

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 27.08.2015

Version number 7

Revision: 27.08.2015

SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name: Hardener PU**
- **Article number:** 49534
- **CAS Number:**
9016-87-9
- **EC number:**
202-966-0
- **Index number:**
615-005-00-9
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** Hardening agent/ Curing agent
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
FORBO Eurocol Deutschland GmbH
August-Roebling-Str. 2
D-99091 Erfurt
Tel.: +49 (0)361 73041-0
Fax: +49 (0)361 73041-92
Website: <http://www.forbo-bonding.de>
- **Further information obtainable from:**
Laboratory
Ronny Dorna
Ronny.Dorna@forbo.com
- **1.4 Emergency telephone number:** GGIZ +49-361-730730 (for Germany)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS08 health hazard

- Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 Carc. 2 H351 Suspected of causing cancer.
 STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

- Acute Tox. 4 H332 Harmful if inhaled.
 Skin Irrit. 2 H315 Causes skin irritation.
 Eye Irrit. 2 H319 Causes serious eye irritation.
 Skin Sens. 1 H317 May cause an allergic skin reaction.
 STOT SE 3 H335 May cause respiratory irritation.

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· 2.2 Label elements**· Labelling according to Regulation (EC) No 1272/2008***The substance is classified and labelled according to the CLP regulation.***· Hazard pictograms**

GHS07 GHS08

· Signal word *Danger***· Hazard-determining components of labelling:***Polymethylene polyphenyl isocyanate***· Hazard statements***H332 Harmful if inhaled.**H315 Causes skin irritation.**H319 Causes serious eye irritation.**H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.**H317 May cause an allergic skin reaction.**H351 Suspected of causing cancer.**H335 May cause respiratory irritation.**H373 May cause damage to organs through prolonged or repeated exposure.***· Precautionary statements***P201 Obtain special instructions before use.**P260 Do not breathe dust/fume/gas/mist/vapours/spray.**P280 Wear protective gloves/protective clothing/eye protection/face protection.**P302+P352 IF ON SKIN: Wash with plenty of water.**P304+P340 IF INHALED: Remove 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 contact lenses, if present and easy to do. Continue rinsing.**P308+P313 IF exposed or concerned: Get medical advice/attention.**P405 Store locked up.***· Additional information:***EUH204 Contains isocyanates. May produce an allergic reaction.**EUH210 Safety data sheet available on request.**Restricted to professional users.***· 2.3 Other hazards****· Results of PBT and vPvB assessment****· PBT:** Not applicable.**· vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· 3.1 Chemical characterisation: Substances**· CAS No. Description***9016-87-9 Polymethylene Polyphenyle isocyanate***· EC number:** 202-966-0

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SECTION 4: First aid measures· **4.1 Description of first aid measures**· **General information:***Immediately remove any clothing soiled by the product.**Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.*· **After inhalation:***Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.**In case of unconsciousness place patient stably in side position for transportation.*· **After skin contact:***Immediately wash with water and soap and rinse thoroughly.**If skin irritation continues, consult a doctor.*· **After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*· **After swallowing:***A person vomiting while laying on their back should be turned onto their side.**Do not induce vomiting; call for medical help immediately.*· **4.2 Most important symptoms and effects, both acute and delayed** *No further relevant information available.*· **4.3 Indication of any immediate medical attention and special treatment needed***No further relevant information available.***SECTION 5: Firefighting measures**· **5.1 Extinguishing media**· **Suitable extinguishing agents:***CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.**Use fire extinguishing methods suitable to surrounding conditions.*· **For safety reasons unsuitable extinguishing agents:** *Water with full jet*· **5.2 Special hazards arising from the substance or mixture***Carbon monoxide and carbon dioxide**Nitrogen oxides (NO_x)**(possible HCN)*· **5.3 Advice for firefighters**· **Protective equipment:***Wear self-contained respiratory protective device.**Do not inhale explosion gases or combustion gases.**Wear fully protective suit.***SECTION 6: Accidental release measures**· **6.1 Personal precautions, protective equipment and emergency procedures***Wear protective equipment. Keep unprotected persons away.**Ensure adequate ventilation*· **6.2 Environmental precautions:** *Do not allow to enter drains/ surface or ground water.*

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· 6.3 Methods and material for containment and cleaning up:

Dilute with plenty water.

Allow to solidify. Pick up mechanically.

Clean the affected area carefully; suitable cleaners are:

Clean with water and soap. If possible, also wash with polyethylene glycol 400.

Send for recovery or disposal in suitable receptacles.

Do not seal receptacles gas-tight.

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Dispose contaminated material as waste according to item 13.

· 6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

· 7.1 Precautions for safe handling

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Do not breathe vapour/aerosol.

· Information about fire - and explosion protection: No special measures required.

· 7.2 Conditions for safe storage, including any incompatibilities

· Storage:

· Requirements to be met by storerooms and receptacles: No special requirements.

· Information about storage in one common storage facility: Not required.

· Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacles.

Protect from humidity and water.

Store under lock and key and with access restricted to technical experts or their assistants only.

