

COUNTY OF FRESNO

ADDENDUM NUMBER: ONE (1)

RFP NUMBER: 910-5268

HVAC CHEMICAL TREATMENT SERVICES

June 13, 2014

PURCHASING USE

ssj

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IMPORTANT: SUBMIT PROPOSAL IN SEALED PACKAGE WITH PROPOSAL NUMBER, CLOSING DATE AND BUYER'S NAME MARKED CLEARLY ON THE OUTSIDE TO:

COUNTY OF FRESNO, Purchasing
4525 EAST HAMILTON AVENUE, 2nd Floor
FRESNO, CA 93702-4599

CLOSING DATE OF PROPOSAL WILL BE AT 2:00 P.M., ON JUNE 24, 2014.

PROPOSALS WILL BE CONSIDERED LATE WHEN THE OFFICIAL PURCHASING TIME CLOCK READS 2:00 P.M.

All proposal information will be available for review after contract award.

Clarification of specifications is to be directed to: **Caleb J. Brooks, phone (559) 600-7124, e-mail cbrooks@co.fresno.ca.us, FAX (559) 600-7126.**

NOTE THE FOLLOWING AND ATTACHED ADDITIONS, DELETIONS AND/OR CHANGES TO THE REQUIREMENTS OF REQUEST FOR PROPOSAL NUMBER: 910-5268 AND INCLUDE THEM IN YOUR RESPONSE. PLEASE SIGN AND RETURN THIS ADDENDUM WITH YOUR PROPOSAL.

- **Included in this addendum are: JJC Condenser Water Scale/Corrosion Inhibitor Chemical Formula clarification, Vendor Conference/Site Inspection questions and County responses, requested SDS and Product Data Sheets, and updated Exhibit 2 – Facility List / Cooling Tower and Boiler Specification.**

ACKNOWLEDGMENT OF ADDENDUM NUMBER ONE (1) TO RFP 910-5268

COMPANY NAME: _____
(PRINT)

SIGNATURE: _____

NAME & TITLE: _____
(PRINT)

Update/Revision to RFP – JJC Condenser Water Scale/Corrosion Inhibitor Chemical Formula Clarification

The JJC Condenser Water Scale/Corrosion Inhibitor Chemical Formula was adjusted to provide testing standardization. A small amount of Sodium Molybdate (less than 2% by weight) was added to the formula presented in the RFP/RFQ. The SDS and Product Data Card provided already reflect this adjustment (See CWT-NWR SDS & Product Data Card). The new Formula is:

PQ Solution N; 37.5% Active 17.578%
Belclene 810, 50% Active 17.196%
Caustic Potash (KOH); 50% Active 16.822%
Sodium Molybdate; 39.6% Active 1.628%
DI Water 46.729%

VENDOR QUESTIONS AND COUNTY RESPONSES

Q1. Is a performance bond required?

A1. *No.*

Q2. What are the delivery locations for the chemicals?

- *JJC Central Plant 3333 E American Avenue Fresno, CA 93702*
- *Main Jail 1225 M Street Fresno, CA 93702*
- *UMC Chiller Plant 445 South Cedar Fresno, Ca 93702 Chris Norby*
- *Main shipping warehouse 4590 E Kings Canyon Road Fresno, CA 93702*

Q3. How will the chemicals be distributed from the delivery locations to County facilities where they are needed?

A3. *County Facility Services personnel will distribute.*

Q4. Who is responsible for picking up and recycling empty chemical containers?

A4. *The County takes care of recycling containers of less than 30 gallons. Containers of 30 gallons and larger will be triple rinsed by the County. Contractor is responsible for pickup on periodically and taking them off-site for recycling.*

Q5. How are service visits to be scheduled and access to facilities facilitated?

A5. *Call each Site Point of Contact at least one day in advance of Site Service Visit.*

Q6. Are chemicals to be bid based on pounds? If so, where did the poundage estimates in the RFP come from?

A6. *Yes, simply add the delivered price per pound of each Product to the Spread Sheet provided. They came from an average of all orders processed throughout the most recent past three (3) year period.*

Q7. We need Safety Data Sheets (SDS) sheets for all chemicals right away.

A7. These are provided as a part of this addendum.

Q8. How often are cooling towers cleaned?

A8. Annually.

Q9. During the site visits, we noticed some inventory of chemicals which have been provided by one or more of the County's current vendors. Will these continue to be used?

A9. Yes, they are to be used. The County's intentionally purchased some chemicals to be received before the end of Consolidated's contract and before the end of the budget year. Some of those chemicals seen in one location are intended to be distributed to other locations.

Q10. With this stockpile of chemicals, there may not be much money to be made in providing chemicals to the County? Can a bidder bid only on the services?

A10. While there are some chemicals on-hand, many of these will be used up at the locations where they were seen or at other facilities before long. Also, this is going to be a 3 year agreement with the potential of 2 one-year additions and chemicals will be needed throughout the term of the contract.

Project Delivery Method, page 3 of RFP:

"The County intends to award the contract to one contractor, who will provide both labor/services and materials (chemicals). However, the County reserves the right to award any combination of the labor/services and materials (chemicals) to more than one contractor if it is deemed beneficial to the County."

Contractor Fees:

"The Bidder's proposal shall separate all material (chemicals) costs from all service related costs. The County's intent is to procure all labor, technologies, equipment and materials (chemicals) from one contractor. However, the County may, to its advantage, award all labor, technologies, equipment, and material (chemicals) to multiple contractors as unbundled separate entities."

Contractors who are submitting on only the labor/services or only the materials/chemicals, must clearly state that in their bid.

Q11. What are the average monthly water losses in the closed loop at JJC?

A11. 300-400 gallons be month, but it varies.

Q12. Are there any known corrosion issues in the hot water boiler loop at JJC?

A12. No.

Q13. Who is responsible for the success of the chemicals?

A13. Ultimately, the County is responsible for the performance and liabilities associated with the chemicals, since the County has specified which chemicals are to be used. The contractor is responsible for the performance of their responsibilities as documented in the RFP.

Q14. Where did the formulas in the chemicals originate?

A14. Don Osborne/Consolidated Water.

Q15. Does the County own these formulations?

A15. Yes.

Q16. Did they procure/purchase them?

A16. Yes.

Q17. Under what circumstances would the County accept a replacement or substitution of one or more of the chemical formulations in the RFP?

A17. If we are mandated by the State or other regulatory agency, and/or some new technology and/or chemical formula comes on the market which has compelling evidence that it/they would serve the County better than what we have, we will discuss options to make changes.

Since the chemical formulas in this RFP were fixed and non-negotiable, it is anticipated that the County would seek competitive bids for a revised chemical program which vendors could propose. The County would procure any revised chemical formulas and take ownership of it as the County's property.

Q18. Are you telling us that we have to use these chemical formulations?

A18. Yes.

Q19. Are freight charges to be included in the chemical bid?

A19. Yes. All pricing must be in "Delivered" terms.

Q20. Is the C55 Water Conditioning Contractor's license preferred or required?

A20. Preferred.

C55 - Water Conditioning Contractor

*California Code of Regulations
Title 16, Division 8, Article 3. Classifications*

A water conditioning contractor installs water conditioning equipment with the use of only such pipe and fittings as are necessary to connect the water conditioning equipment to the water supply system and to by-pass all those parts of the water supply system within the premises from which conditioned water is to be excluded.

Authority cited: Sections 7008 and 7059, Reference: Sections 7058 and 7059 (Business and Professions Code)

It is our understanding that the State of California is not enforcing this as a requirement at this time.

Q21. Are there any leaks in the closed loops at the Plaza Building?

A21. There is a small leak in the hot water loop on 12th floor of the Plaza Building. Staff have not been able to identify the source of the leak, but it does require additional treatment as a result of the leak.

Q22. You claim that these chemical formulations were selected because they have been effective for the County. But there appears to be some evidence that is contrary to that.

A22. The County understands that the success or failure of chemical treatment services in the past include a number of factors, in addition to the chemicals. These include mechanical issues, staffing, operational efficiencies, and more. The County believes that the chemical program identified in the RFP will work well where it is properly executed and managed and where there is good oversight, monitoring, and training.

Q23. Are there any updates or revisions to the description of the facilities or equipment included in the RFP?

A23. See updated Exhibit.

Q24. Item 1.8.2 on page 26 of the RFP says “The Contractor shall draw samples from each Open Condensing Water System and Steam boiler as necessary, but not less than twice per month...” However, in the Cost section (3.7) and Quotation Summary, the County reserves the option to reduce services at one or more locations to 1 x per month, or to stop services entirely. These seem to be in conflict.

A24. Clarification - The Contractor shall draw samples from each Open Condensing Water system and Steam boiler at each required site visit. If the requirement is reduced from 2 to 1, the required number of samples will obviously be reduced to less than twice per month.

Q25. What locations have coupon racks installed?

A25. The list of Corrosion Coupon Racks are as follows:

- *JJC -TES*
- *JJC-Heating Hot Water Loop*
- *JJC-Cooling Tower (Corrator)*
- *Bldg 328*
- *Bldg 611 (Brix)*
- *Bldg 607 Main Jail*
- *Bldg 610 (Plaza)*

Q26. Section 1.15.6.1 Which certifications are acceptable for 'Certified Water Samplers'? We haven't found any official agency that certifies samplers.

A26. This was meant to be Certified Water Technologists as presented by the Association of Water Treaters.

Q27. Section 1.10.1.1 - Will the double-wall containment tanks be provided by the winning bidder or the County?

A27. The Successful Bidder will submit a quotation for the tanks and the County will procure them from the Successful Bidder.

Q28. If it is the winning bidder, who will determine which tank sizes will be provided to which locations?

A28. The Tank Sizes will be determined by the Site Water Treatment/Building Engineer as assigned by the County with the support of the Successful Bidder.

Q29. Section 1.10.2.2 Will the winning bidder be responsible to provide and install upgraded bypass feeders where applicable?

A29. The Successful Bidder will provide all improvement recommendations as deemed necessary to meet Code Requirements and/or Safety Desires. The Successful Bidder will submit the Quotation to complete all upgrades and the County will procure the upgrades from the Successful Bidder.

UPDATED EXHIBIT 2 – FACILITY LIST / COOLING TOWER AND BOILER SPECIFICATION

Address	Cooling Towers (tons)	Boilers	Closed Loop
445 S. Cedar, Fresno	none	Two, 12.2 MMBTU/HR Cleaver Brooks Model CB 200-300-150 Natural Gas-Fired Boiler with Brooks Model LE(15) 200-300 Low NOX Burner, Flue Gas Recirculation (FGR) System. The third one is in dormant, non-operating status.	
445 S. Cedar, Fresno	500	none	chilled
435 S. Boyd, Fresno		none	hot and chilled
4411 E. Kings Canyon, Fresno	60		2 hot, 2 chilled
515 S Cedar, Fresno	125	none	hot and chilled
445 S. Cedar, Fresno	125	none	hot and chilled
4468 E. Kings Canyon, Fresno	125		hot and chilled
4535 E. Hamilton, Fresno	none	none	hot and chilled
1020 S. 10 th Street, Fresno	70	none	chilled
2204 Fresno Street, Fresno	600	none	
1225 M Street, Fresno	1500	Two, 6.27 MMBTU/HR Cleaver Brooks Model CB2-00-150-15ST Natural Gas Fired Boiler with a Fiber-Tech Model MFT-150 Ultra Low Nox Burner; One 11.7 MMBTU/HR Cleaver Brooks Model CB200X-300-15ST Natural Gas Fired Biler with a Fiber-Tech Model MFT-300 Ultra Low Nox Burner and Flue Gas Recirculation	
2220 Tulare, Fresno	1200	hot water boiler only	hot and chilled
1221 Fulton Mall, Fresno	600	(2) Fulton Pulse HW2000 hot water	hot and chilled
200 North H. Street, Fresno	none	(2) Cleaver Brooks Clearfire 40 hp Gas fired boiler	
3333 E. American Avenue, Fresno	2100	Three 20 MMBTU/HR Cleaver Brooks Model CBLE (9) 700-500-125HW Natural Gas-Fired Boiler, Equipped with Ultra-Low Nox Burner and a Flue Gas Recirculation (FRG System and Alternate Emissions Monitoring Plan "A"	
2420 Mariposa, Fresno	BAC, model#3333A-KM/Q and serial# UO70228601	(1) Hamilton Engineering CHN1800 hot water	hot and chilled
944 E Perrin Ave, Fresno	none	(1) Fulton Pulse HW1000 hot water	hot and chilled
2135 Fresno Street, Fresno	(1) 200 ton cooling tower	(1) Cleaver Brooks Clearfire gas fired steam boilers	

World Laboratories, LTD.

