

1. IDENTIFICATION

Trade Name: 599-L Oxygen Scavenger
Chemical Name & Synonyms: Proprietary Boiler Water Treatment Blend
UN/ID No. 2693
Recommended Use: Oxygen Scavenger in Boiler Water Treatment
Restrictions on Use: No data available.



2. HAZARD(S) IDENTIFICATION

Signal Word: Danger

GHS Classification: Substance or mixture corrosive to metals Category 1
Respiratory Sensitization Category 1
Skin Sensitization Category 1
Skin Corrosion/Irritation Category 2
Serious Eye Damage/Eye Irritation Category 2A

Hazard Statements: May be corrosive to metals.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.



Precautionary Statements:

Prevention: Keep only in original container.
Avoid breathing dust, gas, mist, vapors or spray.
Wash thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace.
Wear gloves, eye and face protection and protective clothing.
In case of inadequate ventilation wear respiratory protection.

Response:

IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Specific treatment:

(see First Aid section)
If skin irritation or rash occurs: Get medical advice or attention.
If eye irritation persists: Get medical advice or attention.
If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
Take off contaminated clothing and wash before reuse.
Absorb spillage to prevent material damage.

Storage: Store in corrosive resistant container with a resistant inner liner.

Disposal: Dispose of in accordance with local, regional and international regulations.

Hazards Not Otherwise Classified: None known.

Percentage of Components with Unknown Acute Toxicity:

Dermal: 5-10 %

Inhalation Vapor: 5-10 %

Inhalation Dust/Mist: 5-10 %

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS Number	% by Wt.
Sodium Bisulfite	7631-90-5	5-10 %
Potassium Hydroxide	1310-58-3	3-6%

4. FIRST-AID MEASURES

Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Tilt head to avoid contaminating unaffected eye. Get immediate medical attention.

Skin Contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Do not reuse clothing and shoes until cleaned. Wipe off excess. Discard footwear which cannot be decontaminated.

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion: If swallowed, call a physician immediately. DO NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Give water or milk to dilute. If vomiting occurs spontaneously, keep airway clear and give more water.

Note to Physicians:

Treat symptomatically.

The decision of whether to induce vomiting or not should be made by a physician.

Most Important Symptoms/Effects:

Eye Contact: May be corrosive to the eyes. Severe irritation and burns may result. Liquid or mist may cause discomfort. tearing. redness. pain. blurred vision. If left untreated, may cause: burns. corneal damage. blindness.

Skin Contact: May be corrosive to the skin. Severe irritation and burns may result. Contact may cause discomfort. rash. redness. swelling. scaling. blistering. allergic reaction in some individuals. Effects may be delayed.

Skin Absorption: No data available.

Inhalation: May be corrosive to the respiratory tract. Severe irritation and burns may result. May irritate or damage: nose. throat. mucous membranes. respiratory tract. May cause: coughing. shortness of breath. Allergic reaction in some individuals. Effects may be delayed.

Ingestion: May be corrosive to the gastrointestinal tract. Severe irritation and burns may result. Large amounts may cause: nausea. stomach upset. vomiting. diarrhea. abdominal pain. central

nervous system depression, violent colic. death. May cause an allergic reaction in some individuals. Effects may be delayed. Estimated fatal dose for Sodium Bisulfite is 10 grams.

5. FIRE-FIGHTING MEASURES

Flammable Properties: Non-Flammable

Explosive Properties N/A

Suitable Extinguishing Media: N/A

Unsuitable Extinguishing Media: N/A

Specific Hazards arising from the Chemical: Overheating in fire conditions may cause release of sulfur oxides, metal oxides. Neutralize runoff with lime, soda ash or other suitable neutralizing agents. Run-off from fire control may cause pollution. Sodium sulfide may be formed after dried solution residues are heated. This is an explosive hazard and strongly alkaline in contact with water.

Protective Equipment and Precautions for Firefighters:

In the event of a fire, wear full protective clothing and MSHA/NIOSH (approved or equivalent) self-contained breathing apparatus with full facepiece operated in the pressure-demand or other positive pressure mode

6. ACCIDENTAL RELEASE MEASURES

Spill Clean-Up Procedures: CORROSIVE MATERIAL. Evacuate unprotected personnel from area. Maintain adequate ventilation. Follow personal protective equipment recommendations found in Section 8. Never exceed any occupational exposure limit. Eliminate all sources of ignition. Shut off source of leak if safe to do so. Contain spill, place into drums for proper disposal. Neutralize with an alkali (sodium carbonate, lime, etc.) Sulfur dioxide and carbon dioxide may be released during neutralization. Flush remaining area with water to remove trace residue and dispose of properly. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

Product is water soluble and may be diluted and flushed as below described.

