

SAFETY DATA SHEET (SDS)

Revision Date: 2017-01

NO.PCS_0024

Section 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical Name: Solution of 1,6-Hexamethylene Diisocyanate Based Polyisocyanate**Company Name:** WANHUA CHEMICAL GROUP Co., LTD.**Address:** No.17 Tianshan Road, Yantai, Shandong, China**Telephone:** 0086-535-3388160**Fax:** 0086-535-6875138**Emergencies Telephone:****WANHUA:** +86 535-8203123**China:** +86 532-83889090**EU:** +31 20 20 65132/65130、+44 780 183 7343**NA:** 800-424-9300、+1-703-527-3887**Recommended uses:** Material for a Polyurethane System

Section 2. HAZARDS IDENTIFICATION

Important Hazards :

Flammable liquid and vapor, Causes serious eye irritation, Harmful if inhaled, Harmful to aquatic life with long lasting effects.

GHS Classification:

Flammable liquids, Category 3, H226

Acute toxicity, Inhalation, Category 4, H332

Serious Eye Damage/Eye Irritation, Category 2A, H319

Chronically hazardous to the aquatic environment, Category 3, H412

GHS-Labeling



Signal Words

Warning

Hazard Statements:

Flammable liquid and vapor, Causes serious eye irritation, Harmful if inhaled, Harmful to aquatic life with long lasting effects.

Precautionary Statements:

◆ Prevention

Keep away from heat / sparks / flames / hot material, no smoking in the workplace. If any static electricity, need to set the container on the ground with wire. Avoid breathing dust / fume / gas / mist / vapors / spray. Wear protective gloves / protective glasses / face protection. Wash touching area thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

◆ Response

Eye Contact:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops.

Skin Contact:

Immediately remove contaminated clothing and shoes. Wash off with soap and water. Get medical attention if irritation develops and persists.

Inhalation:

Move to an area free from further exposure. Get medical attention immediately. Administer oxygen or artificial respiration as needed.

Ingestion:

Do not induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

◆ **Storage:**

Keep container dry and tightly closed in a cool and well ventilated place. Protect from moisture, heat and foreign material.

◆ **Disposal:**

Dispose of contents / container to an approved waste disposal plant. Seal and label product waste and contaminated empty containers and provide for suitable disposal under observation of the national official regulations.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS
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Substance / mixture: mixture

NAME	WEIGHT %	CAS No.	EC No.	REACH No.
1,6 -Hexamethylene Diisocyanate Based Polyisocyanate	about 75	28182-81-2	500-060-2	02-2120080302-68-0000
Hexamethylene-1,6-Diisocyanate	≤ 0.20	822-06-0	212-485-8	01-2119457571-37-0003
n-Butyl acetate	about 12.5	123-86-4	204-658-1	05-2114264367-43-0000
Solvent naphtha 100	About 12.5	64742-95-6	265-198-5	05-2114085005-56-0000

Section 4. FIRST AID MEASURES

Eye Contact:

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use lukewarm water if possible. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Then remove contact lenses, if easily removable, and continue eye irrigation for not less than 15 minutes. Get medical attention if irritation develops.

Skin Contact:

Immediately remove contaminated clothing and shoes. Wash off with soap and water. Use lukewarm water if possible. Wash contaminated clothing before reuse. For severe exposures, immediately get under safety shower and begin rinsing. Get medical attention if irritation develops and persists.

Inhalation:

Move to an area free from further exposure. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme asthmatic reactions can be life threatening.

Ingestion:

Do not induce vomiting. Wash mouth out with water. Do not give anything by mouth to an unconscious person. Get medical attention.

Notes to physician:

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

Section 5. FIRE FIGHTING MEASURES**Hazards characteristic:**

Combustible. During combustion: toxic vapors are released.

Harmful combustion:

Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x).

Suitable Extinguishing Media :

Carbon dioxide (CO₂), foam, extinguishing powder, water spray for large fires.

Firefighters should wear professional fire fighting protective equipment, including self-contained breathing apparatus, helmet, hood, boots and gloves. Avoid contact with product. During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

Unusual Fire / Explosion Hazards:

Closed container may forcibly rupture under extreme heat or when contents are contaminated with water (CO₂ formed). Use cold-water spray to cool fire-exposed containers to minimize the risk of rupture. Large fires can be extinguished with large volumes of water applied from a safe distance, since reaction between water and hot diisocyanate can be vigorous.

Section 6. ACCIDENTAL RELEASE MEASURES

Spill and Leak Procedures:

Evacuate non-emergency personnel. Isolate the area and prevent access. Control source of the leak. Notify management. Put on protective equipment. Prevent the spill spread into drains, sewers, water supplies, or soil. Major spill or leak: to minimize vapor, cover the spillage with fire fighting foam. Released material may be pumped into closed, but not sealed, metal container for disposal. Minor spill or leak: cover spill area with suitable absorbent material. Saturate absorbent material with neutralization solution and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat applications of decontamination solution, with scrubbing, followed by absorbent until the surface is decontaminated. Check for residual surface contamination. Apply lid loosely and allow containers to vent for 72 hours to let carbon dioxide (CO₂) escape.

Additional Spill Procedures/Neutralization:

Neutralize with a mixture of ammonia solution (190 g/L), water and ethanol (5%, 50% and 45%) .

Incinerate at a licensed installation.

Section 7. HANDLING AND STORAGE**Storage Temperature:**

minimum: 0 °C (32 °F)

maximum: 30 °C (86 °F)

Storage Period:

At least 6 months

Keep container dry and tightly closed in a cool and well ventilated place.

