

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

The Version Date and Number for this MSDS is : 05/17/2007 - #003

PRODUCT NAME: THIOUREA
DIOXIDE

MSDS NUMBER:
40572

DATE ISSUED:
01/01/2006

SUPERSEDES:
02/01/2004

ISSUED BY:
005337



Material Safety Data
Sheet

Section 1 - Chemical Product and Company
Identification

Product/Chemical Name: DEGAFAS, DEGAFAS AS, REDUCING AGENT F,
DEPILOR,
(THIOUREA
DIOXIDE)

Chemical Formula:
CH4N7O2S

CAS Number: 1758-73-
2

Other Designations: FAS, Formamidinesulfinic acid,
Aminoiminomethane
Sulfinic

Acid

General Use: This material is a reducing agent used primarily in the production of bleached recycled pulp. In addition, it is also effective in the bleaching of stone ground-wood, pressurized ground-wood.

Emergency Telephone: 1-800-424-9300 (Chemtrec)

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	EINECS/ELINCS	% wt or % vol
THIOUREA DIOXIDE	1758-73-2	217-157-8	>99

Trace Impurities: Thiourea CAS #62-56-6 (< 0.1%)

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		
	TWA	STEL	TWA	STEL	TWA	STEL	IDLH
Thiourea Dioxide	10 mg/m3	N/E	N/E	N/E	N/E	N/E	N/E

N/E = None established

Section 3 - Hazards Identification

Emergency Overview

Highly susceptible to decomposition generating sulfur dioxide, ammonia, sulfinic acid and carbon dioxide if exposed to humidity and heat above 50 deg C. May irritate digestive tract, upper respiratory tract, eyes and skin.

HMIS:
Health:
3
Flammability:
3
Reactivity:
2
PPE: Sec
8

Potential Health
Effects

Sec 8 Primary Entry Routes: Ingestion,
Inhalation

Target Organs: Skin, eyes, upper respiratory
tract

Acute
Effects

Inhalation: May cause irritation to the upper respiratory tract. Symptoms
may include coughing, sore throat and shortness of
breath.

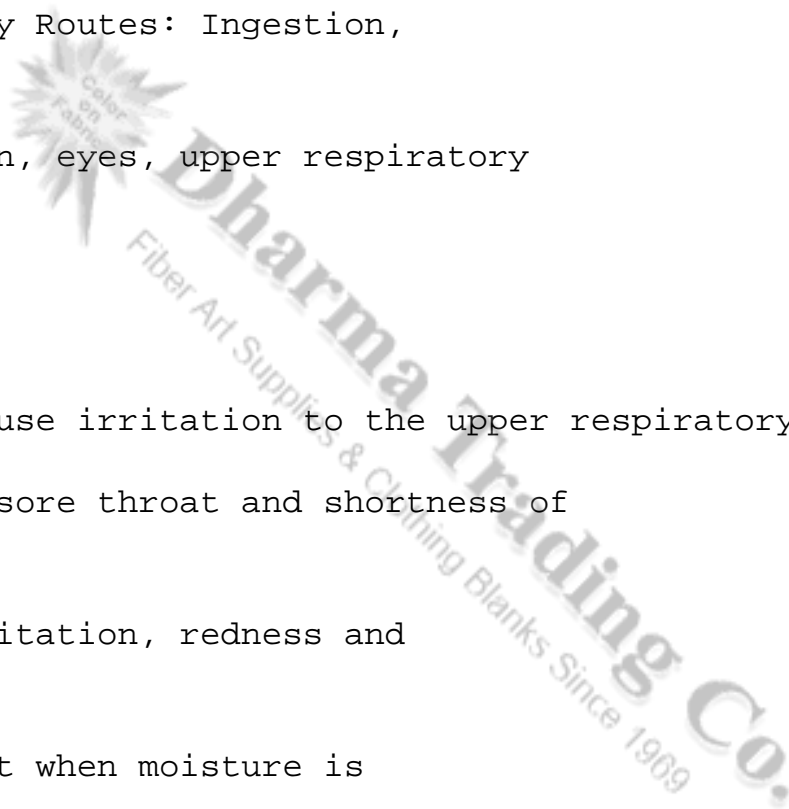
Eye: May cause irritation, redness and
pain.

