

Material Safety Data Sheet

Issue Date: July, 10th 2021

Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Solvent-Free Polyurethane Adhesives

Recommended use of product: Flexible packaging laminating adhesive

Company Name: Fanavari Persia Chasb

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Effective date: 2021.07.10

Emergency First Aid Center: 115

Poison Information Center: 1490

Section 2: HAZARDS IDENTIFICATION

Hazard classification

Acute toxicity: Category 4 (Inhalation) (H332)

Skin irritation: Category 2 (H315)

Eye irritation: Category 2 (H319)

Respiratory sensitization: Category 1 (H334)

Skin sensitization: Category 1 (H317)

Carcinogenicity: Category 2 (H351)

Specific target organ toxicity (single exposure): Category 3 (H335)

Specific target organ toxicity (repeated exposure): Category 2 (Inhalation) (H373)

Hazard pictograms



Signal word: Danger!

Hazards

Causes skin and eye irritation.

May cause an allergic skin reaction.

Harmful if inhaled.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause respiratory irritation.

May cause damage to respiratory tract through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash skin thoroughly after handling.

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace. Take off contaminated clothing and wash before reuse.

Wear protective gloves.

In case of inadequate ventilation wear respiratory protection.

Response

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms, call a doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. If eye irritation persists, get medical advice.

Storage

Store in a well-ventilated cool place. Store locked up.

Disposal

Dispose of contents/container to an approved waste disposal plant.

Other hazards

No data available.

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical nature: Solvent-Free Polyurethane resin.

This product is a mixture.

INGREDIENT	CAS NO.	Concentration
Diphenylmethanediisocyanate-prepolymer	58228-05-0	>= 60.0 - <100.0 %
Methylenediphenyl diisocyanate	101-68-8	>= 10.0 - <40.0 %

The specific chemical identity and/or exact percentage of components have been withheld as a trade secret.

The necessary information about operational conditions and Risk Management Measures (RMM) can be found in section 8. This product contains no substances of very high concern in concentrations where an information obligation applies.

Section 4: FIRST AID MEASURES

Description of first aid measures

General advice: Soaked clothing and shoes must be immediately removed, decontaminated and disposed of.

Inhalation: Take the person into the fresh air. In case of shortness of breath, provide artificial respiration. Immediate medical attention and advice is also required.

Skin contact: Take off all contaminated clothing and wash off the exposed area immediately with soap and plenty of warm water followed by drying using disposable paper towel. In case skin irritation, consult a physician. Wash contaminated clothing before re-use.

Eye contact: Rinse opened eye immediately under running water for at least 10 minutes. In case of eye irritation, consult a specialist.

If swallowed: Drink 1 or 2 glasses of warm water. DO NOT induce the patient to vomit. Call a physician immediately.

Most important symptoms and effects, both acute and delayed: Aside the information provided in this section, any additional symptoms and effects are described in Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Therapeutic measures: Bronchial constriction may develop after extensive exposure to isocyanate. Extended medical treatment may be required depending on the degree of exposure and the severity of the symptoms.

Section 5: FIRE FIGHTING MEASURES

Hazard properties: without heatable and spontaneously flammable phenomenon, but flammable in condition.

Suitable extinguishing media:

Foam, Carbon dioxide (CO₂), Dry extinguishing powder, Sandy soil. In cases of larger fires, water spray should be used.

Special hazards arising from the substance or mixture

Hazardous combustion products: In the event of fire and/or explosion, irritating and highly toxic gasses (e.g. carbon monoxide and carbon dioxide) and fumes may be generated during the combustion and decomposition. Do not breathe the gasses or fumes.

Unusual fire and explosion hazards: Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Closed containers may explode when heated or contents contaminated with water.

Advice for fire-fighters

Firefighting procedures: Do not allow contaminated extinguishing water to enter the soil, ground-water or surface waters.

Special protective equipment:

During fire-fighting, respirator with independent air-supply and airtight garment is required.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Put on protective equipment. Segregate the release place and keep unauthorized and unprotected people away. Provide adequate ventilation and exhaust extraction. Keep ignition sources (heat, spark, open flames) away. Refer to Sections 7 and 8 for further information.