Other Information: This product is intended to be used in pretreatment of boiler water, and discharged to sanitary sewer in boiler blowdown water. Concentrated product may be diluted to a similar working concentration and flushed to sewer, or soaked up with absorbent material and landfilled in accordance with local, state, and federal regulations.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin, and clothing. Use with adequate ventilation. Do not swallow. Avoid breathing vapors, mists, or dust. Do not eat, drink, or smoke in work area. Wash thoroughly after handling. Empty containers retain product residues; observe all warnings and precautions listed for the product. Do not handle near an open flame, heat, or other sources of ignition.

Storage: CORROSIVE MATERIAL. Store in a cool, well ventilated area, out of direct sunlight. Store in a dry location away from heat. Keep away from incompatible materials. Keep containers tightly closed. Do not store in unlabeled or mislabeled containers. Store away from all sources of heat and ignition to prevent decomposition and release of sulfur dioxide gas. Do not freeze. Store above 50 F to avoid crystallization. Protect containers against physical damage. Tanks should be vented into an alkaline fume recovery system or

scrubber. Storage tanks should be protected from water ingress, and maintained structurally in a safe and reliable condition. Store in corrosion-resistant container. See Section 10 for incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

OSHA Exposure Guidelines:

Component Limits

No components found.

ACGIH Exposure Guidelines:

Component Limits

Sodium Bisulfite 5 mg/m³ TWA

Note:

Sulfur Dioxide gas may be released. The Exposure Limits for Sulfur Dioxide are: 5 ppm-TWA (OSHA); 2 ppm-TWA, 5 ppm-STEL (ACGIH)(Vacated 1989 OSHA PELs).

Engineering Controls: Local exhaust ventilation, process enclosures, or other engineering controls are imperative when handling or using this product to avoid overexposure. Maintain adequate ventilation. Do not use in closed or confined spaces. Avoid creating dust or mist. Keep levels below exposure limits. To determine exposure levels, monitoring should be performed regularly.

Eye/Face Protection: Wear chemical safety goggles and a full face shield while handling this product. Do not wear contact lenses.

Skin Protection: Prevent contact with this product. Wear gloves and protective clothing depending on condition of use. Protective gloves: Impervious. Neoprene. Rubber. Polyvinyl chloride.

Respiratory Protection: Respiratory protection must be worn when handling this product. If exposure limits are exceeded, wear: NIOSH-Approved respirator for dusts, mists, and/or SO₂ vapors as conditions indicate. NIOSH-Approved air-purifying respirator with: Acid gas cartridge. NIOSH-Approved self-contained breathing apparatus. NIOSH-Approved positive pressure supplied air respirator. DO NOT exceed limits established by the respirator manufacturer. All respiratory protection programs must comply with OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements and must be followed whenever workplace conditions require a respirator's use.

Other Protective Equipment: Eye-wash station. Safety shower. Rubber apron. Chemical safety shoes. Rubber boots. Full body suit. Protective clothing.

General Hygiene Conditions: Wash with soap and water before meal times and at the end of each work shift. Good manufacturing practices require gross amounts of any chemical be removed from skin as soon as practical, especially before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear light yellow liquid with pungent sulfurous odor.

pH: 4.00

Specific Gravity: 1.136

Molecular Weight: Mixture

Water Solubility: Complete

Melt/Freeze Point: 45 °F.

Boiling Point: ~ 220 °F

Flammability: N/A

Flash Point: N/A
Vapor Density (air=1): Not Determined

10. STABILITY AND REACTIVITY

Reactivity: No data available.

Chemical Stability: Stable under normal conditions of use and storage.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur under normal conditions.

Oxidizing agents may cause exothermic reactions. Both acidification and heating accelerate the release of Sulfur dioxide fumes.

Conditions to Avoid: Avoid contact with heat, sparks, electric arcs, other hot surfaces, and open flames. Avoid other ignition sources. Temperatures at or near boiling point causes evolution of Sulfur Dioxide. Avoid excess exposure to air. On exposure to air, the product will lose some Sulfur dioxide and gradually oxidize to sulfate.

Incompatible Materials: Acids. Mineral acids. Oxidizing agents. Corrosive to some metals.

Hazardous Decomposition Products: Sulfur dioxide gas. Sulfur oxides. Toxic vapors.

11. TOXICOLOGICAL INFORMATION

Component	Oral LC50	Dermal LC50	Inhalation LC50
Sodium Bisulfite	Rat: 1420 mg/kg	No Data	No Data

Acute Toxicity Estimate (ATE):

Oral: 3,550 mg/kg

Routes of Exposure: Eyes. Skin. Inhalation. Ingestion.