Skin: skin irritant when moisture is
present.

Ingestion: May cause irritation to the digestive tract. Symptoms may
include nausea, vomiting, abdominal pain, diarrhea, dizziness and
headache.

Carcinogenicity: IARC, NTP, and OSHA do not list Thiourea Dioxide as
a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Chronic exposure
may aggravate pre-existing conditions to include diseases of the skin, eyes



and
respiratory
tract.

Chronic
Effects:

Section 4 - First Aid Measures

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Consult medical doctor.

Eye Contact: Immediately flush with large amounts of water for at least 15 minutes while holding eyelids apart. In all cases of eye contamination it is a sensible precaution to seek medical advice.

Skin Contact: Wash contaminated skin with plenty of soap and water. If irritation occurs, seek medical advice.

Ingestion: If swallowed, seek medical attention immediately.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Treat symptomatically based on judgment of doctor and individual reactions of patient.

Special Precautions/
Procedures:

Section 5 - Fire-Fighting Measures

Flash Point: N/
A

Flash Point
Method:

Burning
Rate:

Autoignition Temperature: N/
A

LEL: N/
A

UEL: N/
A

Extinguishing Media: Excessive quantity of water, dry chemical or carbon dioxide. Use equipment/media appropriate to surrounding fire conditions.

Unusual Fire or Explosion Hazards: Material may decompose after long exposure to high moisture level. May decompose when heated above 50 deg C or involved in a fire.

Hazardous Combustion Products: Emits toxic fumes of carbon monoxide, carbon dioxide, nitrogen oxides and sulfur oxides when heated to decomposition.

Fire-Fighting Instructions: Do not release runoff from fire control methods to sewers or waterways.

Fire-Fighting Equipment: Wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

* As of 3/20/2000, Thiourea dioxide not rated by NFPA, values are

estimated.

NFPA

Health:

3

Flammability:

3

Reactivity:

2

Section 6 - Accidental Release

Measures

Spill /Leak

Procedures:

Spills: Contain spill. Sweep up but avoid generating dust. Collect and seal in properly labeled containers for disposal.

Large Spills
Containment: For large spills, dike far ahead of liquid spill for later disposal. Do not release into sewers or waterways.

Cleanup:

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

Section 7 - Handling and Storage

Handling Precautions: Wear overalls, safety glasses and impervious gloves. If dust exist, wear dust mask meeting the requirements of AS1715 and AS1716.

Storage Requirements: Store in a cool (below 35 deg C), dry area out of direct sunlight. Protect from atmospheric moisture. Store away from oxidizing

agents. Do not add to hot materials: do not grind or subject to frictional heat as decomposition may result.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls:

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls:

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage

areas.

Protective Clothing/Equipment: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent prolonged or repeated skin contact. Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Physical State:	granular
solid	
Water Solubility:	30 g/L (25 deg C)
Appearance and Odor:	white, turns yellowish with time
Other Solubility	
s:	
Odor Threshold:	
Odorless	

Boiling Point: > 100 deg C (212 deg F)
Vapor Pressure: negligible
Freezing/Melting Point: 126 deg C (259 deg F)
Vapor Density (Air=1): 3.8
Decomposition Temperature: > 123 deg C
Formula Weight: 108.12
Viscosity:
Density:
Refractive Index:
Specific Gravity (H2O=1, at 4 deg C): 1.71
Surface Tension:
pH: 4 (1% solution)
%
Volatile: Evaporation Rate:



Section 10 - Stability and Reactivity

Stability: Thiourea Dioxide may decompose on lengthy exposure to high temperature and humidity. Avoid heat, humidity and exposure to incompatibles.

