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| **Product** | BT-4500 |
| **Revision Date** | 07/03/2015 |
| **Revision** | 1 |

# Safety Data Sheet

## SECTION 1: IDENTIFICATION

**Product Name** BT-4500
**Identifier Uses** Boiler Treatment

**Supplier**
Clearwater Technologies, LLC
13560 Colombard Court
Fontana, California 92337
Tel: 844.429.8324

**Contact Person** info@chlearwatertech.com
**Emergency Telephone** 24-HOUR EMERGENCY TELEPHONE: INFOTRAC: 1-800-535-5053 INTERNATIONAL#: 1-352-323-3500

## SECTION 2: HAZARDS IDENTIFICATION

**Appearance** Clear, colorless liquid.
**Color** Clear, colorless.
**Odor** Odorless.

**Pictogram(s)**

**Signal**

**Word** Danger

**Hazard Statements**
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage

**Precautionary Statements**
P234 Keep only in original container.
P280 Wear protective gloves/ protective clothing/eye protection/face protection.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/ shower
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician

**Contains** sodium hydroxide

**GHS Classification**
**Physical and Chemical Hazards** Me. Corr 1 - H290
**Human Health** Skin Corr. 1A -
H314,
**Environment** Not classified

**OSHA Regulatory Status** This product is Hazardous under the OSHA Hazard communication Standard.

**Inhalation** Inhalation of vapors or fumes may be cause moderate to severe irritation to mucous membranes and respiratory tract. Symptoms of exposure may include chest pain and pulmonary edema. Avoid contact.

**Ingestion** Exposure to liquid product may cause moderate to severe irritation to inner linings of

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| | mouth, esophagus and gastrointestinal tract, and possible burns. Symptoms of exposure may include nausea and vomiting. Do NOT ingest. |
| **Skin contact** | Exposure to liquid product may cause moderate to severe irritation to skin, and possible burns. Symptoms of exposure may include redness, itching, swelling or pain. Effects of contact are typically an irritant dermatitis. Avoid contact. |
| **Eye contact** | Exposure to liquid product may cause severe irritation to eyes, and possibly burns, eye damage, or blindness. Symptoms of exposure may include redness, itching, swelling, tearingor pain. Effects of contact may be delayed. Avoid contact. |
| **Routes of Exposure** | No Information available. |

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

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| **Composition Comments** | Confidential business information has been removed without affecting the overall safety information on the safety data sheet. |

## SECTION 4: FIRST AID MEASURES

Description of first aid measures

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| **General Information** | General first aid, rest, warmth and fresh air. |
| **Inhalation** | If this product is inhaled and symptoms occur, move the exposed person to fresh air promptly. Give artificial respiration if the exposed person is not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer Basic Life Support (Cardio-Pulmonary Resuscitation/Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY. |
| **Ingestion** | If this product is ingested, give the exposed person large amounts of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting unless directed to do so by medical personnel. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY. |
| **Skin contact** | If this product contacts the skin, immediately flush the affected area with soap and water for at least fifteen (15) minutes. If the product penetrates the clothing, promptly remove the contaminated clothing or shoes, and flush the affected area as described. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY. |
| **Eye contact** | If this product contacts the eyes, immediately flush eyes with plenty of clean running water for at least fifteen (15) minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Remove contact lenses if worn. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY. |

Most important symptoms and effects, both acute and delayed

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|---|---|
| **General Information** | No information available |
| **Inhalation** | Inhalation of vapors or fumes may be cause moderate to severe irritation to mucous membranes and respiratory tract. Symptoms of exposure may include chest pain and pulmonary edema. Avoid contact. |
| **Ingestion** | Exposure to liquid product may cause moderate to severe irritation to inner linings of mouth, esophagus and gastrointestinal tract, and possible burns. Symptoms of exposure may include nausea and vomiting. Do NOT ingest. |
| **Skin contact** | Exposure to liquid product may cause moderate to severe irritation to skin, and possible burns. Symptoms of exposure may include redness, itching, swelling or pain. Effects of contact are typically an irritant dermatitis. Avoid contact. |
| **Eye contact** | Exposure to liquid product may cause severe irritation to eyes, and possibly burns, eye damage, or blindness. Symptoms of exposure may include redness, itching, swelling, tearing or pain. Effects of contact may be delayed. Avoid contact. |
| **Routes of Exposure** | No Information available. |

