, avoid breathing vapor or mist. Use NIOSH approved equipment when airborne exposure is excessive.

Ventilation -- Maintain adequate ventilation. Local exhaust if dusty or misty conditions prevail.

Protective Gloves: Rubber

Eye Protection -- Face shield or chemical safety goggles.

Section IX – Special Precautions

Precautions to be Taken in Handling and Storing -- Keep container closed when not in use. Avoid contact With skin, eyes, and clothing. Store away from heat, sparks and open flame.

Other -- Minimize skin contact. Wash with soap and water before eating, drinking, smoking, or using toilet facilities. Safety shower, eye bath and washing facilities should be available. Never transfer to improperly marked containers.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling abuse, or misuse, are beyond our control, Walter Louis Fluid Technologies makes no warranty, either express or implied with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to this particular use.

Revised Date: May, 2004

Prepared By: MSDS Coordinator

MATERIAL SAFETY DATA SHEET

Section I

Walter Louis Chemicals
530 South 5th Street, Quincy, IL 62301-4896
Phone: 217/223-2017
CHEMTREC EMERGENCY: 800/424-9300

Trade Name and Synonyms: 592-L OXYGEN SCAVENGER

Chemical Name and Synonyms: Proprietary Boiler Compound

Proper Shipping Name: Oxygen Scavenger

Hazard Class: Non-Hazardous

Health = 1

ID Number: None

Fire = 0

Label Requirements: None

Reactivity = 0

Section II – Hazardous Ingredients

<i>Ingredient</i>	<i>Percent</i>	<i>TLV</i>
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None listed

Section III – Physical Data

Boiling Point: 220 F

Solubility in Water: Complete

Specific Gravity: 1.19

Appearance and Odor: Purple liquid – no odor

pH (1% solution): 6.9

Section IV – Fire and Explosion Hazard Data

Flash Point -- None

Extinguishing Media – As appropriate to adjacent fire

Special Fire Fighting Procedures --Pressure demand self-contained breathing apparatus should be used by firefighters.

Unusual Fire and Explosion Hazards - Protective clothing for skin and eye protection should be worn to protect against this highly alkaline chemical.

Section V – Health Hazard Data

Threshold Limit Value: N/A

Effects of Overexposure: *Inhalation:* Liquid is irritating to eyes. May be harmful if swallowed or absorbed through skin.

Emergency and First Aid Procedures: *Eyes:* Flush eyes for 15 minutes and get medical attention. *Skin:* Wash thoroughly with soap and water and get medical attention if irritation or redness develops. Launder clothes before reuse. *Ingestion:* Give 2 or 3 glasses of water, induce vomiting by tickling back of throat with finger. Get medical attention.

Section VI – Reactivity Data

Stability | Unstable
 | Stable (XX)
 | Conditions to avoid –Keep away from sparks, heat, and open flame.

Incompatibility – Avoid contact with strong oxidizing agents and acids.

Hazardous Decomposition Products –

Hazardous Polymerization | May occur
 | Will not occur (XX)

Section VII – Spill or Leak Procedure

Steps To Be Taken In Case Material is spilled or released: Extinguish all sources of ignition. Wash down with water or soak up on sand and dispose of in an approved landfill. Do not wash down with water where runoff will contaminate important water sources.

Waste Disposal Method: Incinerate in an incinerator equipped with an after-burner and scrubber or bury in an approved landfill.

Section VIII – Special Protection Information

Respiratory Protection: None required in normal use.

Ventilation: Use adequate local exhaust ventilation where mist, dust or spray may be generated.

Protective Gloves: Rubber

Eye Protection: Face shield or goggles

Other: Rubber boots and apron if possibility of contact during use exits.

Section IX – Special Precautions

Precautions to be taken in Handling and Storing: Avoid contact with eyes, skin and clothing. Avoid breathing vapors. Store away from heat, sparks, and open flame.

Other: Do not transfer to improperly marked containers. Keep container closed when not in use.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling abuse, or misuse, are beyond our control, Walter Louis Fluid Technologies makes no warranty, either express or implied with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. The user should satisfy himself that he has all current data relevant to his particular use.