11076 Fleetwood Street

Sun Valley CA. 91352

(818) 771-9344

(818) 771-1182 FAX

24-Hour Emergency Telephone Number: CHEM-TEL 800.255.3924

SAFETY DATA SHEET

SR-53

Steam-Line Treatment

Section 1 – Chemical Product & Company Identification

Manufacturer's Name: World Laboratories, LTD.

Address: 11076 Fleetwood Street Sun Valley CA. 91352

SDS/Product Name: SR- 53 STEAM LINE TREATMENT

Trade Name (as labeled): SR-53 STEAM LINE TREATMENT

Chemical Name(s): DIEMETHYLETHANOLAMINE, CYCLOHEXYLAMINE

24- Hour Emergency Telephone Number: CHEM-TEL 800.255.3924

CHEM-TEL Contract Number MIS0004395

Business telephone: 818.771.9344

Date of Preparation: 5.14.2012

Section 2 - Hazard Identification



Emergency Overview: **WARNING! Keep out of reach of children! Can cause burns to skin and eyes! Can cause irritation if inhaled! Harmful or fatal if swallowed!**

Appearance and Odor: Colorless/Clear liquid ammonia odor

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Corrosive! Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract. May be fatal.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of acid.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
DIEMETHYLETHANOLAMINE	108-01-0	15
CYCLOHEXYLAMINE	108-91-8	15
MORPHOLINE	110-91-8	15

Section 4 - First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention.

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

Suspected Cancer Agent? No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 - Fire Fighting Measures

Fire extinguishing materials: Use Water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MIOSH/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Flammable material.

Flash Point: 95° F

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 - Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off

release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 - Handling and Storage

Handling: Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes.

Use in a well ventilated area. Wash hands thoroughly after handling.

Storage: Store in cool, dry and well-ventilated areas with acid resistant floors and good drainage. Do not store combustibles in area of storage vessels. Keep out of direct sunlight.

Section 8 - Exposure Controls /Personal Protection

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills. When using this material in a confined space, use of personal respiratory protection is recommended.

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Rubber gloves, boots, and chemical suit should be worn to prevent liquid contact.

Wash contaminated clothes prior to reuse. Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9 - Physical and Chemical Properties

Physical state: Liquid

Appearance: Clear/ Colorless

Odor: Ammonia

Vapor density (air=1): N/A

Vapor pressure, mmHg: N/A

Specific gravity: 0.94

pH: >13

% Volatile: 100

Solubility: Complete

Viscosity: N/A

Flashpoint, F: 95° F

Boiling point or range, F: 205°

Melting Point: - N/A

Evaporation Rate: (water =1) .95

Section 10 - Stability and Reactivity

Stability: Stable Unstable

Incompatibility (Materials to Avoid): Acids, Ammonia

Conditions to Avoid: Keep away from light and heat.

Hazardous decomposition products (including combustion products): Will liberate nitrogen oxides.

Hazardous polymerization: May occur Will not occur

Section 11 - Toxicological Information –

Ingredients are harmful or fatal if swallowed, very toxic to aquatic life.

Section 12 - Ecological Information –

Do not apply directly to any body of water, very toxic to aquatic life.

Section 13 - Disposal Considerations -Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 - Transport Information

U.S. Department of Transportation, Canada TDG

Shipping Name: Un2920, Corrosive liquids, flammable, n.o.s. (Dimethylethanolamine , Cyclohexylamine)
8, (3) PG II

UN Number: UN2920 (2920)

Hazard Class: 8 (3) (8, (3))

Packing Group: II (II)

Section 15 - Regulatory Information

These components are listed on the TSCA (U.S. Toxic Substance Control Act) inventory list

These components are not on listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

Canada –

These components are listed as:

WHMIS classification of E corrosive material

WHMIS classification of B3 flammable and combustible material

WHMIS classification of D1B of poisonous and infectious material immediate ands serious effects

Section 16 - Additional Information

SDS Creation Date: May 14, 2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

Bellacide 350/355[®] and Materials of Construction

Bellacide 350/355 offers unique advantages for industrial water treatment and it should be used with the proper materials of construction.

To prevent corrosion and deterioration of piping and materials that come into contact with Bellacide 350/355, use only the following construction materials compatible for direct contact with Bellacide 350/355:

Construction Materials Compatible for Direct Contact with Bellacide 350/355
Polyethylene
Polypropylene
Teflon (Polytetrafluoroethylene)
Graphite
Glass
Stainless Steel
Hastelloy-C
Nickel

Consider all other materials not on this list as INCOMPATIBLE.

If you have a question about using a material of construction for direct contact with Bellacide 350/355, please contact your BWA Water Additives distributor or representative.



MATERIAL SAFETY DATA SHEET

BELLACIDE 355

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME BELLACIDE 355
CHEMICAL NAME Aqueous solution of tributyl tetradecyl phosphonium chloride.
PRODUCT NO. 100736, 100737, 100833.
PRODUCT USE Industrial Water Treatment
SUPPLIER BWA Water Additives US LLC
1979 Lakeside Parkway
Suite 925, Tucker. GA30084.
T: (800) 600-4523 .
(Technical/commercial enquiries)
E: MSDS@wateradditives.com
EMERGENCY TELEPHONE Chemtrec Phone: 1-800-424-9300
IDENTIFICATION No. 2922

2 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

EPA SIGNAL WORD: DANGER.

POTENTIAL HEALTH EFFECTS

INHALATION

Toxic by inhalation. LC50 0.9 mg/L. Administered as a liquid aerosol for a single 4h nose only exposure to rats.

INGESTION

Harmful if swallowed.

SKIN CONTACT

Causes burns.

Not a skin sensitizer.

EYE CONTACT

Causes burns.

HEALTH WARNINGS

This substance is corrosive.

ROUTE OF ENTRY

Skin and/or eye contact. Ingestion. Inhalation:

TARGET ORGANS

Eyes Skin

3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Weight
TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE	279-808-2	81741-28-8	5-10%

COMPOSITION COMMENTS

Aqueous solution of tributyl tetradecyl phosphonium chloride.

4 FIRST-AID MEASURES

NOTES TO THE PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

INHALATION

Remove victim immediately from source of exposure. Provide rest, warmth and fresh air. Get medical attention if any discomfort continues.

BELLACIDE 355

INGESTION

NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs. Rinse mouth thoroughly. Get medical attention if any discomfort continues.

SKIN CONTACT

Remove victim immediately from source of exposure. Immediately remove contaminated clothing. Wash skin thoroughly with soap and water for several minutes. Get medical attention if any discomfort continues.

EYE CONTACT

Remove victim immediately from source of exposure. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention promptly if symptoms occur after washing.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Fire can be extinguished using: Carbon dioxide (CO₂). Foam. Dry chemicals, sand, dolomite etc. Water spray, fog or mist.

SPECIAL FIRE FIGHTING PROCEDURES

Move container from fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. Keep run-off water out of sewers and water sources. Dike for water control.

UNUSUAL FIRE & EXPLOSION HAZARDS

No unusual fire or explosion hazards noted.

SPECIFIC HAZARDS

Fire creates: Toxic gases/vapors/fumes of: Carbon monoxide (CO). Carbon dioxide (CO₂). Oxides of: Phosphorus. Chlorine.

PROTECTIVE MEASURES IN FIRE

Leave danger zone immediately. Self contained breathing apparatus and full protective clothing must be worn in case of fire.

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Follow precautions for safe handling described in this safety data sheet. For personal protection, see section 8.

ENVIRONMENTAL PRECAUTIONS

Avoid release to the environment. To prevent release, place container with damaged side up.

SPILL CLEAN UP METHODS

Should be prevented from entering drains. Absorb in vermiculite, dry sand or earth and place into containers. Collect and reclaim or dispose in sealed containers in licensed waste. Containers with collected spillage must be properly labeled with correct contents and hazard symbol.

7 HANDLING AND STORAGE

HANDLING

Avoid spilling, skin and eye contact. Avoid inhalation of vapors. Observe good chemical hygiene practices.

STORAGE

Do NOT use container made of: Carbon steel. Store separated from: Alkalis. Reducing Agents. Keep containers tightly closed. Keep separate from food, feedstuffs, fertilizers and other sensitive material. Store at moderate temperatures in dry, well ventilated area. Protect from light, including direct sunrays.

STORAGE CLASS

Corrosive storage.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENT COMMENTS

No exposure limits noted for ingredient(s).

PROCESS CONDITIONS

Provide eyewash station.

PROTECTIVE EQUIPMENT

BELLACIDE 355



ENGINEERING MEASURES

Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors.
Provide adequate ventilation.

RESPIRATORY EQUIPMENT

No specific recommendation made, but respiratory protection may still be required under exceptional circumstances when excessive air contamination exists.

A respiratory protection programme that meets OSHA 1910.134 and ANZI Z88.2 requirements must be followed whenever work place conditions warrant a respirator's use.

HAND PROTECTION

Selection of a suitable glove depends on work conditions and whether the product is present on its own or in combination with other substances.

Gloves should be replaced immediately if signs of degradation are observed.

It has been found that gloves made from rubber, neoprene or PVC provide short-term splash protection.

EYE PROTECTION

Wear protective eye wear (goggles or face mask).

Use face shield in case of splash risk.

HYGIENE MEASURES

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals.

SKIN PROTECTION

When handling the product to prevent skin contact by splashing, wear a rubber apron.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Liquid		
COLOR	Colorless		
ODOR	Slight odor		
BOILING POINT (°C)	100	pH-VALUE, CONC. SOLUTION	6 - 8

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions and recommended use.

MATERIALS TO AVOID

Strong alkalis. Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Fire creates: Toxic gases/vapors/fumes of: Carbon monoxide (CO). Carbon dioxide (CO₂). Oxides of: Phosphorus. Chlorine.

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50 >2000 mg/kg (oral rat)

TOXIC DOSE 2 - LD 50 >4000 mg/kg (ipr-rat)

TOXICOLOGICAL INFORMATION

Ames Test negative

INHALATION

Toxic by inhalation. LC50 0.9 mg/L. Administered as a liquid aerosol for a single 4h nose only exposure to rats.

INGESTION

Harmful if swallowed.

SKIN CONTACT

Causes burns.

Not a skin sensitizer.

BELLACIDE 355

EYE CONTACT

Causes burns.

HEALTH WARNINGS

This substance is corrosive.

12 ECOLOGICAL INFORMATION

ECOTOXICITY

The product contains a substance which is toxic to aquatic organisms and which may cause long term adverse effects in the aquatic environment.

13 DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT

When handling waste, consideration should be made to the safety precautions applying to handling of the product.

Triple rinse drums prior to recycling or disposal.

DISPOSAL METHODS

Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point.

Liquid material should be incinerated. Material absorbed onto sand or earth should be disposed of as solid waste in accordance with local regulations. Empty packaging may contain product residues and due consideration should be given prior to disposal.

14 TRANSPORT INFORMATION



DOT PROPER SHIPPING NAME

CORROSIVE LIQUID, TOXIC, N.O.S. (contains tributyltetradecylphosphonium chloride), Marine Pollutant

DOT PROPER SHIPPING NAME

CORROSIVE LIQUID, TOXIC, N.O.S. (contains tributyltetradecylphosphonium chloride), Marine Pollutant

TDG SHIPPING NAME

CORROSIVE LIQUID, TOXIC, N.O.S. (contains tributyltetradecylphosphonium chloride), Marine Pollutant

IDENTIFICATION No.

2922

DOT HAZARD CLASS

8 (6.1)

DOT PACKING GROUP

II

U.S DOT HAZARD LABEL

Corrosive Poison

UN NO. SEA

2922

IMDG CLASS

8 (6.1)

IMDG PACK GR.

II

UN NO. AIR

2922

AIR CLASS

8 (6.1)

AIR PACK GR.

II

TDG CLASS

8 (6.1)

TDG PACKING GROUP

II

15 REGULATORY INFORMATION

INVENTORIES

COMPONENT	CAN	US	EU	AUS	JAP	KOR	CHN	PHLP
TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE	DSL	No.	EINECS	Yes.	N/A.	Yes.	Yes.	Yes.

COMPONENT

TSCA 12(b) Export Notification

TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE

No.

US FEDERAL REGULATIONS

COMPONENT	SARA 302-TPC	CERCLA-RQ	SARA 313
TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE	No	No	N/A.

BELLACIDE 355

CLEAN AIR ACT

COMPONENT	CAA Accidental Release Prevention
TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE	No

US STATE REGULATIONS

COMPONENT	FDA ESSENTIAL CHEMICAL	FDA PRECURSOR
TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE	No.	No.

US STATE REGULATIONS

COMPONENT	CAS	CA	FL	MA	MN	NJ	PA	RI
TRIBUTYLTETRADECYL PHOSPHONIUM CHLORIDE	81741-28-8	No	No	No	No	No	No	No

REGULATORY STATUS (US)

PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity and for which warnings are now required.
SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. EPA REGISTRATION NUMBER 279-3139

REGULATORY REFERENCES

29 CFR 1910.1010 Federal Regulations (OSHA Standard).

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM -WHMIS

LABEL(S) FOR SUPPLY



Materials
Causing
Immediate and
Serious Toxic
Effect.



