Busan 85
sc-257200

Material Safety Data Sheet

Hazard Alert Code Key:
- EXTREME
- HIGH
- MODERATE
- LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Busan 85

STATEMENT OF HAZARDOUS NATURE

NFPA

SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800

EMERGENCY
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C3-H6-K-N-S2, "potassium dimethyl dithiocarbamate", "potassium dimethyldithiocarbamate hydrate", "carbamic acid, dimethyldithio-, potassium salt, hydrate", "carbamic acid, dimethyldithio-, potassium salt"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Toxicity:</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Body Contact:</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Reactivity:</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Chronic:</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

CANADIAN WHMIS SYMBOLS

EMERGENCY OVERVIEW
RISK
Very toxic to aquatic organisms.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
■ Accidental ingestion of the material may be damaging to the health of the individual.
■ The acute toxicity of thiocarbamates is generally low, because of their rapid metabolism.
■ Exposure to high doses may produce signs such as loss of appetite, squinting, excessive production of saliva, watery eyes, hairs standing on end, labored breathing, reduced body temperature, incoordination, depression and rapid muscle twitching.
■ Lethal doses of some thiocarbamates have produced muscle weakness and ascending paralysis progressing to respiratory paralysis and death in animals.
Exposure to small quantities of thiocarbamates and intake of small quantities of ethanol may produce flushing, breathing difficulties, nausea and vomiting and lowered blood pressure.

EYE
■ Although the material is not thought to be an irritant, direct contact with the eye may cause transient discomfort characterized by tearing or conjunctival redness (as with windburn).
■ Slight abrasive damage may also result.

SKIN
■ The material is not thought to produce adverse health effects or skin irritation following contact (as classified using animal models).
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED
■ The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models).
■ Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.

CHRONIC HEALTH EFFECTS
■ Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
■ There is some evidence that inhaling this product is more likely to cause a sensitization reaction in some persons compared to the general population.
■ Thiocarbamates have been shown to alter sperm form and therefore reproduction.
■ Some dithiocarbamates may cause birth defects and cancer and may affect male reproductive capacity. They may also cause goiter (overactivity of the thyroid gland) and nerve disorders.
■ Long term exposure to high dust concentrations may cause changes in lung function i.e. pneumoconiosis; caused by particles less than 0.5 micron penetrating and remaining in the lung.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>potassium dimethyldithiocarbamate</td>
<td>128-03-0</td>
<td>100</td>
</tr>
</tbody>
</table>

NOTE: decomposition or metabolic activity may result in formation of

| ethylene thiourea | 96-45-7 |

Section 4 - FIRST AID MEASURES

SWALLOWED
· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE
■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

INHALED
· If dust is inhaled, remove from contaminated area. · Encourage patient to blow nose to ensure clear passage of breathing. · If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN
■ Medical literature on human exposure to thiocarbamate derivatives is scarce.
■ Animal studies suggest that contact dermatitis and thyroid hyperplasia may occur following exposure.
These compounds do not have the cholinergic properties of structurally related carbamate insecticides. As a general rule thiocarbamates can be absorbed by the skin, mucous membranes and respiratory and gastrointestinal tract. They are eliminated quickly via expired air and urine.

### Section 5 - FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapour Pressure (mmHg)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>&gt;1</td>
</tr>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

**EXTINGUISHING MEDIA**

- Water spray or fog.
- Foam.

**FIRE FIGHTING**

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 100 metres in all directions.

**GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS**

- Combustible solid which burns but propagates flame with difficulty.
- Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust may burn rapidly and fiercely if ignited.
- Combustion products include: carbon monoxide (CO), carbon dioxide (CO2), nitrogen oxides (NOx), sulfur oxides (SOx), other pyrolysis products typical of burning organic material.

**FIRE INCOMPATIBILITY**

- Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids, chlorine bleaches, pool chlorine etc. as ignition may result.