Wednesday, May 7, 2014 7:47 PM CST

State of Missouri
Department of Corrections
301 West High Street
Truman Office Building
Jefferson City MO 65101-4539
(573) 751-3224

Report Number: 21646
Recorded By: Roger Smith
(217) 223-2017
roger@walterlouis.com

MTC Maryville Treatment - Steam Boilers								
Component	Conductivity neutral	Alkalinity P	Alkalinity M	Alkalinity OH	Sulfite	Phosphate	Conductivity	pH
Boiler 1	3020	650	920	380.0	44	45		
Limits	2200 - 3600	200 - 600	400 - 850	150 - 450	20 - 50	20 - 50		
Boiler 3	2600	450	600	300.0	42	42		
Limits	2200 - 3600	200 - 600	400 - 850	150 - 450	20 - 50	20 - 50		
Softener							288	8.1
Limits							100 - 350	7 - 8.5
Feedwater							75	9
Limits							100 - 350	8.2 - 9.5
Condensate							60	8
Limits							50 max	7.8 - 9.2

Component	Hardness total	Iron (% as Fe ₂ O ₃)	ABS
Softener	0		
Limits	10 max		
Feedwater	0		
Limits	10 max		
Condensate	0	.8	
Limits	10 max	0.5 max	

Closing Comments

Everything looks good
I would increase Steamline treatment 5%

Sample Report
For Format evaluation only



Monday, May 19, 2014 12:56 PM CST

State of Missouri
Department of Corrections
301 West High Street
Truman Office Building
Jefferson City MO 65101-4539
(573) 751-3224

Report Number: 70
Recorded By: Roger Smith
(217) 223-2017
roger@walterlouis.com

MTC Maryville Treatment - Steam Boilers

Please Review The attached Scale Analysis from the Sample you gave me.

The Silicon and Titanium Levels along with the low Calcium levels tell me that this is probably not your standard corrosion/scale sample.

It's not definitive but it sure doesn't rule out that this is what's left of some type of ceramic coating

If you have any questions give me a call @ 217.653.7538

Sample Report
For Format evaluation only

Equipment Inspection Report



Facility Maryville Treatment Center

System Name Bld 4 Boilers

Date 7/10/2014

Controller Specs No Control Manual Blowdown

μS: Setpoint 3000 DeadBand N/A

Blowdown Method (include Bottom Blow Freq)

μS: Makeup 330 Cycles 9

Oxygen Scavenger 592-L

Alkalinity Booster LC-25

Feed Method

Feed Method

Based on Makeup
Tied to Fill valve on Feed Tank

Manual Feed By OH test result

Pump Model LMI P141

Pump Model None

Pump %Stroke 75 %Speed 50

Pump %Stroke %Speed

Feed Rate ppm

Feed Rate ppm

Boiler Compound 1460

Steamline 1535

Feed Method

Feed Method

Feed Based on Load
Tied to Feedwater Pump

Continuous Feed

Pump Model LMI P141

Pump Model LMI P141

Pump %Stroke 75 %Speed 50

Pump %Stroke 75 %Speed 50

Feed Rate ppm

Feed Rate ppm

Comments/ Recommendations

Sample Report
For Format evaluation only

WLFT Service Representative Roger Smith

State of Missouri
Department of Corrections
301 West High Street
Truman Office Building
Jefferson City MO 65101-4539
(573) 751-3224

Report Number: 38
Recorded By: Roger Smith
(217) 223-2017
roger@walterlouis.com

MTC Maryville Treatment - Steam Boilers			
Product	Location	Amount	Unit
592-L LIQUID OXYGEN SCAVENGER	Boiler Room	12.0	Gallons
1535 STEAMLINER TREATMENT	Boiler Room	18.0	GALLONS
1460 BOILER COMPOUND	Boiler Room	23.0	GALLONS
LC-25 LIQUID CAUSTIC SODA 25%	Boiler Room	14.0	GALLONS

Sample Report
For Format evaluation only



Walter Louis
FLUID TECHNOLOGY

530 So. 5th Street ** Quincy

**STATE OF MISSISSIPPI
OFFICE OF ADMINISTRATION
DIVISION OF PURCHASING & MANAGEMENT
(DPMN)**

**REP NO. B3
TITLE: WATER TREATMENT**

BID DUE DATE: 7/1

*** **

RCVD JUL 14'14 AM 8:33 OA-IPM

SHIPPING
LABEL