Environment related measures:

Do not allow the material to enter drains, waterways, wastewater or soil.

Methods and material for containment and cleaning up:

Ventilate the area. Evacuate personnel to safe areas. Remove spills mechanically and then contain the remainder immediately with inert absorbent materials (e.g. sawdust, sand). For further disposal measures see section 13.

Section 7: HANDLING AND STORAGE

Precautions for safe handling:

Provide sufficient air exhaust in working area to get rid of released particulates in the air. The personal protective measures described in section 8 must be observed. The precautions required in the handling of isocyanates must be taken. Avoid contact with skin and eyes and the inhalation of vapor. Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at the end of work. Keep working clothes separately. Take off all contaminated clothing immediately.

Conditions for safe storage:

Keep containers tightly closed and avoid moisture. Store in a cool, dry, and well-ventilated area, out of direct sunlight, and at ambient temperatures ranging 15-30°C. Empty containers may be hazardous since they retain product residue. Follow all MSDS and label warnings even after the container is emptied. Further information on the storage conditions can be found in our product technical data sheet (TDS).

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limits are listed below:

Component	CAS-No.	Regulation	Type of listing	Value
Methylenediphenyl diisocyanate	101-68-8	OSHA Z-1	TWA	0.05 mg/m ³
			C	0.2 mg/m ³
			STEL	0.2 mg/m ³

Exposure controls**Respiratory protection:**

Adequate ventilation should be provided while working with this material in order to keep airborne levels below the exposure limit guideline. Local exhaust ventilation may be necessary for some operations. When the exposure limit is exceeded, use an approved particulate respirator equipped with an organic vapor sorbent and a particle filter. For emergencies and situations where the exposure levels are unknown, use a full-face positive-pressure air-supplying respirator.

Hand protection:

Wear chemically resistant rubber protective gloves. Suitable safety glove materials can be Nitrile rubber, Butyl rubber, Polyethylene, and Polyvinyl chloride.

Contaminated gloves should be disposed of.

Skin and body protection:

Wear suitable protective clothing chemically resistant to this material. Depending on the task, items such as face shield, boots, apron, or full body suit should be used.

Eye/face protection:

Wear chemical safety goggles. It is also recommended to consider a safety shower and an emergency eye wash equipment.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state: Sticky liquid

Color: Light yellow transparent

Odor: Slight inherent odor

pH: Not applicable

Flash point: >80°C

Relative Density (water = 1): 1.11+/-0.05 @20°C, g/cm³

Dynamic Viscosity: 1500-3500 mPa.s @ 25 °C

Boiling point: No data available

Explosion limits(V/V): No data available

Ignition point: No data available

Solubility: Soluble in ethyl acetate, etc.

Water solubility: Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

Section 10: STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under recommended storage conditions. See Section 7 for further information. Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur by itself. Elevated temperatures can cause hazardous polymerization which can be also catalyzed by strong bases and water.

Conditions to avoid: Exposure to elevated temperatures can cause the product to decompose, generating pressure in closed systems. Avoid moisture as the product reacts slowly with water, releasing gases which can cause pressure buildup and rupture of closed containers. This reaction can be accelerated in elevated temperatures.

Incompatible materials: Avoid contact with water, acids, bases, amines, ammonia, alcohols, metal compounds, moist air, strong oxidizers.

Hazardous decomposition products: Thermal decomposition may yield the following: isocyanate monomers, hydrogen cyanide, carbon monoxide, and carbon dioxide.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Acute oral toxicity

Low toxicity if swallowed. Large amounts swallowed incidentally, may cause injury.

Acute dermal toxicity

Prolonged skin contact may result in absorption of harmful amounts.

Acute inhalation toxicity

Due to low volatility, vapors are minimal at room temperature. However, certain operations such as those in which the material is heated, sprayed, or mechanically dispersed (e.g., drumming, venting or pumping), may generate excessive concentrations of vapor/mist. Overexposure to isocyanates may cause irritation to nose, throat, and lungs. Current exposure guidelines are expected to protect against these effects reported for MDI.

Skin irritation

Prolonged contact may cause skin irritation with local redness.