Corrosive
Material.

CONTROLLED PRODUCT CLASSIFICATION

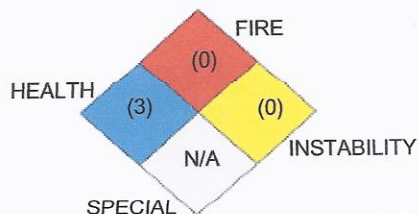
Canadian WHMIS Classification D1A E

16 OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

HEALTH	3
FLAMMABILITY	0
PHYSICAL	0
PERSONAL PROTECTION	D

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)



GENERAL INFORMATION

For advice on chemical emergencies, spillages, fires or first aid in relation to this product please contact the relevant emergency number below :

EU/English Speakers - +44 (0) 1235 239 670 (NCEC)

Arabic Speakers - +44 (0) 1235 239 671

BELLACIDE 355

Asia/Pacific countries - +65 3158 1074

For emergencies within China - +86 10 5100 3039

REVISION COMMENTS

Amended MSDS NOTE: Lines within the margin indicate significant changes from the previous revision. Section 14 Revised
Transport classification.

ISSUED BY

J.B.

REVISION DATE 13/09/2010

VERSION No. 5

SDS NO. 10795

SAFETY DATA SHEET STATUS

Approved.

DISCLAIMER

For safety reasons it is IMPERATIVE that customers:-

1. Ensure that all those within their control who use the products are supplied with all relevant information contained within the Safety Data Sheet and Technical Bulletin concerning the applications for which the product is designed and any instructions and warnings contained therein.

2. Consult BWA Water Additives before using or supplying the product for any other applications. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

BromiCide® – The Number One Oxidizing Biocide for Industrial Water System

Description and Use

BromiCide oxidizing biocide is a safer, more effective alternative to chlorine based oxidizing biocides and non-oxidizing biocides for microbiological control in industrial cooling waters. In water, BromiCide granules generate hypobromous acid, a highly effective oxidizing biocide, especially at high pH.

BromiCide is registered with the United States Environmental Protection Agency for use in once-through and recirculating cooling waters, heat exchange water systems, air washers equipped with mist eliminators, industrial water scrubbers, influent water systems, brewery pasteurizers, cooling ponds, wastewater treatment systems and pulp and paper mills.

Benefits

- **Broad spectrum effectiveness.** BromiCide kills a broad variety of bacteria, algae and fungi and because it is an oxidizing biocide, microorganisms cannot develop resistance.
- **Effective in a wide range of water conditions.** BromiCide provides excellent performance in alkaline water situations as well as in waters containing nitrogen and organic materials.
- **Low dose performance and safer handling.** Since BromiCide is effective at low doses, maintaining high halogen levels is unnecessary. This means less product is needed, at less expense. Its solid form also makes BromiCide easier to handle than gas and liquid oxidizing biocides, reducing the risk chemical accidents and impact of environmental exposure.
- **Controlled dissolution.** BromiCide can be applied in easily controlled doses because of its unique solubility characteristics. Users have the freedom to decide the required dissolution rate and then select the BromiCide product to fit their needs.

BromiCide granules are the product of choice where rapid attainment of a halogen residual is required.

BromiCide tablets dissolve more slowly than granules and are the product of choice where a high degree of feed control is needed.

Treatment and Dosing Requirements

BromiCide effectively controls bacterial, algal, and fungal slimes that can cause costly reductions in heat transfer efficiency.

BromiCide can either be dosed on a continuous or intermittent shock basis using erosion feeder dosing systems (brominators).

For noticeable fouling, add 0.2 - 0.5 ppm as Cl₂ for continuous dosing, or 1 - 2 ppm as Cl₂ for intermittent shock dosing.

Typically, in well managed systems, successful control has been demonstrated with dosages in the range of 0.1 - 0.3 ppm total halogen as Cl₂.

Typical Properties of BromiCide Products

Active Ingredient 1-bromo-3-chloro-5, 5- dimethylhydantoin (BCDMH).

Solubility @ 25° C: 0.2 % as BCDMH

Active Ingredient: 96%

Melting Point: 145 - 150 °C (decomposes)

BromiCide granules are white to off-white in color and have a faint halogen odor.

Bulk Density: 57 lb/ft³ (915 g/l)

BromiCide tablets are white to off-white in color and have a faint halogen odor.

Tablet Dimensions: 1 3/16" X 3/4" (30 x 19 mm)

Tablet Weight: 20 grams

Storage and Handling Precautions

BromiCide products should be kept dry in a tightly closed container.

Avoid contamination with moisture, chemicals or any other foreign materials due to risk of explosion, fire and release of hazardous gases.

Store in a cool, dry, well-ventilated area away from heat, sunlight, open flames and organic materials such as greases, oils and solvents.

BromiCide is corrosive in solution, and may be fatal if swallowed.

Inhalation of dust may cause irritation of the nose and throat, and irritation to skin. Always wear a dust mask approved by the appropriate national authority, impact-

resistant safety goggles or safety glasses, and a full-face plastic shield with forehead protection.

To avoid contact with skin, wear rubber or plastic gloves, long pants, and long shirt sleeves. Always tuck gloves under shirt sleeves and leave pant legs outside of boots. Wash contaminated clothing and equipment before reuse.

Safety Precautions

Do not leave wet BromiCide exposed to air inside a brominator feed system. After adding BromiCide but before replacing the top closure, refill the tank with water. Failure to do so may allow for product decomposition leading to pressure build-up in the feeder. High pressures may lead to rupture of the feeder causing serious bodily injury or property damage by explosion, fire or release of hazardous gases.

Contact of BromiCide with organic materials such as alcohols, aldehydes, and ketones or strong reducing agents may cause a chemical reaction leading to a pressure build-up in the feeder. High pressure may lead to rupture of the feeder causing serious bodily injury or property damage.

Before handling BromiCide products, all persons must be thoroughly aware of the hazardous properties and have reviewed the Material Safety Data Sheet (MSDS). A MSDS may be obtained from BWA Water Additives. Always use biocides safely.

Packaging Information

BromiCide granules and tablets are available in 25 lb (11.4 kg) pails; 50 lb (23 kg) pails or 500 lb (225 kg) bulk bags.

Patents

BWA Water Additives (BWA) owns or is the licensee of patents and patent applications, which may cover the products and/or uses described in this brochure.

The following are registered trademarks of BWA
BromiCide, Drop and Swirl logo.

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Visit our website at: www.wateradditives.com

The information contained in this product sheet is based on data available to BWA Water Additives and is thought to be correct. Since BWA, has no control over the use of this information by others, BWA does not guarantee the same results described herein will be obtained, and makes no warranty of merchantability or fitness for a particular purpose or any express or implied warranty. This information is intended for use by technically trained personnel at their discretion and risk. BWA Water Additives UK Limited is a private limited company registered in England and Wales at 2 Brightgate Way, Manchester M32 0TB, Registered No. 5657343



**MATERIAL SAFETY DATA SHEET****BromiCide Tablets****1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT NAME BromiCide Tablets
CHEMICAL NAME 1-Bromo-3-chloro-5, 5-dimethylhydantoin
PRODUCT NO. BWA00110235
PRODUCT USE Industrial Water Treatment
SUPPLIER BWA Water Additives US LLC
 1979 Lakeside Parkway
 Suite 925
 Tucker
 GA 30084
 TEL (800) 600-4523
 CUSTOMER SERVICE
EMERGENCY TELEPHONE Chemtrec Phone: 1-800-424-9300
IDENTIFICATION No. 1479

2 HAZARDS IDENTIFICATION**POTENTIAL HEALTH EFFECTS****INHALATION**

May cause irritation to the respiratory system.

INGESTION

Harmful if swallowed.

SKIN CONTACT

Causes burns.

EYE CONTACT

Causes burns.

HEALTH WARNINGS

This substance is corrosive.

ROUTE OF ENTRY

Skin and/or eye contact. Ingestion. Inhalation.

Other Health Effects

This substance has no evidence of carcinogenic properties.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Name	EC No.	CAS-No.	Weight
1-Bromo-3-chloro-5,5-dimethylhydantoin	240-230-0	16079-88-2	60-100%

EC No. 240-230-0

CAS-No. 16079-88-2

COMPOSITION COMMENTS

1-bromo-3-chloro-5, 5-dimethylhydantoin

4 FIRST-AID MEASURES**INHALATION**

Provide fresh air, warmth and rest, preferably in a comfortable upright sitting position. Get medical attention.

INGESTION

DO NOT INDUCE VOMITING! NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Rinse mouth thoroughly. Get medical attention immediately!

BromiCide Tablets

SKIN CONTACT

Remove contaminated clothing. Rinse the skin immediately with lots of water. Get medical attention if irritation persists after washing.

EYE CONTACT

Remove victim immediately from source of exposure. Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention promptly if symptoms occur after washing.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA

Use: Water spray, fog or mist. Alcohol resistant foam. DO NOT use CO2 or dry chemicals.

SPECIAL FIRE FIGHTING PROCEDURES

Move container from fire area if it can be done without risk. Keep run-off water out of sewers and water sources. Dike for water control.

UNUSUAL FIRE & EXPLOSION HAZARDS

Fire causes formation of toxic gases.

SPECIFIC HAZARDS

Toxic gases/vapors/fumes of Bromine. Chlorine. Oxides of: Carbon. Nitrogen.

PROTECTIVE MEASURES IN FIRE

Use self-contained breathing apparatus

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS

Follow precautions for safe handling described in this safety data sheet. For personal protection, see section 8.

ENVIRONMENTAL PRECAUTIONS

Avoid release to the environment.

SPILL CLEAN UP METHODS

Provide ventilation and confine spill. Do not allow runoff to sewer. Collect and reclaim or dispose in sealed containers in licensed waste. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Wash thoroughly after dealing with a spillage. Avoid generation and spreading of dust. Avoid contact with water.

7 HANDLING AND STORAGE

HANDLING

Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Do not use in confined spaces without adequate ventilation and/or respirator. Avoid spilling, skin and eye contact. Avoid acids, moisture, and combustible materials. Avoid handling which leads to dust formation.

STORAGE

Store in tightly closed original container in a cool, dry well-ventilated place. Keep containers tightly closed. Protect from light, including direct sunrays. Keep away from heat, sparks and open flame.

STORAGE CLASS

NFPA STORAGE CLASSIFICATION:NFPA Oxidiser Class 2.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

INGREDIENT COMMENTS

No exposure limits noted for ingredient(s).

PROCESS CONDITIONS

Use engineering controls to reduce air contamination to permissible exposure level. Provide eyewash station.

PROTECTIVE EQUIPMENT



ENGINEERING MEASURES

All handling to take place in well-ventilated area.

RESPIRATORY EQUIPMENT

Use specified dust masks.

BromiCide Tablets

HAND PROTECTION

It has been found that gloves made from rubber, neoprene or PVC provide short-term splash protection. Gloves should be replaced immediately if signs of degradation are observed.

EYE PROTECTION

Use approved safety goggles or face shield.

OTHER PROTECTION

Wear appropriate clothing to prevent any possibility of skin contact. Wear dust masks in dusty areas.

HYGIENE MEASURES

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Isolate contaminated clothing and wash before reuse.

SKIN PROTECTION

Wear apron or protective clothing in case of contact.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Tablet.
COLOR	White / off-white
ODOR	Slight odor Halogen
SOLUBILITY	Slightly soluble in water.
MELTING POINT (°C)	145 - 160
RELATIVE DENSITY	0.96
pH-VALUE, DILUTED SOLUTION	3.5 @ 0.15 %
PARTITION COEFFICIENT	0.35
(N-Octanol/Water)	
SOLUBILITY VALUE (g/100g H₂O@20°C)	0.15

10 STABILITY AND REACTIVITY

STABILITY

Stable under normal temperature conditions. Avoid: Moisture.

CONDITIONS TO AVOID

Avoid contact with oxidizers or reducing agents. Avoid contact with acids and alkalies. Avoid heat, flames and other sources of ignition.

HAZARDOUS POLYMERISATION

Will not polymerize.

MATERIALS TO AVOID

Strong acids. Strong alkalies. Strong oxides. Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Toxic gases/vapors/fumes of: Hydrogen bromide (HBr). Bromine. Hydrogen chloride (HCl). Chlorine. Oxides of: Carbon. Nitrogen.

11 TOXICOLOGICAL INFORMATION

TOXIC DOSE 1 - LD 50	578 mg/kg (oral rat)
TOXIC DOSE 2 - LD 50	2000 mg/kg (skin-rabbit)

TOXICOLOGICAL INFORMATION

Ames Test negative

INHALATION

May cause irritation to the respiratory system.

