



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
(281) 367-1983
(800) 327-7817 - After Hours Answering Service
(800) 424-9300 - CHEMTREC

SUBSTANCE: Proprietary blend
TRADE NAMES/SYNONYMS: TetraHib Plus, Corsaf C.
CHEMICAL FAMILY: Solution of inorganic salts
RTECS NUMBER: NA
MSDS CREATION DATE: 21 JUL 94
MSDS REVISION DATE: 08 OCT 99

SECTION 2: COMPOSITION, INFORMATION ON INGREDIENTS

The composition information on this product is proprietary. This product or one of its components is/are hazardous as defined in 29 CFR 1910.1200. In the event of a medical emergency, spill or fire, compositional information will be revealed to a physician, nurse, or responding emergency personnel.

COMPONENT: Proprietary blend including Zinc Chloride Solution, Ammonium Thiocyanate
CAS NUMBER: 7646-85-7 (Zinc chloride), 1762-95-4 (Ammonium thiocyanate), and 7732-18-5 (Water)
RETECS: ZH1400000 (Zinc chloride), XK7875000 (Ammonium thiocyanate), and ZC0110000 (Water)
PERCENTAGE: 76-77 % water by weight
PROBABLE CONTAMINANTS: Zinc Hydroxide, Zinc Oxide

SECTION 3: HAZARDS IDENTIFICATION

NFPA RATINGS: (SCALE 0-4): HEALTH=3, FIRE=0, REACTIVITY=0

EMERGENCY OVERVIEW:

Harmful if swallowed. May cause severe burns to mucous membranes, respiratory tract and skin. Causes eye irritation, possibly severe. May cause convulsions. May cause allergic skin reaction. Do not breathe dust or mist. Do not get in eyes, on skin, or on clothing. Avoid repeated or prolonged contact. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation. Handle with caution.



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POTENTIAL HEALTH EFFECTS:

INHALATION:

Short Term Effects: May cause burns. Inhalation of mists may cause runny nose, coughing, metallic taste, hoarseness, fever, tearing, vomiting, digestive disorders, loss of voice, chest pain, difficulty breathing, bluish skin color, lung damage, heart disorders and coma.

Long Term Effects: May cause effects as in short term exposure. Additional effects may include sores.

SKIN CONTACT:

Short Term Effects: May cause irritation, possibly severe. May cause allergic reactions. Additional effects may include sores.

Long Term Effects: In addition to effects from short-term exposure, constipation may occur.

EYE CONTACT:

Short Term Effects: May cause irritation, possibly severe. Additional effects may include redness and swelling of the skin, sores and blurred vision.

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

INGESTION:

Short Term Effects: May cause gastrointestinal irritation. May cause burns. Additional effects may include sore throat, vomiting, digestive disorders, blood in the stool, involuntary defecation and/or urination, chest pain, difficulty breathing, low blood pressure, weakness, kidney damage and shock.

Long Term Effects: May have reproductive effects.

CARCINOGEN STATUS:

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

SECTION 4: FIRST AID MEASURES

INHALATION:

Remove from exposure area to fresh air immediately. If breathing has stopped, perform artificial respiration. Maintain airway and blood pressure and administer oxygen if available. Keep affected person warm and at rest. Treat symptomatically and supportively. Administration of oxygen should be performed by qualified personnel. Get medical attention immediately.

SKIN CONTACT:

Remove contaminated clothing, shoes, and jewelry 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). In case of chemical burns, cover area with sterile, dry dressing. Bandage securely, but not too tightly. Get medical attention immediately.



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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 (at least 15-20 minutes). Cover with sterile bandages. Get medical attention immediately.

INGESTION:

Dilute immediately with water or milk and remove by gastric lavage unless patient is already vomiting. (Dreisbach, Handbook of Poisoning, 12th Ed.) Get medical attention immediately. Gastric lavage should be performed by qualified medical personnel.

NOTE TO PHYSICIAN: Antidote:

The following antidote has been recommended. However, the decision as to whether the severity of poisoning requires administration of any antidote and actual dose required should be made by qualified medical personnel.

POISONING FROM ZINC SALTS:

Give calcium disodium edetate 15-25 mg/kg (0.08-0.125 mL of 20% solution per kilogram of body weight) in 250-500 mL of 5% dextrose intravenously over a 1 to 2 hour period twice daily. The maximum dose should not exceed 50 mg/kg/day. The drug should be given in 5-day courses with a rest period of at least 2 days between courses. After the first course, subsequent courses should not exceed 50 mg/kg/day. Daily urinalyses should be done during the treatment period. The dosage should be reduced if any unusual urinary findings appear. For intramuscular administration, give 12.5 mg/kg body weight every 4-6 hours. Dilute each dose with an equal volume of 1% procaine. Dose limitation is the same as that given above. (Dreisbach, Handbook of Poisoning, 12th Ed.). Antidote should be administered by qualified medical personnel.