Most important symptoms and effects, both acute and delayed

| | |
|---|---|
| **Notes to the Physician** | Treat Symptomatically. |

## SECTION 5: FIREFIGHTING MEASURES

**Auto Ignition Temperature (°C)** No Information available. **Flammability Limit - Lower (%)** No

Information available. **Flammability Limit - Upper (%)** No Information available. **Flash point** No Information available.

**Extinguishing Media** Use water, foam, dry chemical or carbon dioxide to extinguish fire.

**Hazardous combustion products** Unknown.

**Unusual Fire & Explosion Hazards** Irritating vapors may be emitted during a fire.

**Special Fire Fighting Procedures** Move container from fire area if it can be done without risk. Use water to cool containers exposed to a fire. Protective equipment for fire- fighters. Fire fighters should wear full protective equipment, and have self-contained breathing apparatus available.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions** Use proper personal protection (refer to Section 8).

**Environmental Precautions** Run off from fire control or dilution water may cause pollution. Keep out of drains, municipal sewers, open bodies of water and water course. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

**Spill Clean Up Methods** Safely stop source of spill. Clean up spills immediately. Restrict non-essential personnel from the area. Wear protective clothing, goggles and respirator if ventilation is not adequate. Dike spill area. Soak up material with sand or other absorbent or vacuum the spillage. Place absorbent or spillage into chemical waste container for disposal according to local, state or federal regulations. Flush spill area with water.

## SECTION 7: HANDLING AND STORAGE

**Handling** Use proper personal protection when handling (refer to Section 8).Use under well-ventilated conditions. Avoid contact with eyes, skin and clothing. Avoid breathing vapors and mists.
Avoid prolonged or repeated contact. Do NOT ingest. Wash thoroughly after handling. Rinse container before disposal. When mixing, slowly add to water to minimize heat generation and splattering.

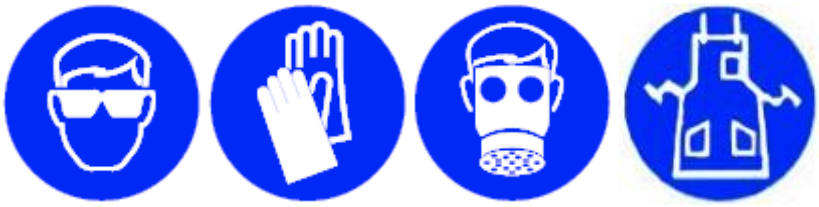
**Usage Description** Use only according to directions.

**Storage Precautions** Keep container tightly closed. Do not sore in heat or direct sunlight. Keep in dry, cool, and well ventilated place. The recommended storage temperature is 34°F to 129 °F, preferably at room temperature 70° the recommended storage temperature is above 32°F, preferably at room temperature (70°F).

**Specific End Use(s)** The identified uses are in section 1 of this Safety Data Sheet.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

**Protective Equipment**



| Component | STD | TWA (8 Hrs) | | STEL (15mins) | | Notes |
|---|---|---|---|---|---|---|
| **sodium hydroxide** | OSHA | | 2mg/m3 | | | |

**Ingredient Comments** OSHA

**Process Conditions** Keep container tightly sealed when not in use. Provide eyewash, quick drench.

**Engineering Measures** Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

**Respiratory Equipment** A NIOSH approved respirator with N95 (dust, fume, mist) filters may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. A half face piece air-purifying respiratory may be used in

concentrations up to ten (10) times the acceptable exposure level and a full face piece air-purifying respirator may be used in concentrations up to fifty (50) times the acceptable exposure level. Supplied air should beused when the level is expected to be above fifty (50) times the acceptable level, or when there is a potential for uncontrolled release.