INGESTION

Harmful if swallowed.

SKIN CONTACT

Causes burns.

EYE CONTACT

Causes burns.

HEALTH WARNINGS

This substance is corrosive.

Other Health Effects

This substance has no evidence of carcinogenic properties.

BromiCide Tablets**12 ECOLOGICAL INFORMATION**

LC 50, 96 hrs, Fish mg/l 0.87

EC 50, 48 hrs, Daphnia, mg/l 0.46

BIOACCUMULATION

Low bioaccumulation potential

Chemical Oxygen Demand, COD 1.005 g/g**Acute Toxicity. LC50 96 hours,** 640 American Oyster mg/l**13 DISPOSAL CONSIDERATIONS****WASTE MANAGEMENT**

When handling waste, consideration should be made to the safety precautions applying to handling of the product.

DISPOSAL METHODS

Dispose of waste and residues in accordance with local authority requirements. Absorb in vermiculite or dry sand, dispose in licensed hazardous waste. Liquid material should be incinerated. Material absorbed onto sand or earth should be disposed of as solid waste in accordance with local regulations. Empty packaging may contain product residues and due consideration should be given prior to disposal.

14 TRANSPORT INFORMATION

TDG SHIPPING NAME OXIDISING SOLID, N.O.S., (contains bromo-chloro-dimethylhydantoin)
TDG SHIPPING NAME OXIDISING SOLID, N.O.S., (contains bromo-chloro-dimethylhydantoin)
IDENTIFICATION No. 1479
DOT HAZARD CLASS 5.1
TDG PACKING GROUP II
U.S DOT HAZARD LABEL Oxidiser Corrosive
UN NO. SEA 1479
IMDG CLASS 5.1
IMDG PACK GR. II
EMS F-A, S-Q
UN NO. AIR 1479
AIR CLASS 5.1
AIR PACK GR. II
TDG CLASS 5.1
TDG PACKING GROUP II

15 REGULATORY INFORMATION**INVENTORIES**

COMPONENT	CAN	US	EU	AUS	JAP	KOR	CHN	PHLP
1-Bromo-3-chloro-5,5-dimethylhydantoin	DSL	Yes	EINECS	Yes	Yes	Yes	Yes	Yes

COMPONENT	TSCA 12(b) Export Notification
1-Bromo-3-chloro-5,5-dimethylhydantoin	Yes

BromiCide Tablets

COMPONENT	CAS	CA	FL	MA	MN	NJ	PA	RI
1-Bromo-3-chloro-5,5-dimethylhydantoin	16079-88-2	No	No	No	No	No	No	No

REGULATORY STATUS (US)

SECTION 313: This product does not contain toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372. PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity and for which warnings are now required. TSCA: The ingredients of this product are on the TSCA Inventory. TSCA Export Notification Section 12b.

REGULATORY REFERENCES

29 CFR 1910.1010 Federal Regulations (OSHA Standard).

ENVIRONMENTAL LISTING

EPA REGISTRATION NUMBER:83451-4

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM -WHIMIS**LABEL(S) FOR SUPPLY**

Oxidizing
Material.



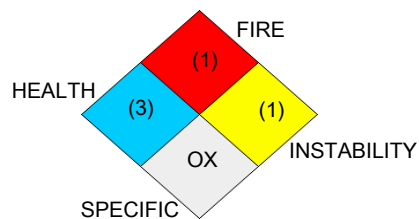
Corrosive
Material.

CONTROLLED PRODUCT CLASSIFICATION

Canadian WHMIS Classification C E

16 OTHER INFORMATION**HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)**

HEALTH		3
FLAMABILITY		1
REACTIVITY		1
PERSONAL PROTECTION		B

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**REVISION COMMENTS**

New company name & new format

ISSUED BY

G.B.

REVISION DATE 29th October 2007

VERSION No. 2

SAFETY DATA SHEET STATUS

Approved.

BromiCide Tablets

DISCLAIMER

For safety reasons it is IMPERATIVE that customers:-

1. Ensure that all those within their control who use the products are supplied with all relevant information contained within the Safety Data Sheet and Technical Bulletin concerning the applications for which the product is designed and any instructions and warnings contained therein.
2. Consult BWA Water Additives before using or supplying the product for any other applications. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

Product Information

www.wateradditives.com

Bellacide® 355 – Innovative Non-oxidizing Biocide for Industrial Water Systems

Bellacide® 355 is a highly effective, synergistic biocide and biodispersant for use in cooling water systems and industrial process waters.

Bellacide® 355 is a ready-to-use aqueous solution which:

- eliminates algae, fungus, and bacteria, including *Legionella pneumophila*
- removes biofilm over 4 times more effectively than traditional non-oxidizing biocides like isothiazolone
- yields improved results when used synergistically with any of the LiquiBrom® series of products
- provides excellent biofouling control
- reduces usage costs by 33%

Bellacide® 355 not only provides performance conscious customers with the effective elimination and prevention of build-up of microbiological slimes, but can also be used to clean heavily fouled systems.

Typical physical properties

Appearance	Clear, colorless liquid
Odor	Slight to none
Active ingredient	4.9-5.1% (w/w)
Specific gravity at 20°C	0.98
pH (undiluted)	6.0-8.0
Boiling point	100°C (212°F)
Solubility in:	
water	Completely miscible
ethylene glycol	>50%
methanol	>50%
isopropanol	>50%

Thermal stability (DSC)

Differential scanning calorimetry has shown that Bellacide® 355 is stable up to a temperature of 300°C (572°F).

Chemical reactivity/compatibility

The active ingredient of Bellacide® 355 is stable in neutral, alkaline and acidic solution and can be used in

cooling water within the pH range 2-12. At normal levels of use, Bellacide® 355 can be used with oxidizing agents such as chlorine.

Logistics

Transport Classification	UN 2922, Class 8 + 6.1 Corrosive & Toxic for transport Marine Pollutant
Packaging	Totes, Drums, Pails

Regulatory approvals

EPA (USA) Reg. No.	83451-16
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Toxicology data

Acute oral LD ₅₀ (rats)	1002 mg/kg
Acute inhalation LC ₅₀ (rats)	<0.9 mg/L
Eye irritation (rabbits)	Corrosive
Skin irritation (rabbits)	Corrosive
R20 Harmful by inhalation	
R36/38 Irritating to eyes and skin	

Ecological data

96-h EC ₅₀ (Daphnia)	Not available
96-h LC ₅₀ (Fish)	Not available
R51 Toxic to aquatic organisms.	

Biodegradability

Rapidly biodegrades to >50% within 2 hours and ultimately reaches 99% within 96 hours in the presence of activated sludge.

Further details on safety and handling are available in the materials safety data sheet on this product.

Patents:

BWA Water Additives (BWA) owns or is the licensee of patents and patent applications, which may cover the products and/or uses described in this brochure.

The following are registered trademarks of BWA
Bellacide, LiquiBrom, Drop and Swirl logo.

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Fax + 65 6234 3606

Visit our website at: www.wateradditives.com

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Bellacide® 355 - Next Level Synergistic Biocide for Industrial Water Systems

Bellacide 355 provides enhanced performance as a fast acting, broad spectrum biocide with superior activity compared to other non-oxidizing biocides. In particular, its unique properties set it aside from simple cationic ammonium and phosphonium biocides.

Bellacide 355 is designed for the control of microbiological fouling in cooling water, industrial and institutional cleaning, oil field waters, papermaking and other industrial water applications.

Heavily fouled systems can be cleaned using Bellacide 355 since it is highly effective in preventing the build-up of microbiological slimes.

Previous work has shown that Bellacide 355 works synergistically with oxidizing biocides such as BCDMH and chlorine (hypobromous and hypochlorous acids) however, new data confirms that it is also synergistic with chlorine dioxide and peracetic acid. Other industrial biocides do not show synergy with this range of oxidizing biocides whereas Bellacide 355 is proven to enhance their performance significantly.

Advantages of Bellacide 355

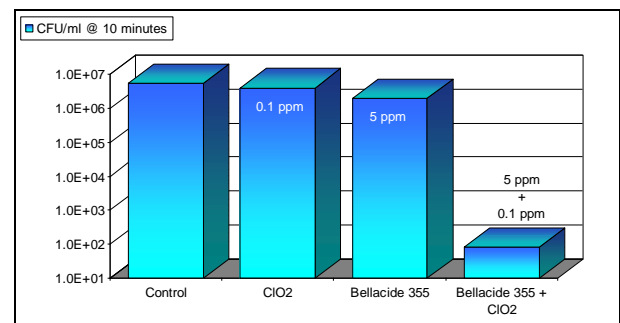
- Cost effective, broad spectrum of activity**
 Bellacide 355 has a high activity at low dose levels against aerobic bacteria (including *Legionella pneumophila*), anaerobic bacteria, algae and fungi with typical MIC values of 20 and 100 ppm for algae and fungi respectively. Compared to other non-oxidizing biocides it is quite fast acting.
- Minimize biocide usage by synergistic effects**
 Bellacide 355 offers a unique synergistic interaction with oxidizing biocides allowing a significant decrease in usage of oxidizing biocides in industrial water systems. This effect is achieved at dosage levels of Bellacide 355 that are very economical.
- Reduction in environmental impact and biocide cost**
 The excellent synergistic biocidal effects, high surface activity and low foaming properties make Bellacide 355 a great pairing with oxidizing biocides to minimize biocide usage volumes thus reducing the environmental effects and cost of the biocide program.
- Compatible and easy to use across broad pH range**
 Bellacide 355 mixes uniformly in water and is not affected by the pH of the system water, being applicable from pH 5 to 12. At normal use levels it is compatible with other water treatment additives commonly found in open recirculating cooling water systems and can be used with

oxidizing agents. Bellacide 355 is not susceptible to degradation by ultraviolet light.

Synergistic Activity of Bellacide 355...

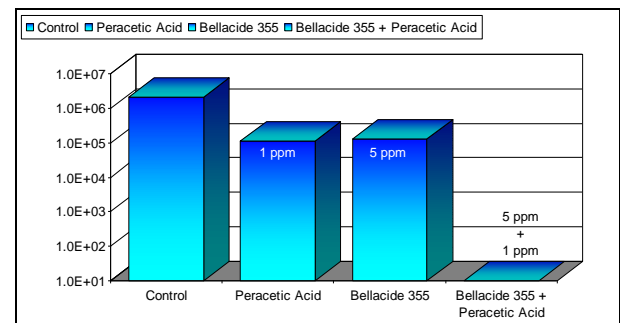
...with chlorine dioxide (ClO₂):

On its own chlorine dioxide showed minimal activity at 0.1 ppm active against a common type of cooling water organism. Bellacide 355 also showed a limited reduction at 5 ppm active after 10 minutes but gave a complete kill after 30 minutes. The combination of Bellacide 355 and chlorine dioxide showed better activity than the individual products with close to a 5 log₁₀ reduction after only 10 minutes.



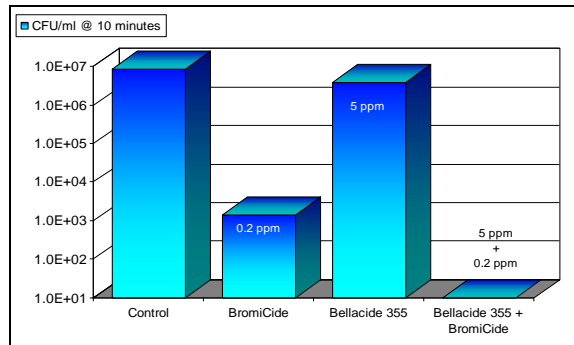
...with peracetic acid

Using the same test protocol, peracetic acid, a mixture of peracetic acid and hydrogen peroxide, showed limited biocidal activity at 1 ppm (as peracetic acid) at 10 minutes but gave essentially a complete kill after 30 minutes. As noted previously, Bellacide 355 showed limited activity at 5 ppm active at 10 minutes. However, the combination of Bellacide 355 and peracetic acid showed excellent synergy and provided greater than a 6 log₁₀ reduction (complete kill) after only 10 minutes.



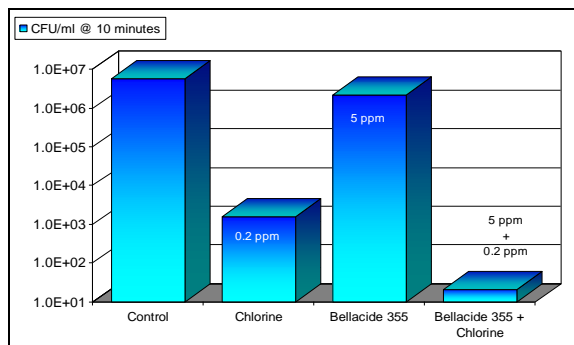
...with bromine sources such as BromiCide and sodium bromide

In this series of tests, BromiCide (BCDMH) yielded a 4 log₁₀ reduction in bacterial counts at 0.2 ppm residual (as Cl₂) after 10 minutes and Bellacide 355 showed a half log₁₀ reduction at 5 ppm active at 10 minutes. The combination of Bellacide 355 and BromiCide showed significantly better activity than the individual products giving a greater than 7 log₁₀ reduction (complete kill) after 10 minutes.



