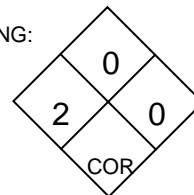


HERITAGE SYSTEMS, INC

NFPA RATING:

4=Severe
3=Serious
2=Moderate
1=Slight
0=Minimal



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: **HSI-314 or 8414**
PRODUCT DESCRIPTION: *Closed Loop Treatment*

COMPANY INFORMATION:
Chem, Inc.
13560 Colombar Court
Fontana, California 92337
Non-emergency: 951-681-9696

Revised: October 30, 2006

24-HOUR EMERGENCY TELEPHONE:
CHEMTREC 800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS #	HAZARD	WT %	ACGIH		OSHA	
				TLV _(TWA)	STEL	PEL _(TWA)	STEL
Sodium nitrite	7632-00-0	Hazardous	10 – 15	NE	NE	NE	NE
Sodium metaborate 8 mol	10555-76-7	Irritant	1 – 5	NE	NE	NE	NE
Sodium metasilicate	6834-92-0	Irritant	1 – 5	NE	NE	NE	NE

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous and/or present at amounts below reportable limits.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Clear, pale yellow liquid
Slightly sweet odor

WARNING: Product is considered a corrosive material. May cause burning of eyes and irritation of skin. Harmful if swallowed. May cause severe irritation to mouth, throat, esophagus and stomach. Avoid contact. Wear a face shield, gloves and protective apron when handling. Wash thoroughly after handling.

*** In the event of incident, please refer to Emergency Response Guide 154. ***

POTENTIAL HEALTH EFFECTS Eye contact Skin contact Ingestion Inhalation

EYE CONTACT: Exposure to liquid product may cause severe irritation to eyes, and possibly burns or eye damage. Symptoms of exposure may include redness, swelling, tearing or pain. Avoid contact.

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. Absorption through the skin may cause systemic poisoning; symptoms parallel ingestion. 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. Product is considered moderately toxic. Do NOT ingest.

INHALATION: Exposure to mists or fumes may cause irritation, but inhalation is not believed to be a likely route of exposure.

CHRONIC: Effects of chronic exposure are not expected to differ from the above-mentioned contact.

CARCINOGENS: This product and its components are not listed on NTP, IARC, OSHA or ACGIH lists as cancer-causing agents.

AGGRAVATION OF PRE-EXISTING CONDITIONS: There are no known medical conditions that would be possibly aggravated by exposure to this product.

4. FIRST AID MEASURES

EYE CONTACT: If this product contacts the eyes, immediately flush eyes with plenty of clean running water for at least fifteen (15) minutes, lifting the upper and lower eyelids occasionally. Remove contact lenses if worn. Seek medical attention if irritation persists.

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. Seek medical attention if irritation persists.

INGESTION: If this product is ingested, drink small amounts of water and seek medical attention promptly. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

INHALATION: If this product is inhaled and symptoms occur, move the exposed person to fresh air promptly. Seek medical attention if symptoms persist.

NOTES TO PHYSICIAN: Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES

FLASH POINT: None – aqueous solution.

FLAMMABLE LIMITS: NA

AUTOIGNITION TEMPERATURE: NA

EXTINGUISHING MEDIA: Use water, foam, dry chemical or carbon dioxide to extinguish fire.

FIRE/EXPLOSION HAZARD: Dried residue can thermally decompose giving off irritating and possibly toxic fumes. Dried residue can stimulate the combustion of organic materials. Nitrite is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Nitrite increases the flammability of any combustible material.

FIRE FIGHTING EQUIPMENT: Fire fighters should wear full protective equipment, including a self-contained breathing apparatus.

SPECIAL PROCEDURES: Use water to cool containers exposed to a fire.

HAZARDOUS COMBUSTION PRODUCTS: Oxides of nitrogen, oxides of carbon and possibly toxic phosphines. May leave a caustic residue.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Use proper personal protection (refer to Section 8). Remove all sources of ignition.

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.

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 and soak up material with sand or other absorbent. Place into chemical waste container for disposal according to local, state or federal regulations. Flush spill area with water.

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.

SHELF LIFE: The recommended shelf life is two (2) years. It is recommended that products be retested if stored for more than two (2) years. Under ideal storage conditions, the shelf life is almost indefinite.

STORAGE TEMPERATURE: The recommended storage temperature is above 32°F, preferably at room temperature (70°F).

GENERAL: Store closed containers in a cool, dry, well-ventilated area away from combustibles, organics, readily oxidizable materials and incompatibles. Isolate from source of heat or ignition. Avoid storage on wood floors. This product is stable under normal conditions of handling and storage. Avoid cold temperatures.