**PERSONAL PROTECTION**

- Glasses: Chemical goggles.
- Gloves:
- Respirator: Particulate

### Section 6 - ACCIDENTAL RELEASE MEASURES

**MINOR SPILLS**

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Control personal contact by using protective equipment.
- Use dry clean up procedures and avoid generating dust.
- Place in a suitable, labelled container for waste disposal.

**MAJOR SPILLS**

- Environmental hazard - contain spillage. Moderate hazard.
- CAUTION: Advise personnel in area.
- Alert Emergency Responders and tell them location and nature of hazard.

### Section 7 - HANDLING AND STORAGE

**PROCEDURE FOR HANDLING**

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source.
- Do NOT cut, drill, grind or weld such containers.
- In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.

**RECOMMENDED STORAGE METHODS**

- Glass container.
- Polyethylene or polypropylene container.
- Check all containers are clearly labelled and free from leaks.

**STORAGE REQUIREMENTS**

- Observe manufacturer's storing and handling recommendations.
## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/CC</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada - Ontario Occupational Exposure Limits</td>
<td>potassium dimethyldithiocarbamate (Particles (Insoluble or Poorly Soluble) Not Otherwise)</td>
<td>10 (I)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Canada - British Columbia Occupational Exposure Limits</td>
<td>potassium dimethyldithiocarbamate (Particles (Insoluble or Poorly Soluble) Not Otherwise Classified (PNOC))</td>
<td>10 (N)</td>
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<td></td>
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<td></td>
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<tr>
<td>Canada - Ontario Occupational Exposure Limits</td>
<td>potassium dimethyldithiocarbamate (Specified (PNOS) / Particules (insolubes ou peu solubles) non précisées par ailleurs)</td>
<td>3 (R)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants</td>
<td>potassium dimethyldithiocarbamate (Particulates not otherwise regulated Respirable fraction)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>US - California Permissible Exposure Limits for Chemical Contaminants</td>
<td>potassium dimethyldithiocarbamate (Particulates not otherwise regulated Respirable fraction)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(n)</td>
</tr>
<tr>
<td>US - Oregon Permissible Exposure Limits (Z-1)</td>
<td>potassium dimethyldithiocarbamate (Particulates not otherwise regulated (PNOR) (f) Total Dust)</td>
<td>- 10</td>
<td></td>
<td></td>
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<tr>
<td>US - Michigan Exposure Limits for Air Contaminants</td>
<td>potassium dimethyldithiocarbamate (Particulates not otherwise regulated, Respirable dust)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US - Oregon Permissible Exposure Limits (Z-1)</td>
<td>potassium dimethyldithiocarbamate (Particulates not otherwise regulated (PNOR) (f) Respirable Fraction)</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits. PNOR means "particles not otherwise regulated."
## PERSONAL PROTECTION

### RESPIRATOR
- Consult your EHS staff for recommendations

### EYE
- Safety glasses with side shields
- Chemical goggles.

### HANDS/FEET
- Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
  - frequency and duration of contact,
  - chemical resistance of glove material,
  - glove thickness and
  - dexterity
- Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).
  - When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
  - When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Contaminated gloves should be replaced.
- Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
- Wear chemical protective gloves, eg. PVC.

### OTHER
- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.
- Eye wash unit.

### ENGINEERING CONTROLS
- Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
- Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.

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### Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL PROPERTIES**

Solid.
Mixes with water.
State: Divided solid
Molecular Weight: 159

Melting Range (°F): Not available.
Viscosity: Not Applicable

Boiling Range (°F): Not applicable.
Solubility in water (g/L): Miscible

Flash Point (°F): Not available.
pH (1% solution): >7

Decomposition Temp (°F): Not available.
pH (as supplied): Not applicable

Autoignition Temp (°F): Not available.
Vapour Pressure (mmHG): Not applicable

Upper Explosive Limit (%): Not Available
Lower Explosive Limit (%): Not Applicable
Relative Vapor Density (air=1): Not applicable
Volatile Component (%vol): Not applicable.
Evaporation Rate: Not applicable

