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Safety data sheet according to Directive (EU) N° 1907/2006

POLYURETHANE GLUE

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY POLYMER

PREPOLYMER Trade name:

POLYURETHANE GLUE

Specific identified uses of the substance or mixture and uses advised against

Use: Uses identified on the basis of Directive (EU) No. 1907/2006: - Production of the substance - Use as an intermediate for the manufacture of other substances and for the formulation, packaging and distribution - Industrial use for composite material based on wood/minerals/natural fibers Name of the manufacturer and related address Supplier: MATCO SRL Via Quadrelli 69 37055 Ronco all'Adige (VR)

Tel.+39 045 6608111 Fax +39 045 6608177 E-Mail: info@matcosrl.com Emergency telephone: 045 6608111 (8.30 – 18.00)

2. HAZARD IDENTIFICATION

Substance or mixture classification

Classification (1272/2008/EC):

Acute Toxicity, Inhalation, Category 4 (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), Inhalation, Category 2 (H373)

Classification (2006/121/EC, 1999/45/EC): Harmful by inhalation. May cause sensitization by inhalation and skin contact. Irritating to eyes, respiratory tract and skin. Possibility of carcinogenic effects – insufficient evidence. Harmful: danger of serious damage to health in case of prolonged exposure through inhalation.

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Information to be indicated on the label

Hazardous components to be reported on the label

Diphenylmethane diisocyanate, isomers and homologues

Labeling (1272/2008/EC):

Danger

Hazard Statements:

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H351 Suspected of causing cancer.

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements: P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ mist.

P280 Wear protective gloves/eye protection/face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: remove the victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove any contact lenses if it is easy to do so. Continue rinsing.

P308 + P313 IF exposed or concerned, get medical advice/attention.

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Labeling (67/548/EC, 1999/45/EC):
Labeling according to Directive 1999/45/EC for dangerous preparations and subsequent amendments
Xn Harmful

Contains:

Diphenylmethane diisocyanate, isomers and homologues

"R" phrases

R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory tract and skin.
R40 Possibility of carcinogenic effects - insufficient evidence.
R42/43 May cause sensitization by inhalation and skin contact.
R48/20 Harmful: danger of serious damage to health in case of prolonged exposure through inhalation.

"S" phrases

S23 Do not breathe vapours.
S26 In case of contact with eyes, wash immediately with plenty of water and consult a doctor.

S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, consult a doctor immediately (show the label if possible).
S 60 This material and its container must be disposed of as hazardous waste.

Other dangers

People with hypersensitivity of the respiratory tract (e.g. asthma, chronic bronchitis) must not handle the product. Even several hours after any overexposure, symptoms of respiratory tract disorders may appear. Dust, vapors and aerosols constitute the main danger to the respiratory tract.

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3. COMPOSITION / INFORMATION ON INGREDIENTS

Product type: Blend
Diphenylmethane diisocyanate, isomers and homologues

Hazardous components
Diphenylmethane diisocyanate, isomers and homologues: 4.4'
Concentration [% by weight]: approx. < 25 % CAS
No.: 9016-87-9
Classification (1272/2008/EC): Acute Tox. 4 Inhalative H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Sens. Resp. 1 H334 Skin Sens. 1 H317 Carc. 2 H351 STOT SE 3 H335 STOT RE 2 Inhalative H373

Classification (67/548/EEC): Carc.Cat.3 R40 Xn R20 R42/43 R48/20 Xi R36/37/38 Specific limit concentrations: < 5 % Xn R36/37/38,
R40, R42/43 5 - < 10 %
R40, R42/43, R48/20 >= 25 %

Diphenylmethane-2,4'-diisocyanate
Concentration [% by weight]: approx. < 30 % CAS
No.: 101-68-8 EINECS
No.: 202-966-0
INDEX N.: 615-005-00-9
Classification (1272/2008/EC): Acute Tox. 4 Inhalative H332 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Sens. Resp. 1 H334 Skin Sens. 1 H317 Carc. 2 H351 STOT SE 3 H335 STOT RE 2 Inhalative H373

Classification (67/548/EEC): Carc.Cat.3 R40 Xn R20 R42/43 R48/20 Xi R36/37/38 Specific limit concentrations: < 5 % Xn R36/37/38,
R40, R42/43 5 - < 10 %
R40, R42/43, R48/20 >= 25 %

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4. FIRST AID MEASURES

Description of first aid measures General information: Immediately remove soaked and soiled shoes and clothing, decontaminate and dispose of them.