8. EXPOSURE CONTROLS / PERSONAL PROTECTIVE EQUIPMENT

Please refer to Section 2 for applicable exposure limits.

EYE PROTECTION: To avoid contact with eyes, use chemical splash goggles and a face shield. Eye wash station should be available in the work area.

HAND PROTECTION: Use rubber or plastic gloves to minimize skin contact.

BODY PROTECTION: Use a rubber apron to minimize contact. Rubber boots are recommended. Full drench shower should be available in the work area.

RESPIRATOR: Use of respirator protection is not generally required. However, if exposure is above the stated limits or ventilation is inadequate, use a NIOSH approved acid gas/organic vapor respirator to reduce potential for inhalation exposure. When using respirator cartridges, they must be changed frequently to assure breakthrough exposure does not occur.

VENTILATION: General mechanical ventilation is recommended for enclosed areas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, pale yellow liquid	Boiling Point:	100°C / 212°F
Odor:	Slightly sweet	Freezing Point:	0°C / 32°F
Specific Gravity @ 68°F:	~ 1.27	Vapor Pressure:	23.75 mmHg
pH:	> 12.5	Vapor Density (air = 1):	ND
Water Solubility:	Complete	VOC Content:	Non-volatile

10. STABILITY AND REACTIVITY

GENERAL STABILITY: This product is stable at ambient temperatures and atmospheric pressures.

INCOMPATIBLE MATERIALS: Strong acids, strong reducing agents, ammonia salts, amines, phthalic acid and cyanides.

HAZARDOUS POLYMERIZATION: Hazardous polymerization is not expected to occur under normal temperatures and pressures.

HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of nitrogen. May leave a caustic residue.

11. TOXICOLOGICAL INFORMATION

	<u>Product 8414</u>	<u>Nitrite</u>	<u>Metaborate</u>	<u>Metasilicate</u>
Eye irritation:	Severe to corrosive	Slight to moderate	Slight to moderate	Corrosive
Skin irritation:	Severe to corrosive	None to slight	Slight to moderate	Corrosive
Inhalation irritation:	None to slight	None to slight	None to slight	Corrosive
Oral LD₅₀, Rat:	> 1150 mg/kg	120 mg/kg	2330 mg/kg	1153 mg/kg
Dermal LD₅₀, Rabbit:	> 594 mg/kg	NDA	2000 mg/kg	NDA
Inhalation LC₅₀, Rabbit:	NDA	1.45 mg/l	NDA	NDA
Other toxicological data:	NA	See below	See below	See below

Nitrite: Tests in animals demonstrate no carcinogenic activity, or reproductive or developmental toxicity. Sodium nitrite appears to cross the placenta causing methemoglobinemia in the fetus after administration to the dam. In some tests, but not in others, the compound produced genetic damage in bacterial and mammalian cell cultures, as well as in tests in animals. It does not produce heritable genetic damage.

Metaborate: [Reproductive/Developmental Toxicity] Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated effects on fertility and testes. Studies with the chemically related boric acid in the rat, mouse and rabbit, at high doses, demonstrate developmental effects on the fetus, including fetal weight loss and minor skeletal variations. The doses administered were many times in excess of those to which humans would normally be exposed. [Human Data] Human epidemiological studies show no increase in pulmonary disease in occupational populations with chronic exposures to boric acid dust and sodium borate dust. A recent epidemiology study under the conditions of normal occupational exposure to borate dusts indicated no effect on fertility.

Metasilicate: [Acute Dermal Toxicity] 250 mg/24 hr. skin human severe.

12. ECOLOGICAL INFORMATION

	<u>Product 8414</u>	<u>Nitrite</u>	<u>Metaborate</u>	<u>Metasilicate</u>
96 hr LC₅₀, Rainbow trout:	> 170 mg/l	0.19 mg/l	88 mg/l	NDA
48 hr LC₅₀, Daphnia magna:	> 790 mg/l	66 mg/l	242 mg/l	NDA
72 hr EC₅₀, Algae:	> 45 mg/l	NDA	24 mg/l	NDA

13. DISPOSAL CONSIDERATIONS

US EPA RCRA Status: This product is considered to be a hazardous waste.
US EPA RCRA Hazardous waste code: D002

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.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT

Proper Shipping Name: Corrosive Liquid, Basic, Inorganic, n.o.s., (Sodium Nitrite Solution)
Hazard Class: 8
Hazard Identification Number: UN3266

