SAFETY DATA SHEET

Revision Date 1-Apr-2025
Version # 1.2

1. IDENTIFICATION

Product identifier
Product Name UDT Polyurea Part B

Other means of identification
Part Number(s) 234050, 234550, 234650

Recommended use of the chemical and restrictions on use
Recommended use For Professional Use Only
Uses advised against Consumer use

Details of the supplier of the safety data sheet
Manufacturer Address
Ultra Durable Technologies
355 6th Ave. North
Waite Park, MN 56387
320-258-2266
Ultradt.com

Emergency telephone number
Emergency Telephone Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

Acute Inhalation Toxicity	Category 4
Skin Irritant	Category 2
Eye Irritant	Category 2B
Skin Sensitizer	Category 1B
Respiratory Sensitizer	Category 1
STOT Single Exposure – Respiratory System	Category 3
STOT Repeated Exposure – Respiratory System	Category 2

Signal Word Danger

Hazard statements
Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties.
Causes skin irritation.
Causes eye irritation.
May cause an allergic skin reaction..
May cause respiratory irritation. May cause drowsiness or dizziness.
May cause damage to respiratory and olfactory organs through prolonged or repeated inhalation exposure.

Precautionary Statements – Prevention:.
Avoid breathing dust, mist, vapors, or spray.
Use only outdoors or in a well-ventilated area. Wear respiratory protection in case of inadequate ventilation.
Wash skin thoroughly with plenty of soap and water after handling.
Wear protective gloves and clothing. Wear eye and face protection.

Contaminated work clothing should not be allowed out of the workplace.

Precautionary Statements - Response:
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediate medical help needed if experiencing respiratory symptoms.
IF ON SKIN: Wash with plenty of soap and water.
Take off contaminated clothing and wash before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
If eye/skin/respiratory irritation occurs or persists, get medical help.
Get medical help if you feel unwell.

Precautionary Statements - Storage:
Store in a well-ventilated place.
Keep container tightly closed.
Store locked up.

Precautionary Statements - Disposal:
Dispose of contents and container to approved waste disposal facility in accordance with applicable laws and regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS #	Weight %
P-MDI	9016-87-9	50 - 75
Diphenylmethane-4,4'-diisocyanate (MDI)	101-68-8	25 – 50
Methylenediphenyl diisocyanate	26447-40-5	3 - 7
1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl-	17589-24-1	1 - 3
Isocyanic acid, polymethylenepolyphenylene ester, polymer with alpha-hydro-omega-hydroxypoly(oxy-1,2-ethanediyl)	57636-09-6	1 - 3

Trade Secret statement (OSHA 1910.1200(i)) Specific chemical identities and concentrations for one or more listed chemicals are being withheld as trade secrets under the US regulation 29 CFR 1910.1200(i).

4. FIRST AID MEASURES

Description of First Aid Measures

Eye Contact — Rinse thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If irritation persists, seek medical attention.

Skin Contact — Remove contaminated clothing. Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

Inhalation — Remove the affected individual to fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention is required.

Ingestion — Rinse mouth and then drink 200-300 mL of water. Do not induce vomiting. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Immediate medical attention required.

Most important symptoms and effects, both acute and delayed
Immediate First Aid Instructions
If respiratory symptoms observed (breathing difficulty, breathlessness, asthma, chest discomfort, reduced pulmonary function, etc) treat immediately.
May cause irritation of the digestive tract with symptoms that include abdominal pain, nausea, vomiting, and diarrhea.

Symptoms can appear later.
Inhalation of mists or vapors may cause respiratory irritation, breathlessness, chest discomfort and reduced pulmonary function.
Inhalation exposure well above the PEL may result in bronchitis, bronchial spasms, and pulmonary edema.

Long-term exposure to isocyanates has been reported to cause lung damage, including reduced lung function which may be permanent.
Overexposure to isocyanates may cause sensitization in some individuals, resulting in allergic (asthma-like) respiratory reactions.

Special Instructions for Physicians
Treat symptomatically. Treatment should be supportive and based on the judgement of the physician in response to the reaction of the patient.