APPEARANCE
Hydrated crystals. Soluble in water and soluble in alcohol. Also available in anhydrous form.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY
- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY
- Thiocarbamates and dithiocarbamates are incompatible with acids, peroxides, and acid halides.
- Flammable gases are generated by the combination of thiocarbamates and dithiocarbamates with aldehydes, nitrides, and hydrides.
- Avoid oxidizing agents, acids, acid chlorides, acid anhydrides.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

potassium dimethylthiocarbamate

TOXICITY AND IRRITATION
POTASSIUM DIMETHYLDITHIOCARBAMATE:
- No significant acute toxicological data identified in literature search.
ETHYLENE THIOUREA:
- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

<table>
<thead>
<tr>
<th>TOXICITY</th>
<th>IRRITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral (rat) LD50: 1832 mg/kg</td>
<td>Eye (rabbit): 500 mg/24h - Mild</td>
</tr>
<tr>
<td>Oral (rat) LD50: 710 mg/kg *</td>
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</tr>
</tbody>
</table>

For ethylene thiourea:
Ethylene thiourea was administered repeatedly by oral gavage to male and female Crj:CD(SD)IGS rats at dose levels of 0, 1, 6, and 30 mg/kg for 28 days, and its toxicity was examined.

Changes attributable to the test substance were apparent in clinical signs, body weights, food consumption, blood chemistry, organ weights and necropsy findings, and on histopathological examination of both sexes of the 6 and 30 mg/kg groups.

On observation of clinical signs, abnormal fur (loss of gloss) was noted consistently in both sexes of the 30 mg/kg group. During the recovery period, although not completely this gradually disappeared.

Decreases in body weight and food consumption were observed in both sexes of the 30 mg/kg group, but disappeared by the final week of the recovery period.

The following changes in blood chemistry were observed in the 30 mg/kg group; increases in total cholesterol as well as decreases in ALP and inorganic phosphorus among males, and increases in chloride in both sexes. These changes had disappeared by the end of the recovery period.

On measurement of organ weights, the following changes were observed; increases in absolute organ weights in both sexes of the 30 mg/kg group, and decreases in absolute and relative thyroid weights in both sexes of the 30 mg/kg group. These changes disappeared or were alleviated by the end of the recovery period.

At necropsy, enlargement of the thyroids was observed in males of the 6 mg/kg group and in both sexes of the 30 mg/kg group. This change disappeared or was alleviated by the end of the recovery period.

On histopathological examination, centrilobular hypertrophy of hepatocytes, basophilic hypertrophy in the anterior lobe in the pituitary, and atrophy of sebaceous glands were observed in both sexes of the 30 mg/kg group. Furthermore, decreases in colloid in the thyroid and diffuse hypertrophy of follicular cells were observed in 6 mg/kg males and both sexes of the 30 mg/kg group. Although basophilic hypertrophy of the anterior lobe in the pituitary were still seen in males of the 30 mg/kg group at the end of the recovery period, it gradually disappeared. Moreover, the other changes had disappeared by the end of the recovery period.

There were no changes considered attributable to the test substance in the functional observation battery, hematology, or urinalysis.

In summary, significant changes considered attributable to the test substance were found in both sexes of the 6 mg/kg or higher groups. The NOEL is considered to be 1 mg/kg/day for both males and females under the conditions of this study.

ethylene thiourea proved mutagenic in Salmonella typhimurium TA1535, with or without an exogenous metabolic activation system. Ethylene thiourea did not induce structural chromosomal aberrations or polyploidy in CHL/IU cells with or without exogenous metabolic activation.