If inhaled: Move the casualty to fresh air, keep him warm and at rest; in case of respiratory disorders, medical assistance is necessary.

In case of contact with skin: In case of contact with skin, clean if possible with a polyethylene glycol-based detergent, or wash with plenty of hot water and soap.
Consult a doctor if skin reactions occur.

In case of contact with eyes: Wash your eyes for a long time (at least 10 minutes) with warm water keeping the eyelids open, then consult an ophthalmologist.

If ingested: DO NOT induce vomiting, medical intervention is required.

Main symptoms and effects, both acute and delayed

Notes to the doctor: The product irritates the respiratory tract and is the potential cause of sensitization of the skin and respiratory tract. Treatment of acute irritation or bronchostenosis is primarily symptomatic. Depending on the extent of exposure and complaints, medical care may be required for a longer period.

5. FIRE-FIGHTING MEASURES

Appropriate extinguishing media: Carbon dioxide (CO2), foam, fire-fighting powder, in the case of large fires also water spray jet.

Unsuitable extinguishing agents: Large jet of water

Special hazards arising from the substance or mixture:
In case of fire, carbon monoxide and carbon monoxide are formed: nitrogen oxides, isocyanate vapors and traces of hydrogen cyanide. In case of fire and/or explosion do not breathe fumes.
In the event of a fire nearby, there is an increase in pressure with risk of explosion.
Cool containers damaged by fire with water and, if possible, remove them from the danger area.

Recommendations for fire fighters: When extinguishing fires it is necessary to protect the respiratory tract with a self-contained breathing apparatus and protective suit impervious to chemical products. Prevent contaminated water used for firefighting from entering soil, groundwater and surface water.

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6. MEASURES IN CASE OF ACCIDENTAL RELEASE

Personal precautions, protective equipment and emergency procedures: Wear protective equipment (see paragraph 8). Provide sufficient ventilation.
Keep third parties away.
Environmental measures: Prevent the product from entering waterways, waste water or entering the ground.
Methods and materials for containment and clean-up:
Remove mechanically; cover residues with moist absorbent material (e.g. sawdust, binders for chemical reagents based on hydrated calcium silicate, sand). After approx. 1 hour collect in a waste container. Do not close it (carbon dioxide is released). Keep humid and leave outdoors for several days, in a supervised place.
References to other sections: For disposal see paragraph 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Ensure
sufficient air exchange and/or adequate extraction in the working environments.
In workplaces or in parts of plants where isocyanate aerosols and/or vapors can form in high concentrations (e.g. due to pressure reduction, degassing of moulds, blowing of compressed air into mixing heads) it must be avoided by aspiration localized air that the indicative occupational exposure limit values are exceeded.
The air movement must take place in the direction away from people. The efficiency of the extraction systems must be checked at regular intervals. Check the threshold values in air indicated in section 8. Observe the personal protection measures described in section 8. Avoid contact with skin and eyes as well as inhalation of vapours. Keep away from foodstuffs. Wash your hands before breaks and at the end of the working day. Store work clothes separately. Remove all contaminated clothing immediately. Decontaminate, destroy and dispose of soiled clothing (see chapter 13).

Conditions for safe storage, including any incompatibilities: Keep container tightly closed and protected from moisture. Further information on the storage conditions that must be observed for quality assurance reasons can be found in our data sheet.

For personnel protection reasons, storage temperature: max. 50°C.
Storage class according to VCI (VCI = German Chemical Industry Association): 10

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8. **EXPOSURE CONTROLS/PERSONAL PROTECTION** Control parameters Components with exposure limits Substance

No. CAS Type Value Abs lim value Remarks Diphenylmethane-4,4'diisocyanate

101/68/8 OEL (IT) TWA 0.005 ppm Basic

Exposure assessment value according to TRGS 430:The polyisocyanate content (MDI oligomers and/or prepolymers) is 57%. Therefore, 0.05 mg/m³ should be taken as the exposure assessment value.

The product may contain traces of phenylocyanate.

Exposure controls
Respiratory protection:
In work environments with insufficient ventilation and during spraying it is necessary to protect the respiratory tract. We recommend a mask with an air supply or for short-term work, a mask with a combined filter A2-P2.

Hand protection: Materials

suitable for protective gloves; EN 374-3: Polychloroprene -
CR: thickness >=0.5mm; onset time >=480min.
Nitrile rubber - NBR: thickness >=0.35mm; onset time >=480min.
Butyl rubber - IIR: thickness >=0.5mm; onset time >=480min.
Fluorinated rubber -FKM: thickness >=0.4mm; onset time >=480min.
Recommendation: Dispose of contaminated gloves appropriately.