5. FIRE-FIGHTING MEASURES

Suitable Fire Extinguishing Media
Dry powder. Carbon Dioxide. Foam.

Unsuitable Extinguishing Media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific Hazards Arising from the Chemical
Hazardous byproducts of fire include nitrous gases, fumes/smoke, isocyanate, vapor. Use of water during fire fighting may cause rapid foaming and hardening of material and spread fire.

Protective equipment and precautions for fire-fighters
Evacuate area. Eliminate all ignition sources if safe to do so. Exercise caution when fighting any chemical fire. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Keep containers cool by spraying with water if exposed to fire. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
Ensure adequate ventilation, especially in confined areas.

No open flames, no sparks, and no smoking. Evacuate area. Only qualified personnel equipped with suitable protective equipment may intervene. Avoid breathing fumes, gas, mist, vapor, or spray.

Environmental Precautions
Avoid release to the environment. Do not allow product to enter drains, sewers, public water, surface water, or groundwater. If contact is made, notify authorities.

Methods and material for containment and cleaning up
Use personal protective equipment as required.
Small spills must be absorbed with suitable absorbent and taken up mechanically into open containers. Open containers should be moved to a well-ventilated area; outside is recommended. Allow to stand open for 48 hours before closing. Do not make containers pressure tight. Clean affected area with an appropriate detergent mixture (90% water, 8% concentrated ammonia, and 2% detergent.) Large spills should be diked to contain liquid. Pump into an open container for disposal. If control of isocyanate vapor is required, blanket with protein foam or other suitable foam. Allow to stand open for 48 hours before closing. Do not make containers pressure tight. Residues may be scrubbed up with detergent mixture. Let stand 10 minutes and remove.

7. HANDLING AND STORAGE

Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practices. Ensure good ventilation. Avoid formation of aerosols. When handling heated product, vapor should be ventilated and appropriate respirator should be used. Wear respirator when spraying. Container is in danger of bursting when sealed gastight.
Protect against moisture. If bulging of drum occurs, transfer to well-ventilated area, puncture to relieve pressure. Open vent and let stand for 48 hours before resealing.

Conditions for safe storage, including any incompatibilities
Storage Conditions

Store away from water, acids and bases. Store blanketed under dry inert gas at atmospheric pressure to avoid reaction with moisture. Store in a well-ventilated place. Keep cool, 60-80F. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources.

Incompatible materials
Water

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls
The use of local exhaust ventilation is recommended. Eyewash stations, chemical showers recommended.

Exposure Guidelines

Chemical Name	STEL	TWA	PEL
P-MDI	Not established	0.005 ppm	CLV 0.02 ppm/0.2 mg/m^3
Diphenylmethane-4,4'-diisocyanate (MDI)	Not established	0.005 ppm	CLV 0.02 ppm/0.2 mg/m^3
Methylenediphenyl diisocyanate	Not established	Not established	Not established
1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl-	Not established	Not established	Not established
Isocyanic acid, polymethylenepolyphenylene ester, polymer with alpha-hydro-omega-hydroxypoly(oxy-1,2-ethanediyl)	Not established	Not established	Not established

Individual protection measures, such as personal protective equipment

Eye/Face Protection Protective Eyewear (chemical goggles). Face shield if splash hazard exists.

Skin and Body Protection Gloves (neoprene, nitrile rubber, pylox). Protective clothing.

Respiratory Protection If adequate ventilation is not available, or concentration is above occupational exposure limits, wear NIOSH-certified air-purifying respirator equipped with organic vapor sorbent and particulate filter. Keep in mind specific circumstances and exposure guidelines and determine and adhere to appropriate change-out schedules.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practices.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Color	Dark amber
Odor	Faint, Aromatic
Melting Point	5°C (41°F)
Boiling Point	200°C (392°F)
Flammability	Not flammable
Upper flammability limit	No information available
Lower flammability limit	No information available
Flash Point	220°C (428°F)
Autoignition Temperature	> 250°C
Decomposition Temperature	No information available
pH	> 7
Dynamic viscosity	200 cPs
Kinematic Viscosity	No information available
Solubility	Reacts with water
Partition coefficient n-octanol/water (Log Pow)	No information available
Vapor Pressure	0.00001 mmHg
Density	1.218 g/cm^3 / 10.17 lb/gal
Relative Density	1.22

10. STABILITY AND REACTIVITY

Reactivity
Reacts with hydroxyl groups (water, acids, bases) to produce carbon dioxide and amine groups, and may foam rapidly. Product is otherwise unreactive under normal conditions of use, storage, and transport.