...with chlorine

Likewise, chlorine showed a 4 log₁₀ reduction in bacterial counts at 0.2 ppm residual active after 10 minutes. The combination of Bellacide 355 and chlorine displayed significantly better activity than the individual products providing greater than 6 log₁₀ reduction after 10 minutes.



Summary

This extensive series of testing has confirmed that the synergy effect of Bellacide 355 is not limited to only one type of oxidizing biocide but rather extends across a range of oxidizing agents. This is consistent with the chemistry of TTPC (Bellacide 355) and also explains why it is very effective at removing biofilm. When combined with oxidizing biocides, Bellacide 355 offers unprecedented opportunities to optimize biocide programs both in terms

of biocidal performance as well as minimizing their environmental footprint.

Typical properties

Bellacide 355 is a 50% aqueous solution of tributyl tetradecyl phosphonium chloride (TTPC).

Appearance	Clear, colorless liquid
Specific gravity at 20°C	0.98 g/mL
pH	7.0-9.0
Odor	Slight
Solubility: Water	Completely miscible
Methanol	>50%
Isopropanol	>50%
Ethylene glycol	>50%

Determination of Bellacide 355

A simple colorimetric method is available for the determination of Bellacide 355 in industrial cooling waters. Please contact BWA Water Additives for details.

Packaging

Bellacide 355 is available in 20 kg polycontainers, 190 kg drum and 1000 kg IBC.

Handling

Always read the label and material safety data sheet before using Bellacide 355.

Use chemical resistant gloves and safety glasses or goggles when handling.

Harmful if swallowed. Causes burns, avoid contact with eyes, skin and clothing.

Always use biocides safely.

Precaution

Toxic to aquatic organisms, ensure system discharge containing Bellacide 355 goes to a waste water treatment plant. Prevent spills from entering drains and water courses, absorb in vermiculite, dry sand or earth, place in sealed containers and label with contents. Dispose of collected spillage in licensed waste facilities only.

Storage

Keep containers tightly closed when not in use.

Store at moderate temperatures, in a dry, well ventilated area.

Protect from light, including direct sunlight.

Disposal

Waste from Bellacide 355 should be disposed of at an approved waste disposal facility.

Containers should be triple rinsed and offered for recycling or disposed of in accordance with local regulations.

Patents

BWA Water Additives (BWA) owns or is the licensee of patents and patent applications, which may cover the products and/or uses described in this brochure.

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The information contained in this product sheet is based on data available to BWA Water Additives and is thought to be correct. Since BWA, has no control over the use of this information by others, BWA does not guarantee the same results described herein will be obtained, and makes no warranty of merchantability or fitness for a particular purpose or any express or implied warranty. This information is intended for use by technically trained personnel at their discretion and risk. BWA Water Additives UK Limited is a private limited company registered in England and Wales at 2 Brightgate Way, Manchester M32 0TB, Registered No. 5657343.



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11076 Fleetwood Street
Sun Valley CA. 91352
(818) 771-9344
(818) 771-1182 FAX
24-Hour Emergency CHEM-TEL (800) 255-3924

SAFETY DATA SHEET
CWT-NWR
Cooling Tower Treatment

Section 1 – *Chemical Product & Company Identification*

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
MSDS/Product Name: CWT-NWR- Cooling Tower Treatment
Trade Name (as labeled): CWT-NWR COOLING TOWER TREATMENT
Chemical Name(s): Potassium Hydroxide
24- Hour Emergency Telephone Number: 800.255.3924 (CHEM-TEL)
Business Telephone: 818.771.9344
Date of Preparation: 5.28.2014

Section 2 - *Hazard Identification*



Emergency Overview: Danger! Corrosive! Keep out of reach of children! Can cause burns to skin and eyes. Can cause irritation if inhaled. Harmful or fatal if swallowed.

Appearance and Odor: Amber colored liquid; musty odor.

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Corrosive! Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of acid.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
POTASSIUM HYDROXIDE	1310-58-3	15-17

Section 4 – First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention.

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

* **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – Fire Fighting Measures

Fire extinguishing materials: In case of fire use water or any appropriate means for fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MIOSH/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not considered a fire hazard/Not combustible.

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above). Potassium Hydroxide-RQ = 1000 lbs (49 CFR) (40 CFR).

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – Handling and Storage

Handling: Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes.

Storage: Keep away from children! Keep container sealed when not in use. Protect from extreme cold.

Section 8 - Exposure Controls /Personal Protection

	OSHA (PEL)	ACGIH (TLV)
POTASSIUM HYDROXIDE	2mg/m ³	2mg/m ³

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9 - **Physical and Chemical Properties**

Physical state: Liquid

Appearance: Amber

Odor: Musty

Vapor density (air=1): N/A

Vapor pressure, mmHg: N/A

Specific gravity: 1.18

pH: 12.64

% Volatile: N/D

Solubility in Water: 100%

Viscosity: N/A

Boiling point or range, F: 212°

Melting Point: - N/A

Evaporation Rate: 1.00

Section 10 – **Stability and Reactivity**

Stability: Stable ___ Unstable

Incompatibility (Materials to Avoid): Strong Oxidizers

Conditions to Avoid:

Hazardous decomposition products (including combustion products): N/A

Hazardous polymerization: ___ May occur Will not occur

Section 11 - **Toxicological Information**

N/A

Section 12 - **Ecological Information**

This is an alkaline material. Do not apply directly to any body of water.

Section 13 – **Disposal Considerations**

Disposal: Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – ***Transport Information***

U.S. Department of Transportation (USDOT)

Shipping Name: UN1760, Corrosive liquid n.o.s. (Potassium Hydroxide), 8 PG II

UN Number: 1760

Hazard Class: 8

Packing Group: II

Marine Pollutant: No

Section 15 – ***Regulatory Information***

CAS # 1310-58-3 is listed on the TSCA (U.S. Toxic Substance Control Act) inventory list.

The components are not listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

Canadian

WHMIS Classification: E (corrosive material)

CAS # 1310-58-3 is listed on Canada's Ingredient Disclosure List

Section 16 – ***Additional Information***

SDS Creation Date: May 28, 2014

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.



FRESNO COUNTY

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Product Card

BWT-178

PRODUCT DESCRIPTION:

Fresno County had BWT-178 developed specifically for inhibiting waterside deposition in Steam Boiler systems. The product is liquid and easily injected into the Feedwater line after the Feedwater pump and prior to the Boiler (if possible, within 12 Feedwater Pipe Diameters of entering the Boiler). BWT-178 contains a highly stable Phosphate, and a highly concentrated blend of Polymers. The Phosphate in BWT-178 provides the best stability available under the high temperature conditions found in High Pressure Boilers. The concentrated, proprietary blend of multi-function, high performance Polymers with the Phosphate provides Phosphate stability, Iron transportation and Hardness deposit inhibition. This combination of active functions, makes BWT-178 perfect for today's Steam Boiler applications. BWT-178 should be introduced to the system whenever Feedwater is flowing to the Boiler. The power to the BWT-178 feed pump should be tied to the power of the Feedwater pump(s) to activate the Chemical Feed Pump with activation of the Feedwater pump(s). BWT-178 may be fed alone or mixed with Amines and/or Alkalinity Builders. BWT-178 is rated as Non-Hazardous. BWT-178 has been blended with a unique ratio of raw materials. The specific ratio allows for a single Phosphate test to be used to control the product feed rate.

PRODUCT SPECIFICS:

Priority Water Quality Limits:

Always try to maintain Feedwater
Hardness below 2ppm and pH above 8.3.
Always try to maintain Boiler Water OH
Alkalinity between 200 and 700 ppm.
Inject into Feedwater line after pump.

Product Control Parameter:

Boiler Phosphate 30 to 60 ppm

Product Dosage:

As Product In Boiler
Water 16 oz to 18 oz / 1,000 gals
Blowdown

Product Characteristics:

Boiling Point	> 212 °F
Solubility	complete
Specific Gravity	1.15
Incompatibility	Strong Oxidizers
Appearance & Odor	Straw Colored liquid, odorless
Technical Support	(818) 771-9344

PRODUCT CAUTIONS:

Fresno County highly recommends periodic confirmation of System Material Balances of Calcium, Magnesium, Iron, and Ortho-Phosphate between the make-up source water and the Boiler system water should also be conducted with Laboratory Analysis. BWT-178 is an irritant that can cause irritation of the skin and eyes. If the product comes in contact with the skin, flush the area of contact for 15 minutes with warm water. Always wash hands thoroughly after handling any chemical. If the product contacts the eyes, flush for 30 minutes and consult a Doctor. If ingested, drink a large volume of water and Consult a Doctor; DO NOT INDUCE VOMITING.



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Product Card

CL-2

PRODUCT DESCRIPTION:

Fresno County had CL-2 developed specifically for high retention Heating Hot and Chilled Water Closed Loop Systems where the use of Molybdenum has become either banned from discharge or deemed as too costly. The product is also highly recommended in systems with existing Iron Corrosion Deposits. CL-2 will form its pacifying film with the existing Iron Corrosion By-Products while other inhibitor formulas may tend to “push” the existing deposits throughout the system. CL-2 should not be applied in systems open to the atmosphere. Do not use in systems with continuous or consistent system water losses resulting in make-up over 10% of total system volume. This product is very effective in maintaining corrosion free waterside surfaces in these otherwise highly corrosive environments. CL-2 is a proprietary blend of high performance raw materials designed to control corrosion within Industry Standards. It is a mixture of organic and inorganic inhibitors. CL-2 is rated as Non-Hazardous and has been formulated without any heavy metals. This formula can be used in systems where Heavy Metal Discharge Regulations or Cost limitations prohibit the use of Molybdenum-based Inhibitors. CL-2 has been blended with a unique ratio of raw materials. The specific ratio allows for a single Nitrite test to be used to control the product feed rate.

PRODUCT SPECIFICS:

Priority Water Quality Limits:

Annual Water Losses	<10% volume
Conductivity	>300 micromhos
pH	8.0 to 10.0

Product Control Parameter:

System Water Nitrite	350 to 1,000 ppm
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Product Dosage:

As Product In System Water	2 gals / 1,000 gals
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Product Characteristics:

Boiling Point	212 °F
Solubility	complete
Specific Gravity	1.34
Incompatibility	Strong Acids and Oxidizers
Appearance & Odor	Clear to Pink liquid
Technical Support	(818) 771-9344

PRODUCT CAUTIONS:

Fresno County highly recommends periodic confirmation of System Metal(s) corrosion with field Coupon Studies, instantaneous corrator readings and/or Laboratory Analysis. Periodic Laboratory Metal balances between the make-up source water and the re-circulating system water should also be conducted. CL-2 is an irritant that can cause irritation of the skin and eyes. If the product comes in contact with the skin, flush the area of contact for 15 minutes with warm water. Always wash hands thoroughly after handling any chemical. If the product contacts the eyes, flush for 30 minutes and consult a Doctor. If ingested, drink a large volume of water and consult a Doctor; DO NOT INDUCE VOMITING.



FRESNO COUNTY

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Product Card

CL-3

PRODUCT DESCRIPTION:

Fresno County had CL-3 developed specifically for high retention Heating Hot and Chilled Water Closed Loop Systems where the use of Molybdenum has become either banned from discharge or deemed as too costly. The product is applicable in systems with existing Iron Corrosion Deposits. CL-3 will form its pacifying film with the existing Iron Corrosion By-Products. Other inhibitor formulas may tend to “push” the existing deposits throughout the system. Caution should be taken when CL-3 is applied to systems with concentrations of Dissolved Iron exceeding 10 ppm. The CL-3 should then be introduced to the system such that Silica residual slowly (over a 3 to 5 day period) rises into the desired range. High volume flow capacity and automated backwashing filtration must be used until the Dissolved Iron residual drops below 3 ppm. This product is highly recommended in systems with continuous or consistent system water losses resulting in make-up over 10% of total system volume. CL-3 is effective in maintaining corrosion free waterside surfaces in these otherwise highly corrosive environments. CL-3 is a proprietary blend of high performance raw materials designed to control corrosion within Industry Standards. It is a mixture of organic and inorganic inhibitors. CL-3 is rated as Non-Hazardous and has been formulated without any heavy metals. This formula is “GREEN”. It can be used in systems where Heavy Metals and/or many other Discharge Regulations or Cost limitations prohibit the use of other Inhibitors. CL-3 has been blended with a unique ratio of raw materials. The specific ratio allows for a single Silica test to be used to control the product feed rate.

