MATERIAL SAFETY DATA SHEET

ZhangjiagangYarui Chemical Co.,Ltd.

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TRANSPORTATION EMERGENCY

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1. Product and Company Identification

Product Name: **Diethyltoluenediamine (DETDA)**

2. Hazards Identification

Emergency Overview

Warning **Color:** Light, tan to brown **Form:** liquid **Odor:** Slight, Amine.

Harmful by inhalation, in contact with skin and if swallowed. Inhalation, skin absorption, or ingestion may cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom of this may be cyanosis (purplish-blue coloring of skin, fingernails, and lips). Toxic gases/fumes may be given off during burning or thermal decomposition. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. May cause respiratory tract irritation. May cause skin irritation. Causes eye irritation. May cause liver damage.

Potential Health Effects

Primary Routes of Entry: Skin Contact, Eye Contact

Medical Conditions Aggravated by Exposure: Eye disorders, Respiratory disorders, Skin disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation

Acute Inhalation

May cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom of this may be cyanosis (purplish-blue coloring of the skin, fingernails, and lips). Inhalation is unlikely due to the low vapor pressure. If misted or handled at elevated temperatures, high concentrations may cause respiratory tract irritation.

Chronic Inhalation

May cause liver damage.

Skin

Acute Skin

May cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom of this may be cyanosis (purplish-blue coloring of the skin, fingernails, and lips). If sufficient amounts are absorbed, systemic toxicity may occur with symptoms similar to those described in acute inhalation.

Eye

Acute Eye

Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

Ingestion

Acute Ingestion

Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. May cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom of this may be cyanosis (purplish-blue coloring of the skin, fingernails, and lips). Harmful if swallowed.

Chronic Ingestion

May cause liver damage.

Carcinogenicity:

No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous components

Weight percent	Component	CAS-No.
98%	Diethyltoluenediamine (DETDA)	68479-98-1

4. First aid measures

Eye contact

In case of contact, flush with plenty of water for at least 15 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Call a physician immediately.

Skin contact

Immediately remove contaminated clothing and shoes. Wash affected areas, including hair, beneath nails and other concealed areas with Polyethylene Glycol 400. Repeat the washing with soap and water. If Polyethylene Glycol 400 is not available, wash immediately with soap and plenty of cold water. Wash clothing and shoes before reuse. Get medical attention.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration using a pocket mask type resuscitator. If breathing is difficult, give oxygen. In case of blue discoloration (cyanosis) of skin, lips, or fingernails, give oxygen to breathe. Get medical attention.

Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Give two glasses of water for dilution. Do not give anything by mouth to an unconscious person. Call a physician.

Notes to physician
Immediately give oxygen if victim turns blue (lips, ears, fingernails). Since reversion of methaemoglobin to haemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures.

5. Fire-fighting measures

Suitable extinguishing media: Carbon dioxide (CO2), Dry chemical, Foam, water spray for large fires.

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

6. Accidental release measures

Spill and Leak Procedures
Remove all sources of ignition, including flames, heat, and sparks. Ventilate area to remove vapors or dust. Evacuate and keep unnecessary people out of spill area. Use appropriate personal protective equipment during clean up. Dike or dam spilled material and control further spillage, if possible. Do not allow spilled material or wash water to enter sewers, surface waters, or groundwater systems. Large spills should be contained and pumped into original or similar containers. Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal. Wash spill area with soap and water. Collect wash water for approved disposal. Notify local health and safety authorities and other appropriate agencies if necessary.

7. Handling and storage

Storage temperature:
maximum: 43 °C (109.4 °F)

Storage period
18 Months

Handling/Storage Precautions
Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Keep container closed when not in use. Material is hygroscopic and may absorb small amounts of atmospheric moisture. If contamination with isocyanates is suspected, do not reseal containers. Do not get on skin or clothing. Do not get in eyes. Do not breathe vapours or spray mist.