Chemical Stability
Product is stable under normal conditions of use, storage, and transport.

Hazardous reactions
Reacts with water, forming carbon dioxide and risk of bursting. Reacts with alcohols, acids, amines, and alkaline materials. Exothermic reaction risk. Polymerization risk.

Conditions to Avoid
Moisture

Incompatible materials
Acids. Amines. Alcohols. Water. Alkaline materials. Strong bases.

Hazardous decomposition products
Carbon monoxide, carbon dioxide, nitrogen oxide, hydrogen cyanide, nitrogen oxides, aromatic isocyanates, gases, vapors.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information No information available

Inhalation Inhalation of liquid material or gas/vapor/mist

Eye Contact Liquid material splash or gas/vapor/mist

Skin Contact Liquid material splash or liquefied gas

Ingestion Liquid material

Numerical values of toxicity – Component information

Chemical Name	Oral LD_{50}	Dermal LD_{50}	Inhalation LC_{50}
P-MDI	31,600 mg/kg (Rat)	Not established	>50 mg/L (Rat, vapor)
Diphenylmethane-4,4'-diisocyanate (MDI)	4,130 mg/kg (Rat)	>9,400 mg/kg (Rabbit)	1.96 mg/L (Rat, vapor, 4h)
Methylenediphenyl diisocyanate	31,600 mg/kg (Rat)	Not established	490 mg/L (Rat, 4h)
1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl-	Not established	Not established	Not established
Isocyanic acid, polymethylenepolyphenylene ester, polymer with alpha-hydro-omega-hydroxypoly(oxy-1,2-ethanediyl)	Not established	Not established	Not established

Skin Corrosion/Irritation May cause an allergic skin reaction
Serious Eye Damage/Irritation May cause serious eye irritation
Respiratory or Skin Sensitization May cause an allergic skin reaction or asthmatic symptoms
Germ Cell Mutagenicity Not classified
Carcinogenicity Not classified
Reproductive Toxicity Not classified
STOT – Single Exposure May cause temporary respiratory irritation

STOT – Repeated Exposure May cause respiratory sensitization and asthmatic symptoms
Aspiration Hazard Not classified

Numerical measures of toxicity – Product Information
The following values are calculated based on chapter 3.1 of the GHS document

Chemical Name	Oral LD_{50}	Dermal LD_{50}	Inhalation LC_{50}
UDT Polyurea Part B	6,393 mg/kg	>1,500 mg/kg	3.48 mg/L

Acute toxicity (oral) Not classified
Acute toxicity (dermal) Not classified
Acute toxicity (inhalation) Harmful if inhaled

12. ECOLOGICAL INFORMATION

Ecotoxicity
This product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Chemical Name	Algae/aquatic plants	Fish	Crustacea
P-MDI	Not established	LC_{50} > 1000 mg/L (96h, Brachydanio rerio)	EC_{50} > 1000 mg/L (24h, Daphnia)
Diphenylmethane-4,4'-diisocyanate (MDI)	Not established	Not established	Not established
Methylenediphenyl diisocyanate	Not established	LC_{50} > 1,000 mg/L (96h, Brachydanio rerio)	EC_{50} > 1,000 mg/L (24h, Daphnia)
1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl-	Not established	Not established	Not established
Isocyanic acid, polymethylenepolyphenylene ester, polymer with alpha-hydro-omega-hydroxypoly(oxy-1,2-ethanediyl)	Not established	Not established	Not established

Chemical Name	Algae/aquatic plants	Fish	Crustacea
UDT Polyurea Part B	EC_{50} = 1,640 mg/L (72h, Scenedesmus subspicatus) OECD Guideline 201, static	LC_{50} > 1,000 mg/L (96h, Brachydanio rerio) OECD Guideline 203, static	EC_{50} > 1,000 mg/L (24h, Daphnia magna) OECD Guideline 202, static

Persistence and Degradability
Poorly biodegradable. Unstable in water. Elimination data also refer to products of hydrolysis.