SECTION 5: FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARD:

Negligible fire hazard when exposed to heat or flame.

EXTINGUISHING MEDIA:

Dry chemical, carbon dioxide, or water spray. For larger fires, use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.

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. Stay away from ends of tanks (1996 Emergency Response Guidebook, DOT P 5800.5, Guide Page 154). Extinguish using agent suitable for type of surrounding fire. Cool containers with flooding amounts of water, applied from as far a distance as possible. Avoid breathing corrosive vapors, keep upwind.

FLASH POINT: Contact with metals may evolve flammable hydrogen gas.



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HAZARDOUS COMBUSTION PRODUCTS:

Thermal decomposition products may include toxic and hazardous fumes of hydrogen chloride nitrogen oxides, hydrogen cyanide, hydrogen sulfide, carbon monoxide.

SECTION 6: ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL SPILL:

Do not touch spilled material. Stop leak if you can do so without risk. For small spills, take up with sand or other absorbent material and place into containers for later disposal. For larger spills, dike far ahead of spill for later disposal. Keep unnecessary people away. Isolate hazard area and deny entry.

Reportable Quantity (RQ): Zinc chloride 1,000 pounds and Ammonium thiocyanate 5,000 pounds.

The release of this substance in quantities equal to or greater than the reportable quantity is reportable under CERCLA Section 103. The National Response Center must 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 lagoon, pond or pit for containment. Dike flow of spilled material using soil or sandbags or formed barriers such as polyurethane or concrete. Use cement powder or fly ash to absorb liquid mass. Neutralize spill with slaked lime, sodium bicarbonate or crushed limestone.

WATER SPILL:

Neutralize with lime, crushed limestone, or sodium bicarbonate. Use mechanical dredges or lifts to extract immobilized masses of pollution and precipitates. Add suitable agent to neutralize spilled material to pH-7.

SECTION 7: HANDLING AND STORAGE

Observe all federal, state, and local regulations when storing this substance. Store in tightly closed containers.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

Zinc chloride

1 mg/m³ OSHA TWA (fume); 1 mg/m³ ACGIH TWA (fume); 2 mg/m³ ACGIH STEL (fume)

VENTILATION:

Provide local exhaust ventilation system to meet published exposure limits.

EYE PROTECTION:

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



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EMERGENCY WASH FACILITIES: Where there is any possibility that an employee's eyes and/or skin may be exposed to this product, the employer should provide an eye wash fountain and quick drench safety 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 product.

GLOVES: Employee must wear appropriate protective gloves to prevent contact with this product.

BREATHING PROTECTION: If a breathing protection apparatus is utilized, the selection 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 breathing protection apparatus.

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: Odorless, colorless liquid

MOLECULAR WEIGHT: NA

MOLECULAR FORMULA: NA

BOILING POINT: 216° F

MELTING POINT: Not Applicable

VAPOR PRESSURE: Not Available

VAPOR DENSITY: Not Available

SPECIFIC GRAVITY: 1.20

WATER SOLUBILITY: Miscible in all proportions.

pH: 3.8-4.1

SOLVENT SOLUBILITY: Miscible in alcohol, ether, hydrochloric acid, glycol, acetone.

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY:

Stable under normal temperatures and pressures.

CONDITIONS TO AVOID:

Flammable, poisonous gases may accumulate in tanks and hopper cars.



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INCOMPATIBILITIES:

Bases: Possible violent reaction.

Cyanides: Release of toxic hydrogen cyanide gas.

Potassium: Forms impact-sensitive mixture.

Sulfide Salts: Release of toxic hydrogen sulfide gas.

Zinc: Forms flammable mixture.

Oxidizers: Chlorates, nitrates, nitric acid

Hazardous Decomposition:

Thermal decomposition products may include toxic and corrosive fumes of hydrogen chloride, hydrogen cyanide, hydrogen sulfide, nitrogen oxides.

Polymerization:

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

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY DATA:

TC_{LO}: 4800 mg/m³, human, inhalation, 30 minutes

LD₅₀: 350 mg/kg, mouse, oral

LC_{LO}: 1960 mg/m³, rat, inhalation, 10 minutes

Probable lethal dose for man for a single ingestion lies between 15-30 grams.

Mutagenic, reproductive, and tumorigenic data (RTECS).

CARCINOGEN STATUS: None.

LOCAL EFFECTS: Corrosive: Eye, inhalation, ingestion and skin.

ACUTE TOXICITY LEVEL: Moderately toxic by ingestion; slightly toxic by dermal absorption.