8. Exposure controls/personal protection

Diethyltoluenediamine (DETDA) (68479-98-1)
Zhangjiagang Yarui Chemical Co.,Ltd.

Time Weighted Average (TWA): 0.02 ppm

Industrial Hygiene/Ventilation Measures
Use local and general exhaust ventilation to control levels of exposure.

Respiratory protection
The following respirator is recommended if airborne concentrations exceed the appropriate standard/guideline., NIOSH approved, air-purifying respirator with organic vapor cartridges and N-95 filters, Full face-piece is recommended.

Hand protection
Permeation resistant gloves.

Eye protection
Chemical resistant goggles must be worn.

Skin and body protection
Permeation resistant clothing

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

9. Physical and chemical properties

Form:	liquid
Color:	Light, tan to brown
Odor:	Slight, Amine
pH:	Not Established
Freezing Point:	Not Established
Boiling point/boiling range:	not established
Flash point:	> 93.34 °C (200.01 °F)
Vapour pressure:	Not Established
Specific Gravity:	1.03 @ 25 °C (77 °F)
Solubility in Water:	completely soluble
Bulk density:	1,031 kg/m3
Hygroscopicity:	hygroscopic

10. Stability and reactivity

Hazardous Reactions
Hazardous polymerisation does not occur.

Stability
Stable

Materials to avoid
Oxidizing agents, Isocyanates

Hazardous decomposition products
By Fire: Carbon Dioxide; Carbon Monoxide; Hydrogen cyanide, nitrogen oxides (NOx), Amines, other aliphatic fragments which have not been determined

11. Toxicological information

Acute oral toxicity
LD50: 472 mg/kg (Rat, Female)
LD50: 542 mg/kg (rat, male)

Acute inhalation toxicity
LC50: > 2.45 mg/l, 1 h (Rat)

Acute dermal toxicity
LD50: > 1,000 mg/kg (rabbit)

Skin irritation
rabbit, Non-irritating

Eye irritation
rabbit, irritating

Sensitisation
Maximisation Test: non-sensitizer (guinea pig)

Repeated dose toxicity
21 Days, dermal: NOAEL: 1 mg/kg, (rabbit, Male/Female, daily)
13 Days, inhalation: NOAEL: < 10 mg/l, (Rat,)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: positive (Salmonella typhimurium, Metabolic Activation: with)
Positive and negative results were seen in various in vitro studies.
Genetic Toxicity in Vivo:
Dominant Lethal Assay: (rat, Male/Female, oral)
negative
Cytogenetic assay: (Rat, male, oral)
positive
Micronucleus Assay: (mouse, Male/Female, intraperitoneal)
negative

Carcinogenicity
Rat, Male/Female, oral, 2 years, daily,
positive

12. Ecological information

Biodegradation
aerobic, 0 %, Exposure time: 28 Days

Chemical Oxygen Demand (COD)
2,370 mg/g

Acute and Prolonged Toxicity to Fish
LC50: ca. 194 mg/l (Golden orfe (Leuciscus idus), 48 h)

Acute Toxicity to Aquatic Invertebrates
EC50: ca. 0.5 mg/l (Water flea (Daphnia magna), 48 h)

Toxicity to Microorganisms
EC10: 170 mg/l, (Pseudomonas putida, 24 h)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations. Do not heat or cut container with electric or gas torch. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous.

14. Transport information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)
Non-Regulated

15. Regulatory information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
None

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III
Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III
Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:

Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):
Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

California Prop. 65: o

To the best of our knowledge, this product does not contain any of the listed chemicals, which has found to cause cancer, birth defects or other reproductive harm.

16. Other information

NFPA 704M Rating

Health	2
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	2*
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

The method of hazard communication for Jiangsu Changyu Chemical Co.,Ltd. is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Jiangsu Changyu Chemical Co.,Ltd. as a customer service.

Contact person:	
Telephone:	Product Safety Department
MSDS Number:	86-512-58668811
Version Date:	112000032092
Report version:	01/15/2010
	1.6

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