

**TETRA Technologies, Inc.****Material Safety Data Sheet**

This MSDS Sheet complies with the style format specified by ANSI Z400.1-1993

**SECTION 1: CHEMICAL PRODUCT - COMPANY IDENTIFICATION****TETRA Technologies, Inc.**

25025 IH-45 North

The Woodlands, Texas 77380

(713) 367-1983

(800) 327-7817

**(800) 424-9300 - CHEMTREC (24 Hours Emergency Response)****SUBSTANCE:** Ammonium Bisulfite**TRADE NAME/SYNONYM:** TETRA Oxban**CHEMICAL FAMILY:** Inorganic Salt**MSDS CREATION DATE:** 17 MAY 96**MSDS REVISION DATE:** 29 JUL 96**SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS****COMPONENTS:** Ammonium Bisulfite, Water**CAS NUMBER:** 10192-30-0 (Ammonium Bisulfite), 7732-18-5 (Water)**RTECS NUMBER:** WT3595000 (Ammonium Bisulfite)**PERCENTAGE:** Ammonium Bisulfite (40-60%), Water (40-60%)**PROBABLE CONTAMINANTS:** Not Known**SECTION 3: HAZARDS IDENTIFICATION****NFPA RATINGS:** (SCALE 0-4): HEALTH=2, FIRE=0, REACTIVITY=0**EMERGENCY OVERVIEW:** Pale green to pale yellow liquid. Causes burns to mucous membranes.

Causes respiratory tract and skin burns. Causes eye irritation, possibly severe. May cause allergic reaction.

Avoid breathing vapor. Avoid contact with eyes, skin and clothing. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.



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**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

**Short Term Effects:** May cause burns. May cause allergic reactions. Additional effects may include itching, asthma, and lung congestion.

**Long Term Effects:** Same effects as short term exposure.

**SKIN CONTACT:**

**Short Term Effects:** May cause irritation, possibly severe. May cause allergic reaction.

**Long Term Effects:** Same effects as short term exposure.

**EYE CONTACT:**

**Short Term Effects:** May cause irritation, possibly severe. May cause allergic reaction.

**Long Term Effects:** Same effects as short term exposure.

**INGESTION:**

**Short Term Effects:** May cause burns. May cause allergic reactions. Additional effects may include itching, digestive disorders, low blood pressure, and bluish skin color.

**Long Term Effects:** Same effects as short term exposure.

**CARCINOGEN STATUS:**

**OSHA:** No    **NTP:** No    **IARC:** No

**SECTION 4: FIRST AID MEASURES**

**INHALATION:**

Remove from exposure area to fresh air immediately. Perform artificial respiration if necessary. Keep person warm and at rest. Treat symptomatically and supportively. Get medical attention immediately. Qualified medical personnel should consider administering oxygen.

**SKIN CONTACT:**

Remove contaminated clothing and shoes immediately. Wash affected area with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention immediately.

**EYE CONTACT:**

Wash eyes immediately with large amounts of water or normal saline solution, occasionally lifting upper and lower lids until no evidence of chemical remains (approximately 15-20 minutes). Get medical attention immediately.

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**INGESTION:**

If vomiting occurs, keep head lower than hips to help prevent aspiration. Treat symptomatically and supportively. Get medical attention if needed.

**NOTE TO PHYSICIAN:**

No specific antidote. Treat symptomatically and supportively.

**SECTION 5: FIRE FIGHTING MEASURES****FIRE AND EXPLOSION HAZARD:**

Negligible fire hazard when exposed to heat or flame.

**EXTINGUISHING MEDIA:**

Dry chemical, carbon dioxide, water spray, or regular foam. For larger fires, use water spray, fog, or regular foam (1993 Emergency Response Guidebook, RSPA P 5800.6).

**FIREFIGHTING:**

Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until well after fire is out. Use agents suitable for type of fire. Use water in flooding amounts as fog. Cool containers with flooding amounts of water, apply from as far a distance as possible. Avoid breathing corrosive vapors, keep upwind.

**HAZARDOUS COMBUSTION PRODUCTS:**

Thermal decomposition products may include toxic and corrosive fumes of ammonia, and toxic oxides of nitrogen and sulfur.

**SECTION 6: ACCIDENTAL RELEASE MEASURES****OCCUPATIONAL SPILL:**

Do not touch spilled material. Stop leak if you can do it without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For small dry spills, with clean shovel place material into clean, dry container and cover. Move container from spill area. For larger spills, dike far ahead of spill for later disposal. Keep non-essential people away. Isolate hazard area and deny entry.