Bioaccumulation Potential

Chemical Name	Partition Coefficient n-ocatnol/water (Log P_{ow})
P-MDI	4.5 (at 25°C)
Diphenylmethane-4,4'-diisocyanate (MDI)	Not established
Methylenediphenyl diisocyanate	5.22
1,3-Diazetidine-2,4-dione, 1,3-bis[4-[(4-isocyanatophenyl)methyl]phenyl-	Not established
Isocyanic acid, polymethylenepolyphenylene ester, polymer with alpha-hydro-omega-hydroxypoly(oxy-1,2-ethanediyl)	Not established

Assessment
Significant accumulation in organisms is not to be expected.
Bioconcentration factor: 200 (28d, Cyprinus carpio, OECD Guideline 305 E).

Mobility in Soil
The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Other adverse effects

Elimination information
0% BOD of the ThOD (28d, aerobic, activated sludge, OECD Guideline 302 C).

Water hydrolysis
In contact with water the substance will hydrolyze slowly.
$t^{1/2}$ = 20h (25°C)

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national, and local laws and regulation. Incinerate or dispose of in a licensed facility. Do not discharge product into sewer system.

Contaminated Packaging Do not reuse container. Steel drums must be emptied and can be sent to a licensed drum reconditioner for reuse, a scrap metal dealer, or an approved landfill. Do not refill or clean containers of residue. Do not burn empty drums or cut open with gas or electric torch as toxic decomposition products may be liberated.

14. TRANSPORT INFORMATION

UN Number	Not regulated for transport
UN Proper Shipping Name	Not Applicable
Transport Hazard Class(es)	
DOT	Not applicable
IOMDG	Not applicable
IATA	Not applicable
Packing Group	
DOT	Not applicable
IMDG	Not applicable
IATA	Not applicable
Environmental Hazards	None

NOTE Transportation information provided is for reference only. Client is urged to consult CFR 49 parts 100-177, IMDG, IATA, EC, Canadian TDG, and United Nations TDG information manuals for detailed regulations and exceptions covering specific container sizes, packaging materials and methods of shipping.

15. REGULATORY INFORMATION

Chemical Inventories

TSCA All components of this product are listed on the TSCA Inventory or are exempted from listing because a low volume exemption has been granted in accordance with 40 CFRR 723.50.

US Federal Regulations

SARA 313
Section 313 of the Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals
which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations. Part 372

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No
Carcinogenicity	No
Respiratory or Skin Sensitization	Yes
Germ Cell Mutagenicity	No
Serious Eye Damage/Irritation	Yes

US State Regulations
California Proposition 65 – This product contains substances believed by the state of California to cause cancer, developmental, and/or reproductive harm.

State Right to Know

New Jersey	Diphenylmethane-4,4'-diisocyanate (MDI)	CAS 101-68-8
	P-MDI	CAS 9016-87-9
	Methylenediphenyl diisocyanate	CAS 2647-40-5
Pennsylvania	Diphenylmethane-4,4'-diisocyanate (MDI)	CAS 101-68-8
	P-MDI	CAS 9016-87-9

HMIS Hazard codes

Health	**2**
Fire	**1**
Reactivity	**1**

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Preparation Date	20-Mar-2024
Revision Date	1-Apr-202
Revision Note	Updated sections 2, 3, 4, 6, 8, 9, 11, 12, and 15.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Shipping information may vary based upon container size and shipping destination. Each user of this material needs to evaluate the conditions of use and design the appropriate protective mechanisms to prevent employee exposures, property damage, or release to the environment. The manufacturer assumes no responsibility for injury to the recipient or third persons, or for any damages to any property resulting from misuse of the product.

End of Safety Data Sheet