PRODUCT SPECIFICS:

Priority Water Quality Limits:

Annual Water Losses	Does Not Apply
Conductivity	>300 micromhos
pH	7.0 to 10.0

Product Control Parameter:

System Water Silica	City + 30-80 ppm
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Product Dosage:

As Product In System Water:
30 oz to 60 oz / 1,000 gals (270 to 540 ppm)

Product Characteristics:

Boiling Point	212 °F
Solubility	complete
Specific Gravity	1.15
Incompatibility	Strong Acids and Oxidizers
Appearance & Odor	Clear to light amber liquid, with nut-like odor
Technical Support	Successful Vendor

PRODUCT CAUTIONS:

Fresno County highly recommends periodic confirmation of System Metal(s) corrosion with field Coupon Studies and Laboratory Analysis. Periodic Laboratory Metal and Silica balances between the make-up source water and the re-circulating system water should also be conducted. CL-3 is an irritant that can cause irritation of the skin and eyes. If the product comes in contact with the skin, flush the area of contact for 15 minutes with warm water. Always wash hands thoroughly after handling any chemical. If the product contacts the eyes, flush for 30 minutes and consult a Doctor. If ingested, drink a large volume of water and consult a Doctor; DO NOT INDUCE VOMITING.



FRESNO COUNTY

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Product Card

CWT-NWR

PRODUCT DESCRIPTION:

Fresno County had CWT-NWR developed specifically for Open Re-circulating Cooling Systems where Environmentally Friendliness is an ultimate goal. CWT-NWR is great for make-up source waters containing high concentrations of Hardness, Alkalinity and Conductivity. This product is very effective in maintaining deposit free waterside surfaces wherever Hardness and/or Alkalinity become(s) the limiting factor in cycles of concentration. CWT-NWR is a proprietary blend of high performance Phosphorus Free raw materials designed to control Hardness and Alkalinity Deposition under stressed conditions. Stressed waterside environments include high conductivity, high alkaline, high hardness and elevated pH levels. CWT-NWR is rated as Non-Hazardous and, yet, has been formulated with trace heavy metals. The formula has a trace level of Molybdenum. This allows for easy and accurate field testing. The concentration of Molybdenum is not enough such that CWT-NWR can be used in systems where acid assisted alkalinity control calls for the use of high performance corrosion inhibition. CWT-NWR has been blended with a unique ratio of raw materials. The specific ratio allows for a single Molybdenum (Mo^{+6}) test to be used to control the product feed rate.

PRODUCT SPECIFICS:

Priority Water Quality Limits:

Total Alkalinity	300 to 600 ppm
Calcium Hardness	300 to 600 ppm
pH	8.3 to 9.1
Silica	<170 ppm

Product Control Parameter:

Molybdenum Residual	0.5 to 1.0 ppm
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Product Dosage:

As Product In Cooling Water or Bleed Water	75 to 150 ppm
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Product Characteristics:

Boiling Point	212 °F
Solubility	complete
Specific Gravity	1.283
Incompatibility	High Residual of Strong Oxidizers
Appearance & Odor	Clear light amber liquid, with acrylic odor
Technical Support	Successful Vendor

PRODUCT CAUTIONS:

Fresno County highly recommends periodic confirmation of simple field Silicate tests with field test and/or Laboratory Analysis. Periodic Laboratory Molybdenum, Chlorides, Silica and Hardness balances between the make-up source water and the re-circulating cooling water should also be conducted. CWT-NWR is an irritant that can cause irritation of the skin and eyes. If the product comes in contact with the skin, flush the area of contact for 15 minutes with warm water. Always wash hands thoroughly after handling any chemical. If the product contacts the eyes, flush for 30 minutes and consult a Doctor. If ingested, drink a large volume of milk and consult a Doctor; DO NOT INDUCE VOMITING.



FRESNO COUNTY

CONFIDENTIAL

Product Card

CWT-Si

PRODUCT DESCRIPTION:

Fresno County had CWT-Si developed specifically for Open Re-circulating Cooling Systems with make-up source waters containing high concentrations of Silica. This product is very effective in maintaining deposit free waterside surfaces wherever Silica becomes the limiting factor in cycles of concentration. CWT-Si is a proprietary blend of high performance raw materials designed to control Silica and Hardness Deposition under stressed conditions. Stressed waterside environments include high alkaline, high hardness and elevated pH levels. CWT-Si is rated as Non-Hazardous. Yet, it has been formulated with heavy metals. The formula has a trace level of Molybdenum. This allows for easy and accurate field testing. The concentration of Molybdenum is not enough such that CWT-Si can be used in systems where acid assisted alkalinity control calls for the use of high performance corrosion inhibition. CWT-Si has been blended with a unique ratio of raw materials. The specific ratio allows for a single Molybdenum (Mo^{+6}) test to be used to control the product feed rate.

PRODUCT SPECIFICS:

Priority Water Quality Limits:

Total Alkalinity	300 to 600 ppm
Calcium Hardness	300 to 600 ppm
pH	8.6 to 9.2
Silica	Do Not Exceed 240 ppm

Product Control Parameter:

Molybdenum Residual 1 to 3 ppm

Product Dosage:

As Product In Cooling
Water or Bleed Water 140 to 280 ppm

Product Characteristics:

Boiling Point	212 °F
Solubility	complete
Specific Gravity	1.15
Incompatibility	High Residual of Strong Oxidizers
Appearance & Odor	Clear light amber liquid, with acrylic odor
Technical Support	Successful Vendor

PRODUCT CAUTIONS:

Fresno County highly recommends periodic confirmation of simple field Phosphonate tests with field digestion test and/or Laboratory Analysis. Periodic Laboratory Molybdenum, Hardness, Chlorides & Silica balances between the make-up source water and the re-circulating cooling water should also be conducted. CWT-Si is an irritant that can cause irritation of the skin and eyes. If the product comes in contact with the skin, flush the area of contact for 15 minutes with warm water. Always wash hands thoroughly after handling any chemical. If the product contacts the eyes, flush for 30 minutes and consult a Doctor. If ingested, drink a large volume of milk and consult a Doctor; DO NOT INDUCE VOMITING.



FRESNO COUNTY

CONFIDENTIAL

Product Card

SR-53

PRODUCT DESCRIPTION:

Fresno County had SR-53 developed specifically for Neutralizing the Carbonic Acid that forms in Steam Boiler Condensate Return systems. The product is liquid and easily injected into the Main Steam Header after the last Boiler and prior to the Steam Header leaving the Boiler Room. SR-53 is a Triple Amine containing Morpholine, Diethylethanolamine (DEAE) and Cyclohexylamine. The Morpholine in SR-53 provides neutralization of Carbonic Acid in short steam-run applications. The DEAE in SR-53 provides neutralization of Carbonic Acid in medium steam-run applications. The Cyclohexylamine provides neutralization of Carbonic Acid in long steam-run applications. The Amines in SR-53 have been specifically balanced for Central Plants with long, medium and short-run Steam applications. The total activity in this concentrated, proprietary blend is 40%. SR-53 should be introduced to the system whenever Steam is being produced by any Boiler. The power to the SR-53 feed pump should be tied to the power of the Steam Boilers to activate the Chemical Feed Pump with firing of any Boiler. SR-53 may be fed alone or mixed with Boiler Inhibitors and/or Alkalinity Builders. SR-53 has been blended with a unique ratio of raw materials. The specific ratio allows for Condensate pH to be used to control the product feed rate.

PRODUCT SPECIFICS:

Priority Water Quality Limits:

Always try to minimize Feedwater Carbonate and Bi-carbonate Alkalinity by maintaining a Feedwater pH above 8.3.
Always try to maintain Condensate Conductivity less than 100 micromhos.

Product Control Parameter:

Condensate pH 8.0 to 8.5

Product Dosage:

As Product In Boiler
Water 3.2 ppm / 1 ppm CO₂

Product Characteristics:

Boiling Point	205 °F
Solubility	complete
Specific Gravity	0.95
Incompatibility	Strong Acids
Appearance & Odor	Clear liquid, with strong Ammonia odor
Technical Support	(818) 771-9344

PRODUCT CAUTIONS:

Fresno County highly recommends periodic confirmation of System Metal Balances specifically of Dissolved and Total Iron between the make-up source water, Feed Water and the Condensate should also be conducted with Laboratory Analysis. SR-53 is an irritant that can cause irritation of the skin and eyes. If the product comes in contact with the skin, flush the area of contact for 15 minutes with warm water. Always wash hands thoroughly after handling any chemical. If the product contacts the eyes, flush for 30 minutes and consult a Doctor. If ingested, drink a large volume of milk or water. Consult a Doctor; DO NOT INDUCE VOMITING.

World Laboratories, LTD.
11076 Fleetwood Street
Sun Valley CA. 91352
(818) 771-9344
(818) 771-1182 FAX
24-Hour Emergency Telephone Number: CHEM-TEL 800.255.3924

SAFETY DATA SHEET
BWT - 27
ALKALINITY BOOSTER

Section 1 – Chemical Product & Company Identification

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
SDS/Product Name: BWT – 27 ALKALINITY BOOSTER
Trade Name (as labeled): BWT – 27 ALKALINITY BOOSTER
Chemical Name(s): Sodium Hydroxide
24- Hour Emergency Telephone Number: CHEM-TEL 800.255.3924
CHEM-TEL Contract # MIS0004395
Business Telephone: 818.771.9344
Date of Preparation: 5.14.2012

Section 2 - Hazard Identification



Emergency Overview: WARNING! Keep out of reach of children! Can cause burns to skin and eyes! Can cause irritation if inhaled!

Harmful or fatal if swallowed!

Appearance and Odor: Clear light straw to turbid liquid solution

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Corrosive! Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract. May be fatal.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties of acid.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
SODIUM HYDROXIDE	1310-73-2	50

Section 4 - First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention.

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

Suspected Cancer Agent? No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 - Fire Fighting Measures

Fire extinguishing materials: Use Water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not combustible.

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 - Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

Sodium Hydroxide-RQ = 1000lbs (49 CFR) (40CFR)

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 - Handling and Storage

Handling: Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Use in a well ventilated area. Always wash hands thoroughly after handling.

Storage: Store in cool, dry and well-ventilated areas with acid resistant floors and good drainage. Do not store combustibles in area of storage vessels. Keep out of direct sunlight.

Section 8 - **Exposure Controls /Personal Protection**

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse. Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9 - **Physical and Chemical Properties**

Physical state: Liquid

Appearance: Clear light straw

Odor: none

Vapor density (air=1): N/A

Vapor pressure, mmHg @ 60° C: 13

Specific gravity: 1.53

pH: 14

% Volatile: N/A

Solubility: Complete

Viscosity: N/A

Flashpoint, F: N/A

Boiling point or range, F: 284°

Freezing point F: 53.6

Melting Point: - N/A

Evaporation Rate: (water =1): Similar to or slower than water depending upon weight percent

Section 10 - **Stability and Reactivity**

Stability: Stable Unstable

Incompatibility (Materials to Avoid): Strong acids, organic halogen compounds, organic nitro compounds, aluminum, zinc tin and other metals. Avoid contact with leather and wool. Reaction with various food sugars may form carbon monoxide.

Conditions to Avoid: Keep away from light and heat.

Hazardous decomposition products (including combustion products): Thermal decomposition products of this solution can include carbon monoxide, carbon dioxide, and sodium compounds.

Hazardous polymerization: May occur Will not occur

Section 11 - **Toxicological Information** –

Harmful or fatal if swallowed. The ingredients are very toxic to aquatic life.

Section 12 - **Ecological Information** –

Do not apply directly to any body of water. The ingredients are very toxic to fish and plants.

Section 13 - **Disposal Considerations** –

Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 - **Transport Information**

U.S. Department of Transportation (DOT), Canada TDG

Shipping Name: UN1824 Sodium Hydroxide Solution, 8, PGII

UN Number: UN1824

Hazard Class: 8

Packing Group: II

Section 15 - **Regulatory Information**

CAS 1310-73-2 is listed on the TSCA (U.S. Toxic Substance Control Act) inventory list.

These components are not on listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

Canada –

WHMIS classification of: E (corrosive material)

CAS # 1310-73-2 is listed on Canada's Domestic Substances List

Section 16 - **Additional Information**

SDS Creation Date: May 14, 2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

World Laboratories, LTD.
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24-Hour Emergency Telephone Number CHEM-TEL (800) 255-3924
CHEM-TEL Contract Number MIS0004395

SAFETY DATA SHEET
BWT – 112
Steam Boiler Oxygen Scavenger

Section 1 – Chemical Product & Company Identification

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
SDS/Product Name: BWT - 112
Trade Name (as labeled): BWT – 112 Steam Boiler Oxygen Scavenger
Chemical Name(s): Sodium Sulfite, Sodium Metabisulfite
24 – Hour Emergency Telephone Number: 800.255.3924 (CHEM-TEL)
Business Telephone: 818.771.9344
Date of Preparation: 8.20.2012

Section 2 - Hazard Identification



Emergency Overview: WARNING! Keep out of reach of children! Can cause burns to skin and eyes. Can cause irritation if inhaled. Harmful or fatal if swallowed.