Handling/Storage Precautions:

Do not breathe vapors, mists, or dusts. Use adequate ventilation to keep airborne isocyanate levels below the exposure limits. Employee education and training in the safe use and handling of this product are required. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash thoroughly after handling. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate (28182-81-2):**

Exposure Limit: TWA: 0.02 mg/m³

Hexamethylene-1, 6 -Diisocyanate (822-06-0):

Exposure Limit: TWA: 0.02 mg/m³

n-Butyl acetate:

Exposure Limit: TWA: 713 mg/m³

Industrial Hygiene/Ventilation Measures:

Good industrial hygiene practice dictates that worker protection should be achieved through engineering controls, such as ventilation, whenever feasible. When such controls are not feasible to achieve full protection, the use of respirators and other personal protective equipment is mandated. Exhaust air may need to be cleaned by scrubbers or filters to reduce environmental contamination. Curing ovens must be ventilated to prevent emissions into the workplace. If oven off-gases are not vented properly (i.e. they are released into the work area), it is possible to be exposed to airborne monomeric HDI.

Hand Protection:

Gloves should be worn. Nitrile rubber gloves, Butyl rubber gloves, Neoprene gloves.

Eye Protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include a chemical safety goggle or chemical safety goggle in combination with a full face shield when there is a greater risk of splash.

Skin and body protection:

Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact, such as gloves, long sleeved shirts and pants.

Medical Surveillance:

All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any

isocyanate, no further exposure can be permitted.

Additional Protective Measures:

Emergency showers and eye wash stations should be available. Educate and train employees in the safe use and handling of this product. Follow all label instructions.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES
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Form:	liquid
Color:	colorless to pale yellow
Odor:	solvent-like
pH:	Not Applicable (reacts with water)
Boiling Point/Range:	Not Applicable, Decomposition
Flash Point:	Approximately 46 °C
Lower Explosion Limit (Hexamethylene-1,6 -Diisocyanate):	0.9%
Upper Explosion Limit (Hexamethylene-1,6 -Diisocyanate):	9.5%
Lower Explosion Limit (n-Butyl acetate):	1.2%
Upper Explosion Limit (n-Butyl acetate):	7.5%
Specific Gravity:	Approximately 1.08 g/cm ³ (25 °C)
Solubility in Water:	Insoluble - Reacts slowly with water to liberate CO ₂ gas
Viscosity, Dynamic:	Approximately 70 mPa.s (25 °C)

Section 10. CHEMICAL STABILITY AND REACTIVITY INFORMATION
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Stability:

Stable under normal conditions of use and storage.

Materials to avoid:

Water, amines, strong bases, alcohols, copper alloys.

Hazardous Reactions:

Contact with moisture, other materials that react with isocyanates.

Hazardous decomposition products:

By fire and high heat: carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), hydrogen cyanide, isocyanate, isocyanic acid, other undetermined compounds.

Section 11. TOXICOLOGICAL INFORMATION

Toxicological studies on the product are not yet available. Please find below the data available to us:

Acute toxicity, oral

1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate

LD₅₀ rat: > 2,500 mg/kg

n-butyl acetate

LD₅₀ rat: 14,000 mg/kg

Acute toxicity, dermal

1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate

LD₅₀ rat: > 2,000 mg/kg

Acute toxicity, inhalation

1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate

LC₅₀ rat: 390 mg/L, 4 h

n-butyl acetate

LC₅₀ rat: 5 mg/L, 4 h

Assessment: Harmful if inhaled.

n-butyl acetate

LC₅₀ rat: > 21 mg/L, 4 h

Primary skin irritation:

1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate

Species: rabbit Exposure duration: 4 h Result: slight irritant

Classification: No skin irritation

n-butyl acetate

Classification: No skin irritation

Primary mucosae irritation:

1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate

Classification: No eye irritation

n-butyl acetate

Classification: No eye irritation

Sensitisation:

1, 6 -Hexamethylene Diisocyanate Based Polyisocyanate

May cause sensitization by skin contact.

n-butyl acetate

Classification: Does not cause skin sensitization.

Section 12. ECOLOGICAL INFORMATION**Toxicity**

n-butyl acetate

Acute: Blue Gill (96h) LC₅₀: 100000 µg/L, defined as classification.

Solvent naphtha 100

The substance forms low acute toxicity to aquatic organisms.

Hexamethylene-1,6-Diisocyanate

Acute: daphnia (48h) ≥ 89.1 mg/L, defined as classification

Chronic: defined as classification

Persistence and degradability

no classification

Bioaccumulative potential

no classification

Mobility in soil

no classification

Other adverse effects

no classification

Section 13. DISPOSAL CONSIDERATIONS**Waste Disposal Method:**

Waste disposal should be in accordance with existing federal, state and local environmental control laws. Incineration is the preferred method.

Empty Container Precautions:

Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed prior to disposal.

Section 14. TRANSPORTATION INFORMATION

Description of the goods: RESIN SOLUTION, Flammable

Hazard Class or Division: 3

UN/NA Number: 1866

Packaging Group: III

Hazard Label(s): Class 3

Section 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.

Section 16. OTHER INFORMATION

Disclaimer: This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Wanhua Polyurethanes Co., Ltd. The information in this SDS relates only to the specific material designated herein. Wanhua Chemical Group Co., Ltd. assumes no legal responsibility for use of or reliance upon the information in this SDS.