**Hand Protection** Wear chemical resistant gloves complying with EN374.Longer term protection: Butyl rubber.

**Incidental contact/Splash protection**: Natural rubber. Neoprene rubber. Nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced.

**Eye Protection** Wear safety goggles in accordance with EN166. Eye protection equipment should be tested and approved according to regulations applicable, like NIOSH (US) or EN 166 (EU).

**Hygiene Measures** DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes wet or contaminated. Promptly remove any clothing that becomes contaminated. When using do not eat, drink or smoke.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on Basic Physical and Chemical Properties

**Appearance** Clear, colorless liquid.
**Color** Clear, colorless.
**Odor** Odorless.

**Odor Threshold - Lower** No Information available.

**Odor Threshold - Upper** No Information available.

**pH-Value, Conc. Solution** 14.0

**Melting point** 59.0 °F
**Initial boiling point and boiling range** 291.0 °F

**Flash point** No Information available.

**Evaporation rate** No Information available.

**Flammability State** No Information

available. **Flammability Limit - Lower (%)** No

Information available. **Flammability Limit - Upper (%)** No

Information available. **Vapor pressure** 13.00 mm Hg 0.00

**Vapor Density (air = 1)** No Information available.

**Relative density** 1.54 @ 68.0 °F

**Bulk Density** No Information available.

**Solubility** Completely soluble in water.

**Decomposition temperature** No Information available.

**Partition coefficient; n-octanol/water** No Information available.

**Auto Ignition Temperature (°C)** No Information available.

**Viscosity** No Information available.
**Explosive Properties** No information available.

**Oxidizing Properties** No Information available.

**Molecular Weight** No Information available.

**Volatile Organic Compound** No Information available.

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity** Reaction may occur with acids, halogenated compounds, prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys.

**Stability** This product is stable at ambient temperatures and atmospheric pressures.

**Hazardous Polymerization** Hazardous polymerization is not expected to occur under normal temperatures and pressures.

**Hazardous Decomposition Products** None under normal conditions.

**Conditions to Avoid** Avoid exposing to heat and contact with strong alkali and oxidizing materials.

**Materials to Avoid** Avoid contact with Acids, halogenated compounds, prolonged contact with Aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys.

## SECTION 11: TOXICOLOGICAL INFORMATION

**Toxicological Information** The severity of the tissue damage is a function of its concentration, the length of tissue contact time, and local tissue conditions. After exposure there may be a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin, eyes, and mucous membranes. This material may cause severe burns and permanent damage to any tissue with which it comes into contact. Inhalation will cause severe irritation, possible burns with pulmonary edema, which may lead to pneumonitis.

**Acute Toxicity (Oral LD50)** 220.00mg/kg Rat
**Acute Toxicity (Dermal LD50)** 1350.00mg/kg Rabbit
**Acute Toxicity (Inhalation LC50)** No Information available.

**Skin Corrosion/Irritation** No Information available.

**Respiratory Sensitization** No Information available.
**Skin Sensitization** No Information available.
**Reproductive Toxicity:** No Information available.
**Germ Cell Mutagenicity:**
**Genotoxicity - In Vitro**
**Genotoxicity - In Vivo**

**Carcinogenicity:**
**Carcinogenicity** No Information available.
**NTP - Carcinogenicity** The product and its components are not listed.
**OSHA - Carcinogenicity** The product and its components are not liste.d
**IARC Carcinogenicity** The product and its components are not listed.

**Specific Target Organ Toxicity - Single Exposure:**
**STOT - Single Exposure** No Information available.
**Specific Target Organ Toxicity - Repeated Exposure:**
**STOT - Repeated Exposure** No Information available.

| Name | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| sodium hydroxide | | 1350mg/kg Rabbit | |
| sodium chloride | 3g/kg Rat | 10g/kg Rabbit | 42g/m3 Rat 1 Hours |

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity** This material is inorganic and not subject to biodegradation. This material is believed to exist in the disassociated state in the environment. This material is believed not to bioaccumulate. This material has exhibited slight toxicity to terrestrial organisms.