Serious eye damage/eye irritation

May cause eye irritation and slight temporary corneal injury.

COMPONENTS INFLUENCING TOXICOLOGY:

Methylenediphenyl diisocyanate

Acute oral toxicity

LD50, Rat, > 2000 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 9400 mg/kg

Acute inhalation toxicity

LC50, Rat, 1 Hour, 2.24 mg/l

Section 12: ECOLOGICAL INFORMATION

Do not allow to release into waterways, wastewater, or soil.

Toxicity

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis.

Methylene diphenyl diisocyanate

LC50 > 1000 mg/l

Test type: Acute Fish toxicity

Species: Danio rerio (zebra fish)

Exposure duration: 96 h

Method: OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

Methylene diphenyl diisocyanate

EC50 > 1000 mg/l

Species: Daphnia magna (Water flea)

Exposure duration: 24 h

Method: OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

Methylene diphenyl diisocyanate

ErC50 > 1640 mg/l

Test type: Growth inhibition

Species: Desmodesmus subspicatus (green algae)

Exposure duration: 72 h

Method: OECD Test Guideline 201

Toxicity to bacteria

Methylene diphenyl diisocyanate

EC50 > 100 mg/l

Test type: Respiration inhibition

Species: activated sludge

Exposure duration: 3 h

Method: OECD Test Guideline 209

Toxicity to soil-dwelling organisms

Methylene diphenyl diisocyanate

EC50 (mortality) > 1000 mg/kg

Species: Eisenia fetida (earthworms)

Exposure duration: 14 d

Method: OECD Test Guideline 207

Toxicity to terrestrial plants

Methylene diphenyl diisocyanate

EC50 (growth inhibition) > 1000 mg/l

Species: Avena sativa (oats)

Exposure duration: 14 d

Method: OECD Test Guideline 208

Persistence and degradability

Biodegradability: In the aquatic and terrestrial environment, material reacts with water forming insoluble stable polyurea. In the atmospheric environment, material has a short tropospheric half-life.

Methylene diphenyl diisocyanate

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 302C

Stability in water

Methylene diphenyl diisocyanate

Test type: Hydrolysis

Half-life: 20 h at 25 °C

The substance hydrolyzes rapidly in water.

Bioaccumulative potential

Methylene diphenyl diisocyanate

Bioconcentration factor (BCF): 200

Species: Cyprinus carpio (Carp)

Exposure duration: 28 d

Method: OECD Test Guideline 305 E

Mobility in soil

In the aquatic and terrestrial environment, movement is limited due to the reaction with water and forming insoluble polyurea.

Section 13: DISPOSAL CONSIDERATIONS

Disposal methods

Incinerate liquid and contaminated solids according to local, state, and national regulations.

Contaminated packaging

Empty containers may be hazardous since they retain product residue. Follow all MSDS and label warnings even after the container is emptied. Improper disposal or reuse of this container may be dangerous. Refer to applicable national, state and local regulations for appropriate recycling of containers.

Section 14: TRANSPORTATION INFORMATION

DOT

Proper shipping name: Environmentally hazardous substance, liquid, N.O.S. Methylene diphenyl diisocyanate (MDI)

UN number: UN 3082

Class: 9

Packing group: III

Reportable Quantity: MDI

Classification for SEA transport (IMO-IMDG): Not regulated for transport.

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code: Not applicable.

Special precautions: See section 6 - 8. Environmentally hazardous substance. Keep dry and also away from foodstuffs, acids and alkalis. Avoid temperatures below +10 °C and above +50 °C.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: REGULATORY INFORMATION

Acute toxicity

Skin irritation

Eye damage and irritation

Respiratory or skin sensitization

Specific target organ toxicity (single or repeated exposure)

National regulations on the handling of isocyanates must be observed.

Section 16: OTHER INFORMATION

Abbreviations/acronyms:

OSHA Z-1: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

TWA: Time weighted average

STEL: Short term exposure limit

C: Ceiling

Revision

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Department issuing MSDS: Health, Safety and Environmental Department.

Information Source: This MSDS is prepared from information supplied by internal references within our company.

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