Eye protection: Wear
eye/face protection.

Skin and body protection: Wear
suitable protective clothing.
Protective measures to be taken when handling newly printed articles: see chapter 16

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9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance: liquid
Colour: clear pink Odour:
almost odorless Odor
threshold: not determined pH: not
applicable Pour point:
approx. -34 °C DIN 51556 Flash point: not determined
Evaporation rate: not determined Flammability
(solid, gas): not applicable

Combustion class: not applicable Vapor density:
not determined Density: approx. 1.08 +/-
0.5 g/cm³ at 20 °C DIN 53217 Miscible with water: not miscible
at 15 °C Surface tension: not determined

Partition coefficient: n-octanol/
water: not determined Auto-ignition
temperature: not applicable Ignition temperature: > 500 °C
DIN 51794 Decomposition temperature: not determined
Viscosity, dynamic: approx. 2,000 +/- 500 mPa.sa 23 °C DIN
53211 Explosive properties: not determined Dust explosion class: not applicable
Oxidizing properties: not determined
Additional information: The reported values do not always
comply with the product specifications. The
specification data must be taken from the technical data sheet.

VOC grams liter: 2.03 +/- 0.5 VOC not
applicable.

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10. STABILITY AND REACTIVITY

Chemical stability: Starting from 200 °C polymerization, CO2 evolution.

Possibility of dangerous reactions: Exothermic reaction with amines and alcohols, with water development of CO2, if in closed containers increase in pressure; danger of explosion.

Hazardous decomposition products: In case of adequate storage and handling, there is no development of dangerous decomposition products.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity, oral:
Diphenylmethane diisocyanate, isomers and homologues
LD50 rat, female: > 2,000 mg/kg Toxicological
tests on a comparable product.

Acute toxicity, dermal:
Diphenylmethane diisocyanate, isomers and homologues
On rabbit
Result: irritant Method:
OECD TG 404 Toxicological
tests on a comparable product.

Acute toxicity, by inhalation:
Diphenylmethane diisocyanate, isomers and homologues
LC50 rat: 490 mg/m³, 4 h
Substance to be tested as an aerosol.
4.4' Saturated Vapor Concentration – MDI at 25°C 0.09 g/cm³

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Primary skin irritation: Diphenylmethane diisocyanate, isomers and homologues on rabbit Result: irritant
Method: OECD TG 404 Toxicological tests on a comparable product.

Primary mucosal irritation: Diphenylmethane diisocyanate, isomers and homologues on rabbit Result: non-irritating
Method: OECD TG 405
Toxicological tests on a comparable product.

Sensitization:

Diphenylmethane diisocyanate, isomers and homologues
Result: May cause sensitization by inhalation and skin contact.

Subacute, subchronic and long-term toxicity:

Diphenylmethanediisocyanate, isomers and homologues
Study on the effects of long-term inhalation of diphenylmethanediisocyanate tec. (PMDI), accomplished with mechanically produced inhalable aerosols of PMDI. Aerodynamic diameter: 95% less than 5 µm Concentration: 0.2; 1.0 and 6.0 mg/m³ -
animal groups: 120 rats per test (60 females, 60 males)

Results after clinical and histopathological examination of animals: 0.2 mg aerosol/m³: No irritation of the respiratory tract and lungs "No effect level" (NOEL). 1.0 mg aerosol/m³: Slight irritation and inflammatory changes in the nose, respiratory tract and lungs, no lung cancer. 6.0 mg aerosol/m³: Strong irritation and chronic inflammatory changes in the nose, respiratory tract and lungs. Clumping of a yellow substance in the lungs.

8 benign tumors (statistically high value) and 1 malignant tumor (statistically insignificant) were revealed.

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The overall high occurrence of lung tumors exclusively in the group that had been exposed to the maximum concentration of aerosols is seen in direct correlation with the chronic irritations and alterations of the respiratory organs as well as with the agglomerations of yellow substance observed in the lungs of the animals.

Other warnings: Special characteristics/effects: In case of overexposure there is a risk, depending on the concentration, of irritation of the eyes, nose, throat and respiratory tract.
Possible delayed onset of disorders and development of a form of hypersensitivity (respiratory disorders, cough, asthma). In the case of hypersensitive people, reactions can arise even at very low isocyanate concentrations, even below the TLV value. In case of prolonged contact with the skin, irritating and dehydrating effects are possible.

12. ECOLOGICAL INFORMATION

Prevent the product from entering waterways, waste water or entering the ground.