**Acute Toxicity - Fish** No Information available.

**Acute Toxicity - Aquatic Invertebrates**

LC50 48 Hours 100.00ppm Daphnia magna

**Acute Toxicity - Aquatic Plants** No Information available.

**Degradability** The product is not readily biodegradable.

**Bioaccumulative Potential** Does not bioaccumulate.

**Mobility** Completely soluble in water.

**Results of PBT and vPvB Assessment** The product does not contain any PBT or vPvB substances.

**Other Adverse Effects** None known.

| Name | Acute Toxicity (Fish) | Acute Toxicity (Aquatic Invertebrates) | Acute Toxicity (Aquatic Plants) |
|---|---|---|---|
| sodium | | EC50 100.00ppm Daphnia magna | |

## SECTION 13: DISPOSAL CONSIDERATIONS

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

**Disposal Methods** Do NOT dump into any sewers, on the ground or into any body of water. Rinse containers before disposal. Since emptied containers contain product residue, follow label warnings even after container is emptied. Dispose in accordance with all applicable federal, state and local laws and regulations.

## SECTION 14: TRANPSORT INFORMATION

**UN No. (DOT/TDG)** 1824 - SODIUM HYDROXIDE SOLUTION

**UN No. (IMDG)** 1824 - SODIUM HYDROXIDE SOLUTION

**UN No. (ICAO)** 1824 - Sodium hydroxide solution

**DOT Proper Shipping Name** 1824 - SODIUM HYDROXIDE SOLUTION

**TDG Proper Shipping Name** 1824 - SODIUM HYDROXIDE SOLUTION

**DOT Hazard Class** 8

**DOT Hazard Label** Class 8 - Corrosive

**TDG Class** 8

**TDG Label(s)** 8

**IMDG Class** 8

**ICAO Class** 8

**Transport Labels**


**DOT PackGroup** II

| | |
|---|---|
| **IMDG Pack Group** | II |
| **Air Pack Group** | II |
| **EMS** | F-A, S-B |
| **Environmentally Hazardous Substance/Marine Pollutant** | No |

## SECTION 15: REGULATORY INFORMATION

US Federal Regulations

**SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

The Following ingredients are listed None Listed.

**CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)**
The Following ingredients are listed sodium hydroxide

**SARA Extremely Hazardous Substances EPCRA Reportable Quantities**
The Following ingredients are listed None Listed.

**SARA 313 Emission Reporting**
The Following ingredients are listed None Listed.

**CAA Accidental Release Prevention**
The Following ingredients are listed sodium hydroxide

**OSHA Highly Hazardous Chemicals**
The Following ingredients are listed None Listed.

US State Regulations

**California Proposition 65 Carcinogens and Reproductive Toxins**
The Following ingredients are listed None Listed.

**California Air Toxics "Hot Spots" (A-I)**
The Following ingredients are listed sodium hydroxide

**California Air Toxics "Hot Spots" (A-Ii)**
The Following ingredients are listed None Listed.

**Massachusetts "Right To Know" List**
The Following ingredients are listed sodium hydroxide

**Rhode Island "Right To Know" List**
The Following ingredients are listed sodium hydroxide

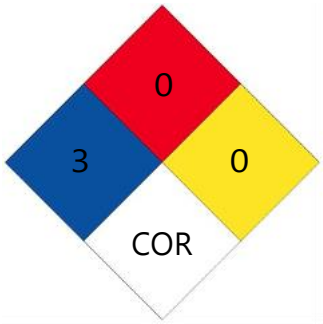
**Minnesota "Right To Know" List**
The Following ingredients are listed sodium hydroxide

**New Jersey "Right To Know" List**
The Following ingredients are listed sodium hydroxide

**Pennsylvania "Right To Know" List**
The Following ingredients are listed sodium hydroxide

## SECTION 16: OTHER INFORMATION

### NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)




### HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

| | |
|---|---|
| Health | 3 |
| Flammability | 0 |
| Physical Hazard | 1 |
| Personal Protection | J |

**Revision Comments**
**Revision Date** 07/03/2015
**Revision** 1

**Disclaimer**
This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.