

SODIUM BISULFITE SOLUTION MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity: Sodium Bisulfite Solution

Manufacturer:

Various
(Please Contact Supplier for Further
Information)

Supplier:

Teck American Incorporated
501 North Riverpoint Blvd., Suite 300,
Spokane, WA. 99202
Emergency Telephone: 250-364-4214

MSDS Preparer:

Teck Metals Ltd.
Suite 3300 – 550 Burrard Street
Vancouver, British Columbia
V6C 0B3

Date of Last Review/Edit: October 26, 2009.

Product Use: Used in the manufacturing of sodium hydrosulfite, in the dechlorination of waste water, in the dechlorination of bleaching effluent, as a pulping chemical and as a food processing additive and preservative.

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Ingredient	Approximate Percent by Weight	CAS Number	Occupational Exposure Limits (OELs)		LD ₅₀ / LC ₅₀ Species and Route
Sodium Bisulfite	27-42%	7631-90-5	OSHA PEL ACGIH TLV NIOSH REL	None Established 5 mg/m ³ 5 mg/m ³	LD ₅₀ , rat, oral 2,000 mg/kg

NOTE: OELs for individual jurisdictions may differ from OSHA PELs. Check with local authorities for the applicable OELs in your jurisdiction. OSHA - Occupational Safety and Health Administration; ACGIH - American Conference of Governmental Industrial Hygienists; NIOSH - National Institute for Occupational Safety and Health. OEL – Occupational Exposure Limit, PEL – Permissible Exposure Limit, TLV – Threshold Limit Value, REL – Recommended Exposure Limit.

Trade Names and Synonyms: Sodium acid sulfite, sodium hydrogen sulfite, monosodium sulfite, NaHSO₃.

SECTION 3. HAZARDS IDENTIFICATION

Emergency Overview: A pale yellow aqueous solution with a pungent sulfur-like odor. Non-combustible but excessive heat may liberate sulfur dioxide gas that is strongly irritating to the eyes and mucous membranes. The solution itself is relatively non-toxic and poses little immediate hazard to fire fighting personnel in an emergency situation. Solution is mildly acidic and can pose a threat to water courses in an emergency situation.

Potential Health Effects: Inhalation will irritate the nose, throat, and respiratory tract. Direct skin or eye contact will cause irritation and discomfort. Accidental splashes in the eye may cause eye tissue damage if left untreated. Sulfiting agents, including sodium bisulfite, have been reported to cause reactions in sensitive individuals, even when ingested at very low concentrations. This material is not listed as a human carcinogen by OSHA, NTP, ACGIH, or IARC. (see Toxicological Information, Section 11)

Potential Environmental Effects: This product, a sodium bisulfite solution, is moderately acidic, and has a high chemical oxygen demand (COD). Due to these characteristics, the solution itself, or water run-off from the product, has the potential to pose ecological risks in nearby watercourses. (see Ecological Information, Section 12)

SECTION 4. FIRST AID MEASURES

Eye Contact: Quickly and gently blot or brush chemical off face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. Obtain medical advice.

Skin Contact: Remove contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Quickly and gently blot or brush away excess chemical. Wash gently and thoroughly with lukewarm, gently flowing water and non-abrasive soap for 5 minutes. If

irritation persists, repeat flushing. Obtain medical advice. Completely decontaminate clothing, shoes and leather goods before reuse or else discard.

Inhalation: Remove source of contamination or move victim from exposure area to fresh air immediately. If breathing has stopped, trained personnel should begin artificial respiration. If the heart has stopped, immediately start cardiopulmonary resuscitation (CPR), or automated external defibrillation (AED). Quickly transport victim to an emergency care facility.

Ingestion: NEVER give anything by mouth if victim is rapidly losing consciousness, or is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. Have victim drink 2 – 8 oz. (60 – 240 ml) of water. If vomiting occurs naturally, have victim rinse mouth with water again. Obtain medical advice and bring a copy of this MSDS.

SECTION 5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: This product is not considered a fire or explosion hazard.

Extinguishing Media: Use any means of extinction appropriate for surrounding fire conditions such as water spray, carbon dioxide, dry chemical, or foam. Cool any containers that are exposed to heat or flames by the application of water streams until well after the fire has been extinguished.