The oral toxicity of ethylene thiourea (ETU) was investigated in a chronic feeding study in which Charles River CD-1 rats were fed 0, 5, 25,
125, 250 and 500 ppm of the test substance for 24 months. These doses provided 0, 0.25, 1.25, 6.25, 12.5 and 25 mg/kg/day based on the assumption that rats consume 5% of their body weight of food each day. Groups of rats (68/sex) were assigned to each of the dose groups. The major endpoints of this study were histological examination of endocrine organs and other major tissues, organ weights and thyroidal uptake of iodine-131. A significant incidence of thyroid carcinomas and adenocarcinomas was observed among rats receiving 250 and 500 ppm. Thyroid hyperplasia was observed among rats receiving 5, 25, 125 and 250 ppm with increased incidence at the higher doses. A significant decrease in body weight was found among rats receiving 500 ppm at both 18 and 24 months. A statistically significant decrease in liver-to-body weight ratio was seen in females receiving 5 or 25 ppm. Significant increases in thyroid- to-body weight ratios were seen in males and females receiving 500 ppm, and in females receiving 250 ppm. Studies of Iodine-131 uptake performed at the end of the study did not show a significant dose-response relationship. The LOAEL derived from this study based upon detection of thyroid hyperplasia was 5 ppm (0.25 mg/kg/day).

Thyroid hyperplasia does not inevitably lead to development of adenomas and carcinomas. Thyroid hyperplasia can develop in response to many forms of physiologic stress and often regresses spontaneously. In the Graham et al. (1975) study many rats in the 5-ppm dose group exhibited thyroid hyperplasia following 2 years of dosing, but none of these rats showed thyroid adenomas or carcinomas. In addition, iodine-131 uptake tests were not significantly different for the 5-ppm dose group when compared with control rats, suggesting that the thyroids of the 5-ppm rats were functionally normal. The occurrence of thyroid hyperplasia at this dose is not considered to be preneoplastic since carcinomas were not seen at higher doses (25 or 125 ppm).

An interim report of the findings from the first year of the previous study was published separately by Graham et al. (1973); that study also involved feeding 0, 5, 25, 125, 250 and 500 ppm of ETU. Body weight, thyroid and other organ weights, thyroidal iodine-131 uptake, hematology and histology were the endpoints that were determined. There were significant decreases in total body weight and increases in thyroid weight for rats receiving 125, 250 and 500 ppm of ETU. At the time intervals for which interim determinations were made (2 and 6 months), hyperplasia of the thyroid was observed only at 500 ppm. The NOAEL for 6 months ETU treatment was 25 ppm (1.25 mg/kg/day).

At 1 year of treatment the lowest level of ETU tested, 5 ppm or 0.25 mg/kg/day was the LOAEL for thyroid hyperplasia. The NTP (1989) performed a chronic feeding study to determine the toxicity and carcinogenicity of ETU in F344 and B6C3F1 mice. This study combined a perinatal exposure with the traditional NTP chronic bioassay. A complicated 4x4 study design involving adult-only exposure, perinatal-only exposure, and combined perinatal-adult exposure was used. In the rats receiving adult-only exposure at 83 and 250 ppm of ETU in the diet for 36 and 105 weeks there was a dose-related increase in the incidence and severity of thyroid follicular cell hyperplasia, an increase in TSH levels, and a decrease in serum thyroxin levels. Perinatal-only exposure resulted in an increased incidence of thyroid follicular cell hyperplasia only at the highest tested level of 90 ppm. The lowest dietary level of ETU tested in adult-only exposure for rats, 83 ppm (4.1 mg/kg/day), was considered the LOAEL.

In mice, exposure to 330 or 1000 ppm for 105 weeks resulted in dose-related increases of thyroid follicular cell hyperplasia with associated increases in TSH levels. Hepatic hypertrophy was also observed. For mice 1000 ppm (0.15x1000=150 mg/kg/day) was considered the LOAEL.

The substance is classified by IARC as Group 3:

- NOT classifiable as to its carcinogenicity to humans.
- Evidence of carcinogenicity may be inadequate or limited in animal testing.

Exposure to the material for prolonged periods may cause physical defects in the developing embryo (teratogenesis).