Polymerization: Hazardous polymerization cannot occur.

Chemical Incompatibilities: Strong oxidizing agents (alkalis, chlorates, nitrates, permanganates, etc.)

Conditions to Avoid: Product reacts with water. Take precautions to

avoid
contact with atmospheric moisture and
incompatibilities.

Hazardous Decomposition Products: Thermal oxidative decomposition of
Thiourea
Dioxide can produce toxic fumes of carbon monoxide, carbon dioxide,
hydrogen
cyanide, nitrogen oxides and sulfur
oxides.

Section 11- Toxicological Information

Toxicity Data:
*

Chronic

Effects:

Acute Oral Effects:

Carcinogenicity:

Rat, oral, LD50-LC50 Mixture: 1120 mg/kg

Mutagenicity

Teratogenicity:

Section 12 - Ecological Information

Ecotoxicity:

Environmental

Fate:

Environmental

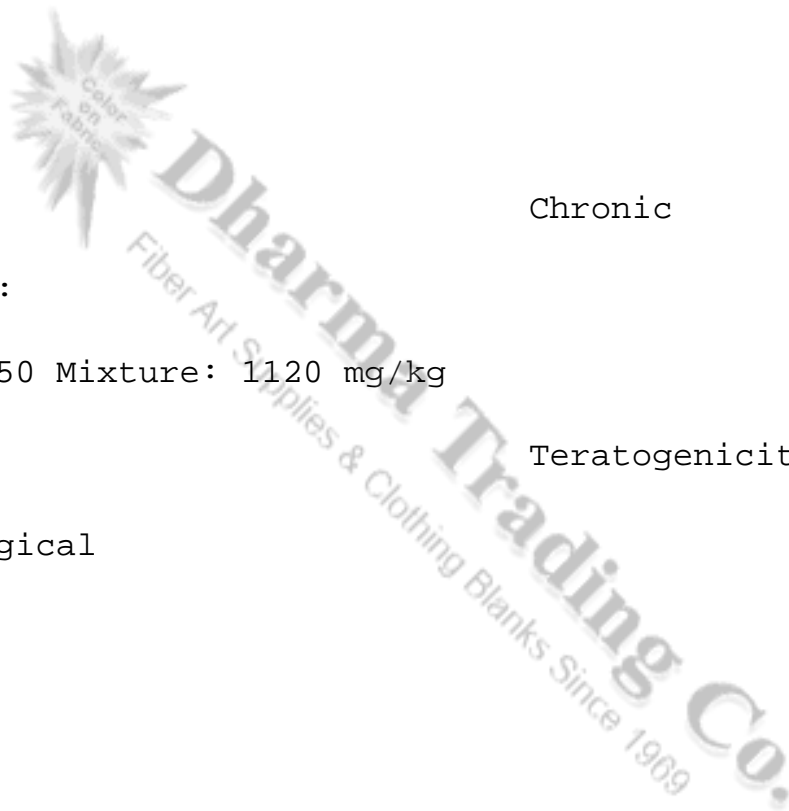
Degradation:

Soil Absorption/

Mobility:

Section 13 - Disposal Considerations

Disposal: Dispose of in accordance with all Local, State and
Federal
regulations at an approved waste disposal facility. Disposal
Regulatory
Requirements:



Container Cleaning and Disposal:

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101):
(Confirms to IMDG regulations)

Shipping Name: Thiourea Dioxide
Limitations
Shipping Symbols:
Aircraft,

Packaging
Authorizations
Quantity
a) Passenger,
or

Railcar:
Hazard Class: 4.2
Only:
UN No.: 3341
Packaging:
Packing Group: 111
Packaging:

a) Exceptions:
b) Cargo Aircraft
b) Non-bulk
c) Bulk

Vessel Stowage

Requirements
Label: Spontaneously Combustible
Stowage:
Special Provisions (172.102):
Other:

