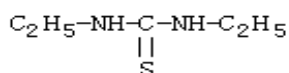




Chemicals Corp.

Technical Data Sheet

DETU



N,N'-Diethylthiourea

CAS Number: 105-55-5

Molecular weight: 132.23

Molecular formula: C₅H₁₇N₂S

PRODUCT INFORMATION

PRODUCT SPECIFICATIONS		GRANULES	OIL CRYSTAL	CRYSTAL
Appearance		White granules	White oil crystals	White crystals
Initial Melting Point	°C min	74.0	74.0	74.0
Loss on drying	% max	0.30	0.40	0.30
Ash	% max	0.30	0.40	0.30
Residue on sieve (840µm)	% max	-	0.00	0.00
Oil content	%	-	0.0-2.0	-
<u>Typical properties</u>				
Density	g/cm ³	1.10		
<u>Packaging</u>				
Bag		25kg (55 lbs)		
Pallet		500kg or 600kg (1102 lbs or 1323 lbs)		

FUNCTION

DETU functions as a primary accelerator and is recommended mainly for latex.

APPLICATIONS AND PROPERTIES

- DETU is the most active thiourea for the vulcanization of CR.
- Rapid vulcanization occurs at low, medium and high temperatures.
- Product is well suited to high speed CV processes.
- Can be used to boost EPDM sulphur vulcanization systems.
- Material has a bitter taste.
- Soluble in chloroform, acetone, ethanol and gasoline.
- Insoluble in water.
- DETU is not regulated for use in food contact applications under FDA 21 CFR.

STORAGE

Material should be stored in a cool, dry, well ventilated area, away from high temperatures. The maximum recommended storage life is 1 year when stored under normal conditions.

HANDLING PRECAUTIONS

For detailed information on toxicological properties and handling precautions, please refer to the current Safety Data Sheet. This information is available by request from **SunBoss Chemicals Corp.**

[Revised: November 5, 2014 by kk]

Safety Data Sheet

DETU

1. IDENTIFICATION OF SUBSTANCE / COMPANY INFORMATION

Chemical Name	N,N'-Diethylthiourea
Synonyms	DETU
CAS #	105-55-5
Formula	C ₅ H ₁₇ N ₂ S
Chemical Family	Accelerator
Supplier	SunBoss Chemicals Corp.
Address	8-110 West Beaver Creek Road Richmond Hill, ON L4B 1J9
Telephone	905-707-3433
Fax	905-707-7393

Emergency Information

After normal hours call Chemtrec at 1-800-424-9300

2. COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS No.</u>	<u>Weight %</u>	<u>EC No.</u>
1,3-Diethyl-2-thiourea	105-55-5	99	203-308-5
	<u>Symbol(s)</u>	<u>Risk Phrase(s)</u>	
	Xi, Xn	R20/21/22, R36/37/38, R41, R43, R52/53.	

3. HEALTH HAZARDS INFORMATION

EMERGENCY OVERVIEW

Signal word: **WARNING!**

Harmful by inhalation, in contact with skin and if swallowed.

Irritating to eyes, respiratory system and skin.

Risk of serious damage to eyes.

May cause sensitisation by skin contact.

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid Dust Generation

Potential Health Effects:

Inhalation

Irritating to respiratory system. Inhalation of dust should be avoided.

Ingestion	Harmful if swallowed.
Skin contact	Skin sensitizer. Prolonged or repeated skin contact may cause skin irritation.
Eye Contact	Irritating to eyes. May cause itching, reddening, tearing and burning.

4. EMERGENCY FIRST AID PROCEDURES

Inhalation	Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
Ingestion	If victim is conscious and alert, give 2-4 full cups of milk or water. Never give anything orally to an unconscious or convulsing person. Get medical aid immediately.
Skin	Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.
Eyes	Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Note to Physician	Treat symptomatically and supportively.

5. FIRE AND EXPLOSION HAZARD MEASURES

Flammability	Not determined
Flash Point	186°C (366.80°F)
Flash Point Method	Not determined
DOT Category	Not regulated
Extinguishing Media	Water spray, carbon dioxide, dry chemical or foam extinguishing agents
Auto Ignition Temperature	Not determined
Flammable Limits	Not determined
Special Fire Fighting Procedures	None
Special Protective Equipment	Wear self-contained, positive pressure breathing apparatus and full fire-fighting protective clothing.
Unusual Fire and Explosion Hazards	None

6. ACCIDENTAL RELEASE MEASURES

Procedures	Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.
Clean up Methods	Clean up spills immediately, observing precautions in the Protective Equipment section. Do not let product enter any waterways.
Procedures	Wear protective equipment specified. Avoid the generation of dust. Sweep, vacuum, or shovel and place into closable container for disposal.

7. HANDLING AND STORAGE

Handling	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
Storage	Store in a cool, dry place. Keep container closed when not in use.

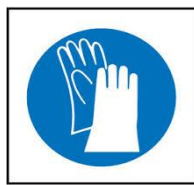
8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls	Avoid dust generation. Ensure good ventilation and local exhaustion of the working area.
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Exposure Limits
N,N'-Diethylthiourea

ACGIH TLV
None listed

OSHA PEL
None listed



Respiratory	A respiratory protection program that meets OSHA's 29 CFR:1910.134 and ANS IZ88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.
Eyes	Wear chemical goggles. An eye wash device should be available in the work area where the product is handled.
Skin	Wear appropriate protective clothing to minimize contact with skin.
Gloves	Wear appropriate protective gloves - Neoprene or nitrile rubber coated gloves, to prevent skin exposure.

3. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Powder, White semi-transparent crystals
Odour	Not applicable
Specific Gravity	Not applicable
Density	1.10 g/cm ³
Bulk Density	Not applicable
Solubility in water	INSOLUBLE
pH	Not applicable
Other Solubility	Chloroform, toluene, benzene, ethanol.
Boiling point	Not applicable

Melting Point	74°C
Molecular Weight	132.23
Molecular Formula	C ₅ H ₁₇ N ₂ S

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal temperatures and pressures.
Conditions to avoid	Strong oxidants, acids and high temperatures.
Incompatibility	Strong oxidizers.
Hazardous Polymerization	Does not occur.
Hazardous Decomposition Products	Nitrogen, carbon and sulphur oxides.
Additional Guidelines	None
Waste Disposal	Dispose of in a manner consistent with federal, state, and local regulations.
Contaminated Packaging	Not determined

11. TOXICOLOGICAL INFORMATION

Acute oral LD 50 (mg/kg)	Rat: 316 mg/kg
Acute Dermal LD 50 (mg/kg)	Rabbits: > 2000 mg/kg
Acute Inhalation LC50 (mg/l)	Not determined
Principle routes of Exposure	Dermal, inhalation, eyes
Ingestion	Harmful if ingested.
Skin contact	Skin sensitizer - prolonged exposure may cause dermatitis
Eye Contact	Moderately irritating
Aggravated Conditions	Not determined
Carcinogenicity	Not determined
Primary Irritation Effect	Not determined
Genotoxicity	Not determined
Reproductive/Developmental Toxicity	Not determined

12. ECOLOGICAL INFORMATION

Acute Fish Toxicity	Not determined
Acute Crustacean Toxicity	48Hr LC50 Daphnia Magna = 193 mg/l
Octonal/Water Coefficient	Not determined
Chemical Fate Information	Not determined
Other Information	None

13. DISPOSAL CONSIDERATIONS

Waste Disposal	Dispose of material in a manner consistent with federal, state and local regulations.
Contaminated packaging	Not determined.

14. TRANSPORT INFORMATION

<u>DOT</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG</u>	Not regulated
TDG (Canada)	Not regulated

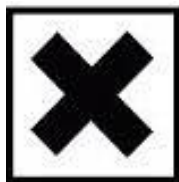
15. REGULATORY INFORMATION

LABELLING ACCORDING TO DIR 67/548 EEC

EC Number: 203-308-5
Classification based on: TESTS



IRRITANT (Xi)



HARMFUL (Xn)

CLASSIFIED ACCORDING TO DIRECTIVE 199/45/EC

Risk Phrases:

- R20/21/22 – Harmful by inhalation, in contact with skin and if swallowed.
- R36/37/38 – Irritating to skin, eyes and respiratory system.
- R41 – Risk of serious damage to eyes.
- R43 – May cause sensitisation by skin contact.
- R50/53 – Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

Safety Phrases:

- S20 – When using do not eat or drink.
- S26 – In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S28 – After contact with skin wash immediately with plenty of water.

S36/37/38 – Wear suitable protective clothing, gloves, eye, and face protection.
 S45 – In case of accident or if you feel ill, seek medical advice immediately.

FDA Status 21 CFR Not regulated for use in food contact applications under 21 CFR.
 TSCA Listed
 Canadian DSL Listed
 EINECS/ELINCS Listed

US Regulations

SARA Section 302 Not determined
 SARA 311/312 Hazard Categories Not determined
 SARA 313 Chemical None
 RCRA Status Not Listed

Canadian Regulations

WHMIS Hazard Class Not regulated
 NPRI Not determined

16. HAZARD RATING SYSTEM

NFPA Rating (Scale 0-4)

0 - Minimal Hazard
 1 - Slight Hazard
 2 - Moderate Hazard
 3 - Serious Hazard
 4 - Severe Hazard

HEALTH	2
FIRE	0
REACTIVITY	0

HMIS Classification (Scale 0-4)

0 - Minimal Hazard
 1 - Slight Hazard
 2 - Moderate Hazard
 3 - Serious Hazard
 4 - Severe Hazard

HEALTH	2
FIRE	0
REACTIVITY	0

17. OTHER INFORMATION

Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. SunBoss Chemicals Corp. extends no warranty and assumes no responsibility for the accuracy or sufficiency of the content and expressly disclaims all liability for reliance thereon. This safety data sheet provides guidelines for the safe handling of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required. It is the responsibility of the user to comply with all Federal, State and local laws and regulations. Individuals exposed to this product should read and understand this information and be provided pertinent training prior to working with this product.

Abbreviations and Acronyms

ACGIH: American Conference of Governmental Industrial Hygienists Inc.
CAS: Chemical Abstracts Service (Division of American Chemical Society)
DOT: Department of Transportation (USA)
EINECS: European Inventory of Existing Commercial Chemical Substances
HMIS: Hazardous Materials Identification System (USA)
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
IMDG: International Marine Code for Dangerous Goods
LD50: Lethal Dose Medium
LC50: Lethal Concentration Medium
EC50: Effective Concentration Medium
NIOSH: National Institute for Occupational Safety and Health
NFPA: National Fire Protection Association (USA)
NPRI: National Pollutant Release Inventory (Canada)
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration (USA)
TDG: Transportation of Dangerous Goods (Canada)
TLV: Threshold Limit Value
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information Systems (Canada)

18. REVISION DATE

Revision number: 3

Date of Issue: September 2, 2014

Changes: Number and format of headings changed; Updates to Sections 1: Identification of Substance - EC information added; 2: Health Hazards Information; 8: Specific Personal Protection Equipment - pictograms added; 14: Transport information - pictograms added; 15: Regulatory information - EC information added; 16: Hazard Rating System - table added; 17: Abbreviations and Acronyms added