Packing Group: PGII
Transport Label: Corrosive

15. REGULATORY INFORMATION

Components:	<u>Nitrite</u>	<u>Metaborate</u>	<u>Metasilicate</u>
<u>Carcinogenic Potential</u>			
Regulated by OSHA:	No	No	No
Listed on NTP Report:	No	No	No
Listed by IARC / Group:	No	No	No
ACGIH Appendix A / Group:	Not listed	Not listed	Not listed
<u>US EPA Release Reporting</u>			
CERCLA (40 CFR 302):			
Listed substance:	Sodium nitrite	Not listed	Not listed
Reportable quantity:	100 lbs.	NA	NA
Category:	NDA	NA	NA
RCRA waste number:	NDA	NA	NA
Unlisted substance:	NA	NA	NA
Reportable quantity:	NA	NA	NA
Characteristic:	NA	NA	NA
RCRA waste number:	NA	NA	NA
<u>SARA TITLE III</u>			
Section 302 & 303 (40 CFR 355):			
Listed substance:	Not listed	Not listed	Not listed
Reportable quantity:	NA	NA	NA
Planning threshold:	NA	NA	NA
Section 311 & 312 (40 CFR 370):			
Hazard categories:	Acute, fire, reactive	Acute	Acute
Planning threshold:	NDA	NDA	NDA
Section 313 (40 CFR 372):			
Listed toxic chemical:	Sodium nitrite	Not listed	Not listed
Reporting threshold:	NA	NA	NA
<u>US TSCA</u>			
Listed/Exempt (40 CFR 710):	Yes	Yes	Yes
<u>CA PROP 65</u>			
Carcinogen:	No	No	No
Reproductive toxin:	No	No	No

16. OTHER INFORMATION

HMIS Rating

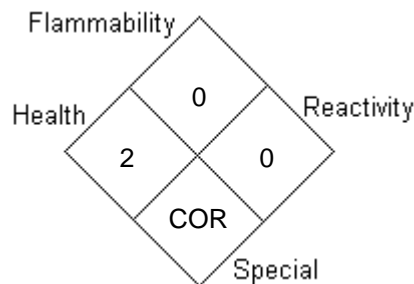
HEALTH	2
FLAMMABILITY	0
REACTIVITY	0
PROTECTION	D

D = Face shield, gloves, protective apron

KEY

- 4 = Severe
- 3 = Serious
- 2 = Moderate
- 1 = Slight
- 0 = Minimal
- ACID = Acid
- ALK = Alkali
- COR = Corrosive
- OX = Oxidizer
- W = Use NO WATER

NFPA Rating



Legend:

ACGIH:	American Conference of Governmental Industrial Hygiene	NE:	Not established
A1:	Confirmed human carcinogen	NFPA:	National Fire Protection Association
A2:	Suspected human carcinogen	NIOSH:	National Institute for Occupational Safety and Health
A3:	Confirmed animal carcinogen	NTP:	National Toxicology Program
CAS #:	Chemical Abstract Service Registry number	OSHA:	Occupational Safety and Health Administration
CERCLA:	Comprehensive Environmental Response Compensation and Liability Act	PEL:	Permissible Exposure Limit
DOT:	Department of Transportation	RCRA:	Resource Conservation and Recovery Act
EPA:	Environmental Protection Agency	REL:	Recommended Exposure Limit
HMIS:	Hazardous Materials Identification System	SARA TITLE III:	Superfund Amendments and Reauthorization Act
IARC:	International Agency for Research on Cancer	STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)

Group 1:	Carcinogenic to humans	TLV:	Threshold Limit Value
Group 2A:	Probably carcinogenic to humans	CEIL (C):	Ceiling Exposure Limit
Group 2B:	Possibly carcinogenic to humans	TSCA:	Toxic Substance Control Act
Group 3:	Unclassified as carcinogenic to humans	TWA:	Time Weighted Average
NA or N/A:	Not applicable	VOC:	Volatile Organic Compound
ND:	Not determined	> / <:	Greater than / Less than
NDA:	No data available	~:	Approximately

This Material Safety Data Sheet is presented in good faith as an information source only. It should not be taken as an expressed or implied warranty or guarantee for which the Company assumes legal responsibility. While the Company believes the information contained herein is accurate and compiled from sources believed to be reliable, it is the responsibility of the user to investigate and verify its validity. The Company does not accept liability for any loss or damage that may occur from the use of this information. The buyer or user accepts all responsibility of using, handling and disposing of the product in accordance with applicable federal, state and local rules, regulations and laws.