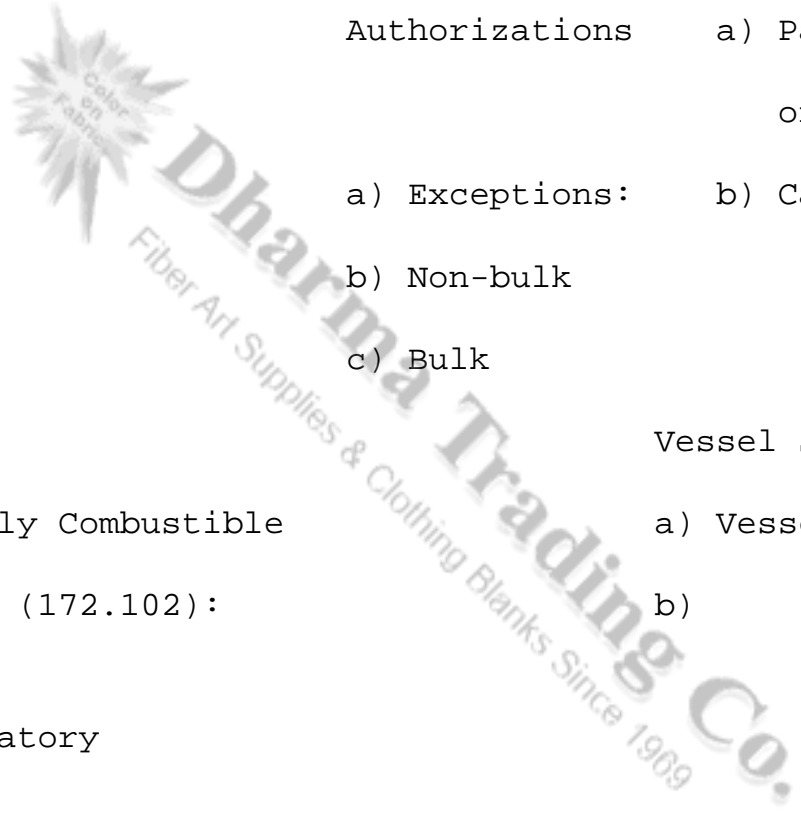
a) Vessel
b)

Section 15 - Regulatory Information

US
FEDERAL
TSCA
CAS# 1758-73-2 is listed on the TSCA inventory.

Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules



None of the chemicals in this product are under a Chemical Test Rule.

Section

12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use

Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding

RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous

Substances

None of the chemicals in this product have a TPQ.

SARA

Codes

CAS # 1758-73-2: acute, reactive.

Section

313

No chemicals are reportable under Section 313.