Appearance and Odor: Straw colored liquid; odorless

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
SODIUM SULFITE	7757-83-7	
Sodium METABISULFITE	7681-57-4	

Section 4 – First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention.

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

Suspected Cancer Agent? No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – Fire Fighting Measures

Fire extinguishing materials: Use Water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MIOSH/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not combustible.

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – Handling and Storage

Handling: Keep out of reach of children! Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Keep container sealed when not in use. Protect from extreme cold.

Section 8 - **Exposure Controls /Personal Protection**

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9 - **Physical and Chemical Properties**

Physical state: Liquid

Appearance: Straw colored

Odor: Odorless

Vapor density (air=1): 0.62

Vapor pressure, mmHg: N/A

Specific gravity: 1.25

pH: N/A

% Volatile: 87-90.5

Solubility in Water: 100%

Viscosity: N/A

Boiling point or range, F: 220°

Melting Point: - N/A

Evaporation Rate: 1.0

Section 10 – **Stability and Reactivity**

Stability Stable Unstable

Incompatibility (Materials to Avoid): Strong Oxidizers

Conditions to Avoid:

Hazardous decomposition products (including combustion products): N/A

Hazardous polymerization: May occur Will not occur

Section 11 - **Toxicological Information**

Harmful or fatal if swallowed!

Section 12 - **Ecological Information**

This is a corrosive material. Do not apply directly to any body of water.

Section 13 – **Disposal Considerations**

Disposal: Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – **Transport Information**

U.S. Department of Transportation, Canada TDG

Shipping Name: Non -Hazardous

Section 15 – Regulatory Information

CAS # 7757-83-7 is on the TSCA (U.S. Toxic Substance Control Act) inventory list

The components are not listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

Canadian

WHMIS Classification:

CAS # 7757-83-7 is listed on Canada's Ingredient Disclosure List

Section 16 – Additional Information

SDS Creation Date: 8.20 2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

World Laboratories, LTD.
11076 Fleetwood Street
Sun Valley CA. 91352
(818) 771-9344
(818) 771-1182 FAX
24-Hour Emergency Number CHEM-TEL (800) 255-3924
CHEM-TEL contract number MIS0004395

SAFETY DATA SHEET BWT - 178

Section 1 – ***Chemical Product & Company Identification***

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
SDS/Product Name: BWT - 178
Trade Name (as labeled): BWT - 178
Chemical Name(s): Sodium Hydroxide
24 -Emergency Telephone Number: 800.255.3924 (CHEM-TEL)
Business telephone: 818.771.9344
Date of Preparation: 7.11.2012

Section 2 - ***Hazard Identification***



Emergency Overview: **WARNING! Keep out of reach of children! Can cause burns to skin and eyes. Can cause irritation if inhaled. Harmful or fatal if swallowed.**

Appearance and Odor: Straw colored liquid; odorless

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
SODIUM HYDROXIDE	1310-73-2	2

Section 4 – First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention.

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

Suspected Cancer Agent? No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – Fire Fighting Measures

Fire extinguishing materials: Use Water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MIOSH/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not combustible.

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – Handling and Storage

Handling: Keep out of reach of children! Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Keep container sealed when not in use. Protect from extreme cold.

Section 8 - Exposure Controls /Personal Protection

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9 - **Physical and Chemical Properties**

Physical state: Liquid

Appearance: Straw colored

Odor: Odorless

Vapor density (air=1): N/A

Vapor pressure, mmHg: N/A

Specific gravity: 1.15

pH: 7.3

% Volatile: N/D

Solubility in Water: 100%

Viscosity: N/A

Boiling point or range, F: 220°

Melting Point: - N/A

Evaporation Rate: N/A

Section 10 – **Stability and Reactivity**

Stability Stable Unstable

Incompatibility (Materials to Avoid): Strong Oxidizers

Conditions to Avoid:

Hazardous decomposition products (including combustion products): N/A

Hazardous polymerization: May occur Will not occur

Section 11 - **Toxicological Information**

Harmful or fatal if swallowed!

Section 12 - **Ecological Information**

This is a corrosive material. Do not apply directly to any body of water.

Section 13 – **Disposal Considerations**

Disposal: Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – **Transport Information**

U.S. Department of Transportation, Canada TDG

Shipping Name: Non -Hazardous

Section 15 – **Regulatory Information**

CAS # 1310-73-2 is on the TSCA (U.S. Toxic Substance Control Act) inventory list

The components are not listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

Canadian

WHMIS Classification: E (corrosive material)

CAS # 1310-73-2 is listed on Canada's Ingredient Disclosure List

Section 16 – **Additional Information**

SDS Creation Date: 7.11 2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

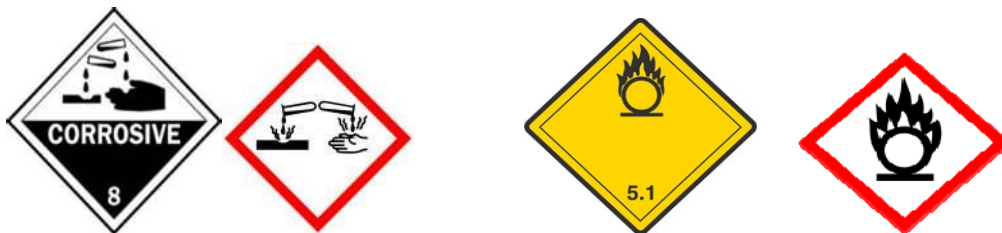
World Laboratories, LTD.
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(818) 771-9344
(818) 771-1182 FAX
24-Hour Emergency Telephone Number CHEM-TEL 800.255.3924

SAFETY DATA SHEET CL-2 Closed System Treatment

Section 1 – Chemical Product & Company Identification

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
SDS/Product Name: CL-2 Closed System Treatment
Trade Name (as labeled): CL-2 CLOSED SYSTEM TREATMENT
Chemical Name(s): Sodium Hydroxide, Sodium Tolytriazole, and Sodium Nitrite
24- Hour Emergency Telephone Number: CHEM-TEL 800.255.3924
CHEM-TEL Contract number MIS0004395
Business Telephone: 818.771.9344
Date of Preparation: 5.11.2012

Section 2 - Hazard Identification



Emergency Overview: **WARNING! CAUSTIC! Can cause burns to skin and eyes. Can cause irritation if inhaled. Harmful or fatal if swallowed.**

Appearance and Odor: Pink colored liquid, slight odor.

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation and or dermatitis.

Eye Contact: Caustic! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Caustic! Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
SODIUM HYDROXIDE	1310-73-2	1-2
SODIUM NITRITE	7632-00-0	22-25
SODIUM TOLYTRIAZOLE	64665-57-2	.5-1

Section 4 – First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention!

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention!

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention!

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. Never give anything by mouth to an unconscious person. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention!

Suspected Cancer Agent? No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – Fire Fighting Measures

Fire extinguishing materials: Water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not flammable

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

Sodium Hydroxide RQ = 1000 lbs. (49 CFR) (40CFR)

Sodium Nitrite RQ = 100 lbs. (49 CFR) (40CFR)

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – Handling and Storage

Handling: Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Containers of this material may be hazardous when empty due to residues (vapors/liquids); observe all warning and precaution listed for this product.

Use in a well ventilated area. Wash hands and clothes thoroughly after handling.

Storage: Store in cool, dry and well-ventilated areas with acid resistant floors and good drainage.

Section 8- **Exposure Controls /Personal Protection**

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse. Contaminated shoes cannot be cleaned and should be discarded.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9- **Physical and Chemical Properties**

Physical state: Liquid

Appearance: Pink Colored

Odor: Slight

Vapor density (air=1): N/A

Vapor pressure, mmHg: N/A

Specific gravity: 1.34

pH: 12.5

% Volatile: N/D

Solubility in Water: Infinitely Soluble

Viscosity: N/A

Boiling point or range, F: 212°

Melting Point: - N/A

Evaporation Rate: < 1.00

Section 10 – **Stability and Reactivity**

Stability Stable Unstable

Incompatibility (Materials to Avoid): Reducing agents, acids, organic matter, cyanides, sulfites & metabisulfites.

Conditions to Avoid: Keep away from light and heat.

Hazardous decomposition products (including combustion products): N/A

Hazardous polymerization: May occur Will not occur

Section 11- **Toxicological Information**

Chronic Exposure: Prolonged or repeated skin contact may cause irritation or dermatitis.

Section 12 - **Ecological Information**

Do not apply to any body of water. Very toxic to aquatic life.

Section 13 – **Disposal Considerations**

Disposal: Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – **Transport Information**

U.S. Department of Transportation, Canada TDG

Shipping Name: UN3093, Corrosive liquids, oxidizing, n.o.s., (Sodium Hydroxide, Sodium Nitrite), 8 (5.1), PG II

Hazard Class: 8 (5.1)

UN/ NA Number: UN3093

Packing Group: II

Sodium Hydroxide RQ: 1000 lbs. (49 CFR) (40CFR)

Sodium Nitrite RQ: 100 lbs. (49 CFR) (40CFR)

Section 15 – **Regulatory Information**

CAS# 1310-73-2: is listed on the TSCA (US Toxic and Substance Control Act) inventory list.

CAS # 7632-00-0: is listed on the TSCA (US Toxic and Substance Control Act) inventory list.

The Components are *not listed on California's Prop 65* list of chemicals known to the state to cause cancer or other reproductive harm.

Canada –

WHMIS classification: of C (oxidizing material) very toxic

WHMIS Classification: of E (corrosive material)

CAS # 1310-73-2: is listed on Canada's Domestic Substance list

CAS # 7632-00-0: is listed on Canada's Domestic Substance list

Section 16 – **Additional Information**

SDS Creation Date: 5.11.2012

SDS Revised Date: 12.3.2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

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24-Hour Emergency CHEM-TEL (800) 255-3924

SAFETY DATA SHEET
CL-3

Section 1 – Chemical Product & Company Identification

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
MSDS/Product Name: CL-3/Closed System Treatment
Trade Name (as labeled): CL-3 CLOSED SYSTEM TREATMENT
Chemical Name(s): Sodium Hydroxide, Sodium Tolytriazole & 2-Phosphobutane -1-2-, 4-Tricarboxylic Acid
Emergency Telephone: 800.255.3924 (CHEM-TEL)
CHEM-TEL Contract Number: MIS0004395
Business Telephone: 818.771.9344
Date of Preparation: 3.29.2012

Section 2 - Hazard Identification



Canadian Consumer Chemical Hazard Symbol



Corrosive to metals, category 1
Skin corrosion, categories 1A, 1B,
& 1C
Serious eye damage 1

Emergency Overview: WARNING! Caustic! Keep out of reach of children! Can cause burns to skin and eyes! Can cause irritation if inhaled!
Harmful or fatal if swallowed!

Appearance and Odor: Off-white non-viscous liquid no odor.

Symptoms of Overexposure: No data available

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Caustic! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Caustic! Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract. May be fatal.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the caustic nature of the product.

Section 3 – ***Composition and Information on Ingredients***

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
SODIUM HYDROXIDE	1310-73-2	1-2
2-PHOSPHONOBUTANE-1-2-, 4-TRICARBOXYLIC ACID	37971-36-1	1-2
SODIUM TOLYTRIAZOLE	64665-57-2	1-2

Section 4 – ***First Aid Measures / Emergency Procedures***

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention!

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention!

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention!

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention!

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – ***Fire Fighting Measures***

Fire extinguishing materials: Use water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MSHA/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not combustible.

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – ***Accidental Release Measures***

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

Sodium Hydroxide RQ = 1000lbs (49 CFR) (40CFR)

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – **Handling and Storage**

Handling: Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Use in a well ventilated area; Wash thoroughly after handling and before eating or smoking. Do not wear contaminated clothing or shoes. Wash contaminated clothing with soap and hot water before reuse.

Storage: Store material in original container. Protect from extreme cold. Store in cool, dry and well-ventilated areas with acid resistant floors and good drainage. Do not store combustibles in area of storage vessels. Keep out of direct sunlight.