Fire Fighting: Toxic fumes of sulfur dioxide may be released from this product in a fire situation. Firefighters must be fully-trained and must wear full protective clothing including an approved, self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask. Do not allow water run-off to enter sewers or watercourses.

Flashpoint and Method: Not Applicable.

Upper and Lower Flammable Limit: Not Applicable.

Autoignition Temperature: Not Applicable.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Procedures for Cleanup: Stop release if possible to do so safely. Contain spill, isolate hazard area, and deny entry. Pump back into system if possible. Otherwise, neutralize with alkali such as sodium carbonate or sodium bicarbonate, soda ash, lime or limestone granules. Dispose of spilled material and neutralization residues in accordance with applicable regulations.

Personal Precautions: Protective clothing, gloves, and a combination acid gas/P95 or P-100 respirator are recommended for persons responding to an accidental release (see also Section 8). Splash goggles and/or face shield should be worn to prevent eye contact with mist or spray where splashing is possible.

Environmental Precautions: Components of this product can pose a threat to the environment. Contamination of water and air should be prevented. Do not allow water run-off to enter sewers or watercourses.

SECTION 7. HANDLING AND STORAGE

Store in a dry, cool, well-ventilated area away from acids, acid fumes, and oxidizers. Keep containers tightly closed. Prolonged exposure to the atmosphere will slowly oxidize this product to produce sodium sulfate and release sulfur dioxide gas. Empty and clean containers of all residues before adding more product to container, to avoid potentially dangerous reaction. Always practice good personal hygiene. Refrain from eating, drinking, or smoking in work areas. Thoroughly wash hands before eating, drinking, or smoking in appropriate, designated areas.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Protective Clothing: Protective clothing, splash goggles, and impervious gloves are recommended when handling bulk solution. Appropriate protective clothing should be worn where any possibility exists that skin contact may occur. Eye protection should be worn where mist is generated and where any possibility exists that eye contact may occur. An eyewash and quick drench shower should be provided. Workers should wash immediately when skin becomes contaminated and at the end of each work shift. Work clothing should be removed promptly if it becomes contaminated and should be changed daily if there is reasonable probability that the clothing may be contaminated.

Ventilation: Use adequate local or general ventilation to maintain the concentrations of aerosol mists and sulfur dioxide below recommended occupational exposure limits.

Respirators: Where sulfur dioxide or liquid aerosol mists are generated and cannot be controlled to within acceptable levels, use appropriate NIOSH-approved respiratory protection equipment (combined 42 CFR 84 Class N, R or P-95 or P-100 particulate filter and acid gas cartridge).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Pale yellow liquid	Odor: Possible odor of SO ₂	Physical State: Liquid	pH: 3.8
Vapor Pressure: Not Applicable	Vapor Density: Not Applicable	Boiling Point/Range: 104°C	Freezing Point/Range: 3°C
Specific Gravity: 1.37 at 20°C	Evaporation Rate: Not Applicable	Coefficient of Water/Oil Distribution: Not Applicable	Odor Threshold: 0.5 ppm (SO ₂)
Solubility in Water: Aqueous solution			

SECTION 10. STABILITY AND REACTIVITY

Stability & Reactivity: This material is stable and not considered reactive under normal temperatures and pressures. Hazardous polymerization or runaway reactions will not occur. Prolonged exposure to the atmosphere will slowly oxidize this product to produce sodium sulfate and release sulfur dioxide gas.

Incompatibilities: Avoid contact with acids - may liberate sulfur dioxide. Also avoid strong oxidizers and materials that react violently with water. Sodium bisulfite solutions are corrosive to aluminum.

Hazardous Decomposition Products: Excessive heating may liberate sulfur dioxide gas which is toxic and corrosive.

SECTION 11. TOXICOLOGICAL INFORMATION

General: A skin, eye and mucous membrane irritant. Only moderately toxic by ingestion but may cause a severe allergic reaction in some asthmatics and others who are hypersensitive to sulfites. Hazards are largely those from acute exposure or direct contact rather than chronic or repeated low level exposure. The potential for exposure to sulfur dioxide must always be considered as well, particularly when the solution may become overheated.