TARGET EFFECTS:

Sensitizer - dermal. Poisoning may also affect the kidneys, and the respiratory, digestive and central nervous systems.

INHALATION: Corrosive. 2000 mg/m³ immediately dangerous to life or health.

Acute Exposure: Fumes may be severely irritating to the upper respiratory tract and may cause a metallic taste, lacrimation, sore throat, coughing with copious sputum, a constrictive sensation in the chest, stridor, chest pain and soreness. Gastrointestinal disturbances including nausea, abdominal pain and severe gastritis with vomiting may occur. Fever, dyspnea and tachypnea, shortness of breath, listlessness, pale, gray cyanosis, rapid pulse, tachycardia and coma have also been reported. Respiratory effects may include severe inflammation of the upper respiratory tract, rhinitis, hemorrhagic alveolitis, severe pneumonitis, tracheobronchitis, diffuse pulmonary infiltrations, acute interstitial and advanced pulmonary fibrosis, pulmonary edema and bronchopneumonia. Death may be due to pulmonary edema, respiratory failure, bronchopneumonia and shock.

Chronic Exposure: Prolonged inhalation may result in ulceration of the nasal septum.



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SKIN CONTACT:

Acute Exposure: May cause severe irritation, redness, pain, papular and primary dermatitis, burns of the skin, boils, and ulceration of the fingers, hands and forearms. Sensitization reactions in the form of eczematoid dermatitis have been reported.

Chronic Exposure: Repeated or prolonged contact may cause boils, dermatitis or sensitization dermatitis in previously exposed persons. Repeated contact has produced fatigability, poor appetite, constipation and pains in the long bones of the legs.

EYE CONTACT

Acute Exposure: Contact may cause severe irritation and pain, redness, blurred vision and injuries including corneal burns, ulceration and vacularization, conjunctivitis, dermatitis, and irritis. A splash in the eye caused, initially, some redness and persistent discomfort, but within 6 days it led to a discrete stromal opacity in the lower part of the cornea with irregularities of the overlying epithelium. From an accidental instillation of a drop of 50% zinc chloride solution, the corneal epithelium became eroded, the lids red and swollen, and a mucopurulent discharge developed. Large folds developed in the Descemet's membrane, and the corneal stroma became turbid. This was accompanied by severe iritis with small hemorrhages in the iris. Deep and superficial vacularization of the cornea followed.

Chronic Exposure: Repeated and prolonged contact to dust or vapor may cause conjunctivitis.

INGESTION:

Acute Exposure: Ingestion may cause severe irritation of mucous membranes with corrosion, swollen lips, edema of the glottis, sore throat, chest pain and gastrointestinal disturbances including nausea, vomiting, bloody diarrhea, and abdominal pain. Perforation may occur. Lethargy, bloody urine, albuminuria, gastritis and pyloric stenosis have been reported. Other effects may include cold skin, low blood pressure, dyspnea and collapse with shock and hypocalcemia. Death has been reported. Delayed deaths have been ascribed to inanition following severe strictures of the esophagus and pylorus. Survivors of zinc salt ingestion may have residual nephritis.

Chronic Exposure: Reproductive effects have been reported in animals.

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



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SECTION 13: DISPOSAL INFORMATION:

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

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Zinc Chloride, solution, Class 8, UN1840, PG III
DOT Hazard Class or Division: 8
DOT Identification Number: UN 1840
DOT Packing Group: III
DOT Labeling Requirements: Corrosive
DOT Packaging Authorizations: Refer to
 Exceptions: 49 CFR §173.154
 Non-Bulk Packaging: 49 CFR §173.203
 Bulk Packaging: 49 CFR §173.241
DOT Quantity Limitations 49 CFR 172.101:
 Passenger Aircraft or Railcar: 5L
 Cargo Aircraft Only: 60L
Canadian TDG Label: 8 **TDG Placard:** 8

SECTION 15: REGULATORY INFORMATION

	TSCA STATUS:	Yes
40 CFR 302.4	CERCLA SECTION 103:	Yes
	Ammonium thiocyanate: 5,000 pounds	
	Zinc chloride: 1,000 pounds	
40 CFR 355.30	SARA SECTION 302:	No
40 CFR 355.40	SARA SECTION 304:	No
40 CFR 372.65	SARA SECTION 313:	Yes
29 CFR 1910.119	OSHA Process Safety	No
	California Proposition 65	No
40 CFR 370.21	SARA HAZARD CATEGORIES,	
	SARA SECTIONS 311/312	
	ACUTE HAZARD:	Yes
	CHRONIC HAZARD:	Yes
	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 product designated and may not be valid for such product 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 Technologies, Inc. reserves the right to refuse shipment of this product 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.