Section 8- **Exposure Controls /Personal Protection**

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse. Contaminated shoes cannot be cleaned and should be discarded.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9- **Physical and Chemical Properties**

Physical state: Liquid – non-viscous

Appearance: Off-white

Odor: None

Vapor density (air=1): 0.62

Vapor pressure, mmHg: N/A

Specific gravity: 1.16

pH: 12.2

% Volatile: 87-90.5

Solubility: Complete

Viscosity: N/A

Boiling point or range, F: 212°

Melting Point: N/A

Evaporation Rate: 1.0

Section 10 – **Stability and Reactivity**

Stability: Stable ___ Unstable

Incompatibility (Materials to Avoid): Acids, Ammonia

Conditions to Avoid: Keep away from light and heat.

Hazardous decomposition products (including combustion products): Will liberate nitrogen oxides.

Hazardous polymerization: ___ May occur Will not occur

Section 11- **Toxicological Information** – Irritant

Section 12 - **Ecological Information** – Do not apply directly to any body of water.

Section 13 – **Disposal Considerations** -Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – **Transport Information**

U.S. Department of Transportation (DOT), Canada TDG

Shipping Name: UN3266, Corrosive liquid, basic, inorganic, n.o.s., (Sodium Hydroxide), 8, PGII

UN/NA Number: 3266

Hazard Class: 8

Packing Group: II

Reportable Quantity (RQ): 1000 Lbs. (49 CFR)

Section 15 – **Regulatory Information**

CAS 1310-73-2: is listed on the TSCA inventory list

These components are *not* on listed on California's Prop 65 list of chemicals known to the state to cause cancer or other reproductive harm.

CAS # 1310-73-2: Reportable Quantity (RQ) = 1000 lbs. (49CFR) (40 CFR)

Canada –

WHMIS classification of E (corrosive material)

CAS # 1310-73-2: is listed on Canada's Domestic Substances List

CAS # 1310-73-2: is listed on Canadian Ingredient Disclosure List

Section 16 – **Additional Information**

SDS Creation Date: 3.29 2012

SDS Revision Date: 12.6.2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

World Laboratories, LTD.
11076 Fleetwood Street
Sun Valley CA. 91352
(818) 771-9344
(818) 771-1182 FAX
24-Hour Emergency Telephone Number CHEM-TEL (800) 255.3924

SAFETY DATA SHEET
CWT- BZT- 40

Section 1 – **Chemical Product & Company Identification**

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
MSDS/Product Name: CWT- BZT-40
Trade Name (as labeled): CWT-BZT -40 – Corrosion Inhibitor In Water Treatment Programs
Chemical Name(s): Sodium Benzotriazole 40%, BTA-Na, 1H - Benzotriazole Sodium Salt
24- Hour Emergency Telephone Number: CHEM-TEL 800.255.3924
CHEM-TEL Contract Number MIS0004395
Business Telephone: 818.771.9344
Date of Preparation: 12-15.2012

Section 2 - **Hazard Identification**



Skin Corrosion -Category 1B

Eye Damage- Category 1

Emergency Overview: Danger! Caustic! May cause severe burns to skin and eyes. Can cause irritation if inhaled. Harmful or fatal if swallowed.

Appearance and Odor: Colorless to pale yellow; no odor.

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Caustic! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
SODIUM BENOTRIAZOLE	15217-42-2	39 - 41
WATER	7732-18-5	59 - 61

Section 4 – First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, if cough or other symptoms develop obtain **IMMEDIATE** medical attention!

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention if irritation persists.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention if irritation persists.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – Fire Fighting Measures

Fire extinguishing materials: Use water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MIOSH/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not combustible.

Flash Point: > 100° C

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above).

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – Handling and Storage

Handling: Handle in a manner consistent with good industrial/manufacturing techniques. Handle in enclosed containers to avoid breathing product. Handle in well - ventilated area. Avoid contact with skin and eyes. Keep container sealed when not in use.

Storage: Store in a cool dry place and well-ventilated area. Do not store with incompatible materials.

Section 8 - Exposure Controls /Personal Protection

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

	OSHA (PEL)	ACGIH (TLV)
Sodium Benzotriazole 40% Liquid	N/A	N/A

Section 9 - Physical and Chemical Properties

Physical state: Liquid

Appearance: Colorless to pale yellow

Odor: Characteristic

Vapor density (air=1): N/A

Vapor pressure, mmHg: N/A

Specific gravity: 1.186-1.220

pH: 11.2 -11.7

% Volatile: N/D

Solubility in Water: Soluble

Viscosity: N/A

Boiling point or range, F: N/A

Melting Point: N/A

Section 10 – Stability and Reactivity

Stability Stable Unstable

Incompatibility (Materials to Avoid): Oxidizing agents, strong alkalis, amines, nitrites, and sulfites.

Conditions to Avoid: Keep away from children

Hazardous decomposition products (including combustion products): Carbon and nitrogen oxides.

Hazardous polymerization: May occur Will not occur

Section 11 - Toxicological Information

Long Term Exposure Health Effects:

Can cause severe damage to eyes if exposure is prolonged.

Can cause significant irritation to skin is exposure is prolonged.

Inhalation can lead to coughing, nasal congestion, and tightness of chest and / or shortness of breath.

Ingestion can lead to possible nausea or vomiting.

Section 12 - Ecological Information

Do not apply directly to any body of water. Can be toxic to aquatic life.

Section 13 – Disposal Considerations

Disposal: Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – **Transport Information**

U.S. Department of Transportation, Canada TDG

Shipping Name: UN3267, Corrosive liquid, basic, organic, n.o.s., (Sodium Benzotriazole 40%), 8, PG II

UN/NA Identification: UN3267

Hazard Class or Division: 8

Packing Group: II

Section 15 – **Regulatory Information**

CAS # 152178-42-2 is not on TSCA (U.S. Toxic Substance Control Act) inventory list.

The components are not listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

WHMIS Classification: E (corrosive material)

CAS # 15217 -42-2 – is not listed on Canadian Ingredient Disclosure List

Section 16 – **Additional Information**

SDS Creation Date: 12.15.2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.

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World Laboratories, LTD.
11076 Fleetwood Street
Sun Valley CA. 91352
(818) 771-9344
(818) 771-1182 FAX
24-Hour Emergency Telephone Number 800.255.3924 (CHEM-TEL)
CHEM-TEL Contract Number MIS0004395

SAFETY DATA SHEET CWT-SI

Section 1 – ***Chemical Product & Company Identification***

Manufacturer's Name: World Laboratories, LTD.
Address: 11076 Fleetwood Street Sun Valley CA. 91352
SDS/Product Name: CWT-SI
Trade Name (as labeled): CWT-SI
Chemical Name(s): Sodium Tolytriazole, 2-Phosphono Butane, 1,2,4, Tricarboxylic Acid, 1 Hydroxyethylidene -1, 1-Diphosphonic Acid
24 -Emergency Telephone Number: 800.255.3924 (CHEM-TEL)
Business Telephone: 818.771.9344
Date of Preparation: 7.11.2012

Section 2 - ***Hazard Identification***



Emergency Overview: WARNING! Keep out of reach of children! Can cause burns to skin and eyes. Can cause irritation if inhaled. Harmful or fatal if swallowed.

Appearance and Odor: Dark brown liquid acrylic odor.

Systems of Overexposure for each potential route of exposure:

Inhaled: May cause irritation.

Skin Contact: Prolonged contact may cause irritation.

Eye Contact: Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.

Ingestion: Swallowing can cause immediate pain and burns of the mouth, throat, esophagus, and gastrointestinal tract.

Chronic Exposure: Long-term exposure to concentrated vapors may cause erosion of teeth and lung damage. Long-term exposures seldom occur due to the corrosive properties.

Section 3 – Composition and Information on Ingredients

HAZARDOUS INGREDIENTS/CHEMICAL NAME	CAS #	PERCENT %
2—PHOSPHONO BUTANE, 1,2,4, TRICARBOXYLIC -ACID	37971-36-1	4-5
SODIUM TOLYTRIAZOLE	64665-57-2	1-2
1-HYDROXYETHYLIDENE-1, 1-DIPHOSPHONIC ACID	2809-21-4	1
POTASSIUM HYDROXIDE	1310-58-3	2

Section 4 – First Aid Measures Emergency Procedures

Inhaled: Remove victim from contaminated atmosphere. If breathing is labored, administer oxygen. Obtain **IMMEDIATE** medical attention.

Skin Contact: Immediately flush with large quantities of water for at least 15 minutes. Remove contaminated clothing under a safety shower. Obtain **IMMEDIATE** medical attention.

Eye Contact: Immediately flush with large quantities of water for at least 15 minutes. Be sure to hold the eyelids open while flushing. Obtain **IMMEDIATE** medical attention.

Ingestion: DO NOT INDUCE VOMITING! If victim is conscious, immediately give large quantities of water. If vomiting does occur, continue to give fluids. Obtain **IMMEDIATE** medical attention.

Suspected Cancer Agent? No

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Persons with pre-existing skin disorders, eye disease, or cardiopulmonary diseases may be more susceptible to the effects of this substance.

Section 5 – Fire Fighting Measures

Fire extinguishing materials: Use Water or as appropriate for combustibles involved in fire.

Special fire fighting procedures: Wear self-contained breathing apparatus, positive pressure, MIOSH/NIOSH (approved or equivalent) and full protective gear.

Unusual fire and explosion hazards: Not combustible.

Flash Point: N/A

Flammable limits in air, Volume %: lower -N/D upper- N/D

Section 6 – Accidental Release Measures

Small releases: Confine and absorb small releases on sand, earth or other inert absorbent. Place contaminated product and soil in a suitable container for disposal. *Do not use combustible materials such as saw dust!*

Large releases: Confine area to qualified personnel. Wear appropriate protective equipment. Shut off release if safe to do so. Dike or divert spill area to prevent run-off into sewers, drains or surface waterways (potential aquatic toxicity). Recover as much of the solution as possible. Treat remaining material as a small release (above). Potassium Hydroxide-RQ = 1000 lbs. (49 CFR) (40 CFR).

NOTE: Dispose of all waste in accordance with Federal, state and local regulations.

Section 7 – Handling and Storage

Handling: Keep out of reach of children! Handle in enclosed containers to avoid breathing product. Avoid contact with skin and eyes. Keep container sealed when not in use. Protect from extreme cold.

Section 8 - **Exposure Controls / Personal Protection**

Respiratory protection: Wear self-contained breathing apparatus, positive pressure MSHA/NIOSH (approved or equivalent) should be used for large spills

Eye protection (Type): Chemical goggles and a full face shield

Skin protection: Gloves, boots, and chemical suit should be worn to prevent liquid contact. Wash contaminated clothes prior to reuse.

Work practices, Hygienic practices: Use adequate exhaust ventilation to prevent inhalation of product vapors. Maintain eyewash/safety shower in areas where chemical is handled.

Section 9 - **Physical and Chemical Properties**

Physical state: Liquid

Appearance: Dark brown

Odor: Acrylic

Vapor density (air=1): N/A

Vapor pressure, mmHg: N/A

Specific gravity: 1.15

pH: 12

% Volatile: N/D

Solubility in Water: 100%

Viscosity: N/A

Boiling point or range, F: 212°

Melting Point: - N/A

Evaporation Rate: 1.04

Section 10 – **Stability and Reactivity**

Stability Stable Unstable

Incompatibility (Materials to Avoid): Strong Oxidizers

Conditions to Avoid:

Hazardous decomposition products (including combustion products): N/A

Hazardous polymerization: May occur Will not occur

Section 11 - **Toxicological Information**

Harmful or fatal if swallowed!

Section 12 - **Ecological Information**

This is an alkaline material. Do not apply directly to any body of water.

Section 13 – **Disposal Considerations**

Disposal: Dispose of all wastes in accordance with Federal, State and local regulations.

Section 14 – **Transport Information**

U.S. Department of Transportation, Canada TDG

Shipping Name: Non -Hazardous

Section 15 – **Regulatory Information**

CAS # 64665-57-2 is on the TSCA (U.S. Toxic Substance Control Act) inventory list

CAS # 2809-21-4 is on the TSCA (U.S. Toxic Substance Control Act) inventory list.

CAS # 37971-36-1 is on the TSCA (U.S. Toxic Substance Control Act) inventory list.

CAS # 1310-58-3 is on the TSCA (U.S. Toxic Substance Control Act) inventory list.

The components are not listed on California's Prop 65 list of chemicals known to cause cancer or other reproductive harm.

Canadian

WHMIS Classification: E (corrosive material)

CAS # 64665-57-2 listed on Canada's Ingredient Disclosure List

CAS # 37971-36-1 is listed on Canada's Ingredient Disclosure List

CAS # 2809-21-4 is listed on Canada's Ingredient Disclosure List

CAS # 1310-58-3 is listed on Canada's Ingredient Disclosure List

Section 16 – **Additional Information**

SDS Creation Date: July 11.2012

The information contained in this Safety Data Sheet (SDS) is based on current regulatory information as well as our manufacturers' information. It is the user's responsibility to determine the suitability of this information for the adoption of necessary safety precautions. We reserve the right to revise safety data sheets periodically as new information becomes available.