Toxicity

Acute toxicity to fish:
Diphenylmethane diisocyanate, isomers and homologues
LC0 > 1,000 mg/l
Species: Danio rerio (zebra fish)
Exposure duration: 96 h Method:
OECD TG 203

Acute toxicity on daphnia:
Diphenylmethane diisocyanate, isomers and homologues
EC50 > 1,000 mg/l
Species: Daphnia magna (Water flea)
Exposure duration: 24 h Method:
OECD TG 202

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Acute bacterial toxicity:

Diphenylmethane diisocyanate, isomers and homologues
EC50 > 100 mg/l
Tested on: activated sludge Test duration: 3 h
Method: OECD TG 209

Persistence and degradability

Biodegradability:
Diphenylmethane diisocyanate, isomers and homologues
Biodegradation: 0 %, 28 d, i.e. non-degradable
Method: OECD TG 302C

Other information on ecotoxicology: The
product reacts with water at the surface with the development of CO2 forming a solid, insoluble and highly melting reaction product (polyurea). This reaction is strongly favored by surface-active substances (e.g. liquid soaps) and water-soluble solvents.
According to the experiences acquired so far, polyurea is inert and non-degradable.

13 DISPOSAL CONSIDERATIONS

Dispose of in accordance with all international, national and local regulations.
For disposal within the EU, the relevant waste code taken from the European waste register (CER code) must be used.
Waste treatment methods Immediately
after the last product withdrawal, empty the containers completely (drained, free of granules and pasty residues). After neutralizing the product residues adhering to the walls of the container, remove the product label and the danger symbols. This packaging can be delivered, by type of packaging, to the chemical industry collection system centers for reuse. Recovery must be carried out in compliance with national legislation and environmental protection provisions.

Do not dispose of in waste water.

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14. TRANSPORT INFORMATION

ADR/RID Non-dangerous goods
ADNR Non-dangerous goods
These classification data do not apply to transport by tanker. If necessary, you can contact the manufacturer for further information.
IATA Non-dangerous goods **IMDG**
Non-dangerous goods Special
precautions for user : Not
dangerous for
transport purposes.
Irritating to skin and mucous membranes.
Keep away from foodstuffs.

15. REGULATORY INFORMATION

Health, safety and environmental regulations and legislation specific for the substance or mixture
Water contamination class (Germany): 1 mild water contaminant (according to Appendix 4 VwVwS)

It is necessary to observe all national regulations in force on the handling of isocyanates.

16. OTHER INFORMATION

Full text of the hazard warnings (H phrases) mentioned in sections 2 and 3 of the CLP classification (1272/2008/EC).

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 May cause respiratory irritation.

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H351 Suspected of causing cancer.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Full text of R phrases mentioned in sections 2 and 3 of the EU classification (67/548/EEC, 1999/45/EC).

R20 Harmful by inhalation.
R36/37/38 Irritating to eyes, respiratory tract and skin.
R40 Possibility of carcinogenic effects - insufficient evidence.
R42/43 May cause sensitization by inhalation and skin contact.
R48/20 Harmful: danger of serious damage to health in case of prolonged exposure through inhalation.

For shipments within the US territory: pursuant to § 172.101, Appendix A, DOT (Department of Transportation): MDI Reportable Quantity (RQ):5000lbs (2270kg).

ISOPA directives for safe loading/unloading, transport and storage conditions of the TDI and MDI. ISOPA order number:PSC-0020-GUIDL-I

Protective measures to be taken when handling newly molded polyurethane articles:

Depending on the processing parameters, polyurethane articles produced with this raw material, whose surfaces are not covered, may contain traces of substances on the surface (e.g. basic and derivative products, catalysts, release agents) with dangerous properties. Avoid skin contact with these traces. To this end, both during demoulding and when handling newly molded articles, wear at least protective fabric gloves whose palm and finger area are externally coated with nitrile rubber, PVC or polyurethane. Protective gloves should be changed every day. It is advisable to wear protective clothing compliant with the conditions of the usual handling of newly molded polyurethane parts.

Changes made to the previous version have been highlighted in the margin. This version replaces all previous versions.

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Further information The

information in this Safety Data Sheet is correct to the best of our knowledge of the product at the time of publication. This information is provided with the sole purpose of allowing the use, storage, transport and disposal of the product in the most correct and safe ways. This information should not be considered a guarantee or specification of product quality. They refer only to the material specifically indicated and are not valid for the same when used in combination with other materials or in other processes not specifically indicated in the text of the Material Safety Data Sheet.

Update N° 13 of 18 January 2018