Acute:

Skin/Eyes: Exposure to mists or aerosols of this solution will cause eye irritation with possible discomfort, tearing, or blurring of vision. If left untreated the solution may cause burns and some eye tissue damage. Direct skin contact with the solution will cause slight to moderate skin irritation with discomfort, rash and, rarely, an allergic reaction.

Inhalation: Acute inhalation of mists will result in irritation of the nose, throat and upper respiratory passages. Symptoms may include discomfort, coughing, tingling sensation, sneezing and/or shortness of breath and wheezing.

Ingestion: Ingestion of sodium bisulfite solution will irritate the gastrointestinal tract due to the liberation of sulfurous acid. Very large doses can cause violent colic, diarrhea, circulatory disturbance, central nervous system depression and death. May cause a severe allergic reaction in some asthmatics and sulfite-sensitive persons with symptoms of broncho constriction, bronchospasm, gastrointestinal disturbances, flushing, hypotension, tingling sensation, urticaria/angioedema and shock.

Chronic: Symptoms from chronic exposure will be similar to those of acute exposure. Sodium bisulfite is not listed as a human carcinogen by the Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP), the American Conference of Governmental Industrial Hygienists (ACGIH), or the International Agency for Research on Cancer (IARC).

SECTION 12. ECOLOGICAL INFORMATION

This product is a moderately acidic solution that has the potential to be toxic to organisms in the aquatic environment. Its sulfite ion component yields elevated chemical oxygen demand and further pH reduction on oxidation to sulfate. Based on these characteristics, it is recommended that the product be kept away from surface waters.

SECTION 13. DISPOSAL CONSIDERATIONS

Do not wash down drain. Dispose of waste solution or contaminated soil in accordance with local regulatory requirements.

SECTION 14. TRANSPORT INFORMATION

Proper Shipping Name (Transport Canada, U.S. DOT) Bisulfites, aqueous solutions, n.o.s. (Sodium Bisulfite)
Transport Canada and U.S. DOT Hazard Classification Class 8, Packing Group III
Product Identification Number UN2693
Marine Pollutant Yes (IMO)
IMO Classification Class 8

SECTION 15. REGULATORY INFORMATION

U.S.

Ingredient Listed on TSCA Inventory Yes
Hazardous Under Hazard Communication Standard Yes
CERCLA Section 103 Hazardous Substances..... Sodium Bisulfite Yes.....RQ: 5000 pounds (2270 lbs.)
EPCRA Section 302 Extremely Hazardous Substance No
EPCRA Section 311/312 Hazard Categories Immediate (Acute) Health Hazard – Irritant
EPCRA Section 313 Toxic Release Inventory: This product does not contain any toxic chemicals subject to the Toxic Release reporting requirements.

CANADIAN:

Listed on Domestic Substances List Yes
WHMIS Classification..... Controlled Product, Classification E (Corrosive Material)
This product must be classified as a corrosive (Class E) under WHMIS because it is designated as such under the Transportation of Dangerous Goods (TDG) Regulations. However, in practical applications, it can be considered an eye and skin irritant.

SECTION 16. OTHER INFORMATION

The information in this Material Safety Data Sheet is based on the following references:

- American Conference of Governmental Industrial Hygienists, 2004, Documentation of the Threshold Limit Values and Biological Exposure Indices, 7th Edition plus updates.
- American Conference of Governmental Industrial Hygienists, 2009, Guide to Occupational Exposure Values.
- American Conference of Governmental Industrial Hygienists, 2009, Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
- Bretherick's Handbook of Reactive Chemical Hazards, 20th Anniversary Edition. (P. G. Urben, Ed.) 1995.
- Industry Canada, Controlled Products Regulations SOR/88-66, as amended.
- Merck & Co., Inc., 2001, The Merck Index, An Encyclopedia of Chemicals, Drugs, and Biologicals, Thirteenth Edition.
- National Library of Medicine, National Toxicology Information Program, Hazardous Substance Data Bank (on-Line version).
- Patty's Toxicology, Fifth Edition, 2001: E. Bingham, B. Cohrssen & C.H. Powell, Ed.
- U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health. NIOSH Pocket Guide to Chemical Hazards. CD-ROM Edition September 2005.
- U.S. Occupational Safety and Health Administration, 1989, Code of Federal Regulations, Title 29, Part 1910.

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