Eye Contact: May be corrosive to the eyes. Severe irritation and burns may result. Liquid or mist may cause: discomfort. tearing. redness. pain. blurred vision. If left untreated, may cause: burns. corneal damage. blindness.

Skin Contact: May be corrosive to the skin. Severe irritation and burns may result. Contact may cause: discomfort. rash. redness. swelling. scaling. blistering. allergic reaction in some individuals. Effects may be delayed.

Skin Absorption: No data available.

Inhalation: May be corrosive to the respiratory tract. Severe irritation and burns may result. May irritate or damage: nose. throat. mucous membranes. respiratory tract. May cause: coughing. shortness of breath. allergic reaction in some individuals. Effects may be delayed.

Ingestion: May be corrosive to the gastrointestinal tract. Severe irritation and burns may result. Large amounts may cause: nausea. stomach upset. vomiting. diarrhea. abdominal pain. central nervous system depression, violent colic. death. May cause an allergic reaction in some individuals. Effects may be delayed. Estimated fatal dose for Sodium Bisulfite is 10 grams.

Medical Conditions Aggravated by Exposure to Product: Asthma. Lung disorders. Some individuals are said to be dangerously sensitive to minute amounts of sulfites in foods. Symptoms may include bronchoconstriction, shock, gastrointestinal disturbances, angioedema (hives), flushing, and tingling sensations. Once allergy develops, future exposures can cause asthma attacks with shortness of breath, wheezing, and cough.

Other: May cause severe allergic reaction in some asthmatics and sulfite sensitive individuals. The potential for exposure to sulfur dioxide must always be considered as well, particularly when the solution may become overheated. SULFUR DIOXIDE GIVEN OFF BY THIS PRODUCT HAS BEEN SHOWN TO CAUSE BREATHING DIFFICULTIES IN ASTHMATICS.

Cancer Information:

This product does not contain 0.1% or more of the known or potential carcinogens listed in NTP, IARC, or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information: Sodium Bisulfite Solution: LC50 Mosquito Fish (96 hours): 240 ppm
 Product degrades into Sulfur oxides (SO₂, SO₃), some metallic oxides. Products of degradation are toxic.

13. DISPOSAL CONSIDERATIONS

Waste from Residues/Unused Products:

P501: Dispose of in accordance with all local, state and federal regulations.

Dilute with large amounts of water, neutralize with calcium carbonate or sodium carbonate (soda ash) before disposal. This product is intended to be used boiler water pre-treatment systems and discharged to sanitary sewer in its diluted state in boiler blowdown water. Concentrated product may be diluted to a similar working concentration and flushed to sewer or soaked up with absorbent material and landfilled in accordance with local, state, and federal regulations.

Contaminated Packaging: Do not reuse container for potable / food contact. Wash and rinse thoroughly before reuse / recycling

14. Transport information (USDOT):

Proper shipping Name: Bisulfites, Aqueous Solutions, N.O.S. (Contains Sodium Bisulfite)
Hazard Class: 8
UN/ID No UN2693
Packing Group III
Reportable Quantity (RQ) 5000 lbs.
Description: N/A

15. Regulatory Information

TSCA Inventory Status: This product or all components of this product are listed on the EPA/TSCA Inventory of Chemical Substances.

SARA Title III Section 311/312 Category Hazards:

	Immediate (Acute)		Delayed (Chronic)		Fire Hazard	Pressure Release	Reactive	
	Yes	No	No	No	No	No	No	No
Regulated Components	CAS No.	CERCLA RQ	SARA EHS	SARA 313	U.S. HAP	WI HAP	CA Prop 65	

Sodium Bisulfite 7631-90-5 Yes No No No Yes No

***Prop 65 - May Contain the Following Trace Components:** Sulfur Dioxide.

Clean Water Act:

This product contains one or more components designated as hazardous substances or toxic pollutants pursuant to the Federal Clean Water Act (40 CFR 116.4 Table A; 40 CFR 401.15). Any unpermitted introduction of this product into a facility stormwater or wastewater discharge may constitute a violation of the Clean Water Act. Facilities must notify the appropriate permitting agency prior to introducing this product into the aforementioned discharges.

16. Other Information

FDA Approved Direct Food Additives Part 182—Substances Generally Recognized As Safe (GRAS)
Subpart D – Chemical Preservatives, Sec 182.2729 Sodium Bisulfite

National Fire Protection Association (NFPA) Ratings:

Health: 2

Flammability: 0

Reactivity: 0

Special Hazard: None



NSF Certification: N/A

This Safety Data Sheet compiled from information provided by the raw chemical product manufacturers.