**REPORTABLE QUANTITY (RQ):** 5,000 pounds for 100% ammonium bisulfite

The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the National Response Center must

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be notified immediately at (800) 424-8802 or (202) 426-2675 in the metropolitan Washington, D.C. area (40 CFR 302.6).

**SOIL SPILL:**

Dig holding area such as a lagoon, or pit for containment. Dike flow of spilled material using soil or sandbags or concrete. Use cement powder or fly ash to absorb liquid mass. Neutralize spill with suitable agent.

**WATER SPILL:**

Add suitable agent to neutralize spilled material to pH 7. Use mechanical dredges or lifts to extract immobilized masses of pollution and precipitates.

**SECTION 7: HANDLING AND STORAGE**

Observe all federal, state, and local regulations when storing this liquid. Store away from incompatible substances.

**SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION****EXPOSURE LIMITS:**

No occupational exposure limits established by OSHA/ACGIH/NIOSH for ammonium bisulfite solution. However, as this solution may exhibit a small amount of sulfur dioxide (SO<sub>2</sub>), the exposure limits set for sulfur dioxide are listed below for reference.

**Sulfur Dioxide:**

OSHA TWA - 5 ppm (13 mg/m<sup>3</sup>)

NIOSH TWA - 2 ppm (5 mg/m<sup>3</sup>)

NIOSH STEL - 5 ppm (10 mg/m<sup>3</sup>)

ACGIH TWA - 2 ppm (5.2 mg/m<sup>3</sup>)

ACGIH STEL - 5 ppm (13 mg/m<sup>3</sup>)

**VENTILATION:**

Provide local exhaust ventilation system.

**EYE PROTECTION:**

Employee must wear safety glasses with splash shields or safety goggles to prevent contact with this liquid.

**EMERGENCY WASH FACILITIES:**

Where there is any possibility that an employee's eyes and/or skin may be exposed to this liquid, the

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employer should provide an eye wash fountain and quick drench shower within the immediate work area for emergency use.

**CLOTHING:**

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this liquid.

**GLOVES:**

Employee must wear appropriate protective gloves to prevent contact with this liquid.

**RESPIRATOR:**

The respirator selected must be based on contamination levels found in the work place and specific to the job assignment. Do not exceed the working limits of the respirator. Respirators must also be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA). These respirators are ranked from minimum to maximum respiratory protection as listed below:

- Any dust and mist respirator with a full facepiece;
- Any air-purifying full facepiece respirator with a high-efficiency particulate filter;
- Any powered air-purifying respirator with a tight-fitting facepiece and high-efficiency particulate filter;
- Any Type 'C' supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode or with a full facepiece, helmet or hood operated in continuous-flow mode;
- Any self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive -pressure mode.

**FOR FIREFIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS:**

- Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode;
- Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

**DESCRIPTION:** Pale green to pale yellow liquid with sulfur odor.

**MOLECULAR WEIGHT:** 99.12 for 100% ammonium bisulfite.

**MOLECULAR FORMULA:**  $\text{NH}_4\text{HSO}_3$  in water.

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**BOILING POINT:** 212° F (100° C)

**SPECIFIC GRAVITY:** 1.3

**WATER SOLUBILITY:** Miscible with water in all proportions.

**VAPOR PRESSURE:** 52 mm Hg @ 30° C; 132 mm Hg @ 50° C.

**VAPOR DENSITY:** (Air = 1) 1.0 @ 60° F

**EVAPORATION RATE:** (Ethyl Ether = 1) <1

**SECTION 10: STABILITY AND REACTIVITY****REACTIVITY:**

Stable under normal temperatures and pressures.

**CONDITIONS TO AVOID:**

Avoid contact with oxidizers and acids.

**INCOMPATIBILITIES:**

**Acids:** Emits toxic sulfur dioxide gas.

**Oxidizers (Strong):** Reacts vigorously.

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products may include toxic and corrosive fumes of ammonia, and toxic oxides of sulfur.

**POLYMERIZATION:**

Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**TOXICITY DATA:** No data available.