*Akzo Chemie*

### CARCINOGEN

<table>
<thead>
<tr>
<th>VPVB_VOETOX</th>
<th>US - Maine Chemicals of High Concern List</th>
<th>Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylenethiourea (NB: Overall evaluation downgraded to Group 3 with supporting evidence from other relevant data)</td>
<td>International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs</td>
<td>Group 3</td>
</tr>
<tr>
<td>ethylene thiourea</td>
<td>US - Rhode Island Hazardous Substance List</td>
<td>IARC C</td>
</tr>
<tr>
<td>ETHYLENE THIOUREA</td>
<td>US Environmental Defense Scorecard Recognized Carcinogens</td>
<td>Reference(s) P65</td>
</tr>
<tr>
<td>ETHYLENE THIOUREA</td>
<td>US Environmental Defense Scorecard Suspected Carcinogens</td>
<td>Reference(s) P65</td>
</tr>
<tr>
<td>Ethylene thiourea</td>
<td>US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors</td>
<td>IARC Class 2B</td>
</tr>
<tr>
<td>Ethylene thiourea</td>
<td>US NIOSH Recommended Exposure Limits (RELs) - Carcinogens</td>
<td>Carcinogen Ca</td>
</tr>
<tr>
<td>VPVB_VOETOX</td>
<td>US - Maine Chemicals of High Concern List</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

### Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms.

This material and its container must be disposed of as hazardous waste.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

**Ecotoxicity**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
</table>

7 of 9
Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions
B. Component Waste Numbers
When ethylene thiourea is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or as a spill residue, use EPA waste number U116 (waste code T).

Disposal Instructions
All waste must be handled in accordance with local, state and federal regulations.

<table>
<thead>
<tr>
<th>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Reduction</td>
</tr>
<tr>
<td>· Reuse</td>
</tr>
<tr>
<td>· Recycling</td>
</tr>
<tr>
<td>· Disposal (if all else fails)</td>
</tr>
</tbody>
</table>

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

· Recycle wherever possible.
· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

<table>
<thead>
<tr>
<th>DOT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbols: G Hazard class or Division: 9</td>
</tr>
<tr>
<td>Identification Numbers: UN3077 PG: III</td>
</tr>
<tr>
<td>Label Codes: 9 Special provisions: 8, 146, 336, B54, IB3, IP3, N20, T1, TP33</td>
</tr>
<tr>
<td>Packaging: Exceptions: 155 Packaging: Non- bulk: 213</td>
</tr>
<tr>
<td>Packaging: Exceptions: 155 Quantity limitations: No limit</td>
</tr>
<tr>
<td>Passenger aircraft/rail:</td>
</tr>
<tr>
<td>Quantity Limitations: Cargo No limit Vessel stowage: Location: A aircraft only: Vessel stowage: Other: None</td>
</tr>
<tr>
<td>Hazardous materials descriptions and proper shipping names: Environmentally hazardous substance, solid, n.o.s</td>
</tr>
</tbody>
</table>

**Air Transport IATA:**

**Maritime Transport IMDG:**
Section 15 - REGULATORY INFORMATION

potassium dimethyldithiocarbamate (CAS: 128-03-0) is found on the following regulatory lists;

Regulations for ingredients
ethylene thiourea (CAS: 96-45-7) is found on the following regulatory lists;

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE
- Ingestion may produce health damage*.
- Cumulative effects may result following exposure*.
- Possible respiratory sensitiser*.
- May possibly affect fertility*.
* (limited evidence).

Denmark Advisory list for selfclassification of dangerous substances
Substance CAS Suggested codes potassium dimethyldithiocarbamate 128-03- 0 Mut3; R68 Rep3; R63 Xn; R22 N; R50 ethylene thiourea 96-45-7 Mut3; R68 Rep3; R63 Xn; R22 N; R50

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- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: www.chemwatch.net/references.
- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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