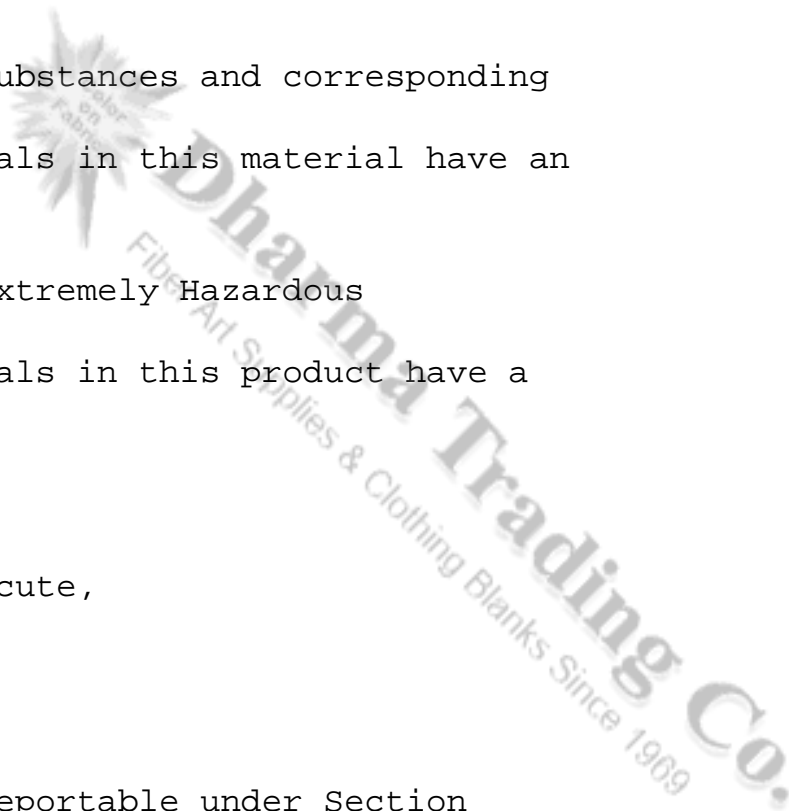
Clean Air

Act:

This material does not contain any hazardous air pollutants. This material does not contain any Class I Ozone depletors. This material does not contain any Class 2 Ozone depletors.

Clean Water

Act:



None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE
CAS# 1758-73-2 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level: None of the chemicals in this product are listed.

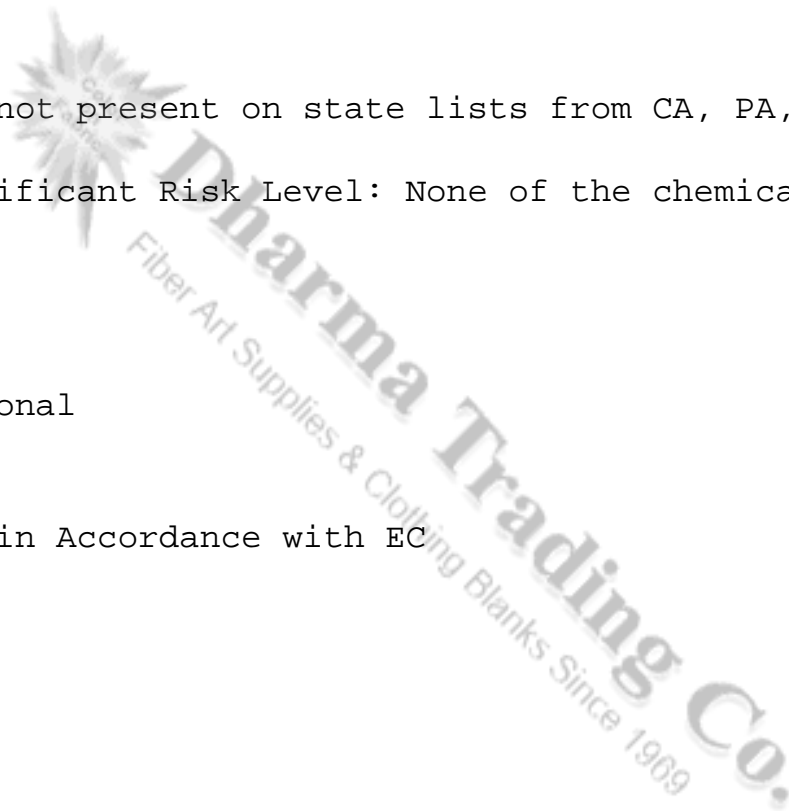
European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:
XN

Risk Phrases:
R 22 Harmful if swallowed.
R 36/37/38 Irritating to eyes, respiratory system and skin.

Safety Phrases:
S 24/25 Avoid contact with skin and eyes.
S 37 Wear suitable gloves.
S 45 In case of accident or if you feel unwell, seek medical advice



immediately (show the label where possible).

S 28A After contact with skin, wash immediately with plenty of water.

WGK (Water Danger/
Protection)

CAS# 1758-73-
2:1

Canada - DSL/
NDSL

CAS# 1758-73-2 is listed on Canada's DSL
List.

Canada -
WHMIS

This product has a WHMIS classification of
D2B.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from your local Univar USA Sales Office.

END OF MSDS