**CARCINOGEN STATUS:** None.

**LOCAL EFFECTS:** Corrosive-inhalation, skin, eye, ingestion.

**ACUTE TOXICITY LEVEL:** No data available.

**TARGET EFFECTS:** Sensitizer-respiratory, dermal, oral.

**INHALATION:**

**Acute Exposure:** May cause severe mucous membrane irritation.

**Chronic Exposure:** Repeated exposure to sulfites may result in sensitization.

**SKIN CONTACT:**

**Acute Exposure:** Contact with the solution may cause severe irritation and possible burns.

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Sensitization dermatitis may occur in individuals previously exposed to sulfites.

**Chronic Exposure:** Effects are dependent upon concentration and duration of exposure. Dermatitis, or effects similar to those for acute exposure, may occur.

**EYE CONTACT:**

**Acute Exposure:** Contact with the solution may cause severe irritation and possible corneal damage.

**Chronic Exposure:** Effects are dependent upon concentration and duration of exposure.

Conjunctivitis, or effects similar to those for acute exposure, may occur.

**INGESTION:**

**Acute Exposure:** Ingestion of the solution may cause severe gastrointestinal irritation and possible perforation of esophagus. In susceptible individuals, particularly asthmatics, sulfites may cause generalized itching, hypotension, respiratory arrest, and unconsciousness.

**Chronic Exposure:** Repeated and prolonged ingestion of foods containing sulfites may result in sensitization.

**SECTION 12: ECOLOGICAL INFORMATION**

**ENVIRONMENTAL IMPACT RATING (0-4):** No data available.

**ACUTE AQUATIC TOXICITY:** No data available.

**DEGRADABILITY:** No data available.

**LOG BIOCONCENTRATION FACTOR (BCF):** No data available.

**LOG OCTANOL/WATER PARTITION COEFFICIENT:** No data available.

**SECTION 13: DISPOSAL INFORMATION:**

Observe all federal, state and local regulations when disposing of this liquid.

**SECTION 14: TRANSPORT INFORMATION**

**US DOT SHIPPING NAME-ID NUMBER, 49 CFR 172.101:** Bisulfite, Inorganic, Aqueous Solution, n.o.s. (Contains Ammonium Bisulfite) - UN2693

**US DOT HAZARD CLASS OR DIVISION, 49 CFR 172.101:** 8 (Corrosive Material)

**US DOT PACKING GROUP, 49 CFR 172.101:** III

**US DOT LABELING REQUIREMENTS, 49 CFR 172.101 AND SUBPART E:** Corrosive

**US DOT PACKING AUTHORIZATIONS:**



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**Exceptions:** 49 CFR 173.154

**Non-bulking Packing:** 49 CFR 173.203

**Bulking Packing:** 49 CFR 173.241

**US DOT QUANTITY LIMITATIONS, 49 CFR 172.101:**

**Passenger Aircraft or Railcar:** 1L

**Cargo Aircraft Only:** 30L

**SECTION 15: REGULATORY INFORMATION**

	TSCA STATUS:	Yes
	DSL STATUS:	Yes
	EINECS STATUS:	Yes
40 CFR 302.4	CERCLA SECTION 103:	Yes (5,000 pounds RQ of ammonium bisulfite)
40 CFR 355.30 SARA SECTION 302:		No
40 CFR 355.40 SARA SECTION 304:		No
40 CFR 372.65 SARA SECTION 313:		No
29 CFR 1910.119	OSHA Process Safety:	No
	California Proposition 65:	No
	New Jersey SNJ:	Yes
	Pennsylvania SPA:	Yes
40 CFR 370.21 SARA	HAZARD CATEGORIES, SARA SECTIONS 311/312	
	ACUTE HAZARD:	Yes
	CHRONIC HAZARD:	No
	FIRE HAZARD:	No
	REACTIVITY HAZARD:	No
	SUDDEN RELEASE HAZARD:	No



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## **SECTION 16: OTHER INFORMATION**

Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any other processes. Such information is to the best of our knowledge and belief, accurate and reliable as of the date compiled. However, no representation, warranty or guarantee is made as to its accuracy, reliability, or completeness. It is the user's responsibility to satisfy themselves as to the suitability and completeness of such information for their own particular use. We do not accept liability for any loss or damage that may occur from the use of this information nor do we offer warranty against patent infringement.

TETRA reserves the right to refuse shipment of this material to any consumer who fails to demonstrate the ability to consistently handle and use it safely and in compliance with all applicable laws, rules and regulations. Such demonstration may require on-site inspection of any or all storage, processing, packaging, and other handling systems that come in contact with it.

Customers are responsible for compliance with local, state, and federal regulations that may be pertinent in the storage, application, and disposal of this product.