· Recommended storage temperature: +10 °C - +25 °C

· Storage class: 10

· 7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.

· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:

Polymethylene polyphenyl isocyanate

WEL Short-term value: 0.07 mg/m³

Long-term value: 0.02 mg/m³

Sen; as -NCO

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· **Additional Occupational Exposure Limit Values for possible hazards during processing:**

101-68-8 4,4'-methylenediphenyl diisocyanate

WEL Short-term value: 0.07 mg/m³
Long-term value: 0.02 mg/m³
Sen; as -NCO

5873-54-1 o-(p-isocyanatobenzyl)phenyl isocyanate

WEL Short-term value: 0.07 mg/m³
Long-term value: 0.02 mg/m³
Sen; as -NCO

2536-05-2 2,2'-methylenediphenyl diisocyanate

WEL Short-term value: 0.07 mg/m³
Long-term value: 0.02 mg/m³
Sen; as -NCO

103-71-9 phenyl isocyanate

WEL Short-term value: 0.07 mg/m³
Long-term value: 0.02 mg/m³
Sen; as -NCO

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

The usual precautionary measures are to be adhered to when handling chemicals.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Respiratory protection:**



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Recommended filter device for short term use:**

Combination filter A-P2

Filter A1

Filter A2

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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· **Material of gloves**

Butyl rubber, BR

Chloroprene rubber, CR

Recommended thickness of the material: ≥ 0.5 mm

Nitrile rubber, NBR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form:	Fluid
Colour:	Dark brown
Odour:	Nearly odourless

· **pH-value:** Undetermined.

· **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	>300 °C

· **Flash point:** > 200 °C

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 400 °C
>500 °C

· **Decomposition temperature:** Undetermined.

· **Self-igniting:** Not determined.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Vapour pressure at 25 °C:** 0.0002 hPa

Density at 20 °C:	1.24 g/cm ³
Evaporation rate	Not determined.

· **Solubility in / Miscibility with water:** Not miscible or difficult to mix.

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- **Partition coefficient (n-octanol/water):** Undetermined.
- **Viscosity:**
 Dynamic at 25 °C: 200 mPas
- **Solvent content:**
 Organic solvents: 0.0 %
 VOC (CE) 0.00 %
- **9.2 Other information** No further relevant information available.

SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** To avoid thermal decomposition do not overheat.
- **10.3 Possibility of hazardous reactions**
 Reacts with alcohols.
 Reacts with amines.
 Reacts with water.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity**
 Harmful if inhaled.

· **LD/LC50 values relevant for classification:**

Polymethylene polyphenyl isocyanate

Oral	LD50	>10000 mg/kg (rat) (OECD 401)
Dermal	LD50	>9400 mg/kg (rabbit) (OECD 402)

· **ATE (Acute toxicity estimates) - REGULATION (EC) No 1272/2008**

Polymethylene polyphenyl isocyanate

Inhalative	ATE (inhalativ 4h)	1.5 mg/l (rat)
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· **Primary irritant effect:**

· **Skin corrosion/irritation**

Polymethylene polyphenyl isocyanate

Irritation of skin	Dermal Irritation	irritating (rabbit) (OECD 404)
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Causes skin irritation.

· **Serious eye damage/irritation**

Polymethylene polyphenyl isocyanate

Irritation of eyes	Eye Irritation	irritating (rabbit) (OECD 405)
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- Causes serious eye irritation.
- **Respiratory or skin sensitisation**
No sensitising effects known.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
- **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity**
Suspected of causing cancer.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**
May cause respiratory irritation.
- **STOT-repeated exposure**
May cause damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

Polymethylene polyphenyl isocyanate

EC50/24h >1000 mg/l (Daphnia magna) (OECD 202)

LC50/96h >1000 mg/l (zebrafish (Brachydanio rerio)) (OECD 203)

· **12.2 Persistence and degradability** No further relevant information available.

· **Degree of elimination:**

Polymethylene polyphenyl isocyanate

Modified MITI Test 0 % / 28d (-) (OECD 302C)

· **12.3 Bioaccumulative potential** No further relevant information available.

· **12.4 Mobility in soil** No further relevant information available.

· **Ecotoxicological effects:**

· **Behaviour in sewage processing plants:**

Type of test	Effective concentration	Method	Assessment
Polymethylene polyphenyl isocyanate			
EC50/3h	>100 mg/l	(activated sludge)	(OECD 209)

Polymethylene polyphenyl isocyanate

EC50/3h >100 mg/l (activated sludge) (OECD 209)

· **Additional ecological information:**

· **General notes:**

Do not allow product to reach ground water, water course or sewage system.

Water hazard class 1 (Assessment by list): slightly hazardous for water.

· **12.5 Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **12.6 Other adverse effects** No further relevant information available.

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SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**

· **Recommendation**

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **European waste catalogue**

08 00 00	WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS
08 05 00	wastes not otherwise specified in 08
08 05 01*	waste isocyanates

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**

· **ADR, ADN, IMDG, IATA** Void

· **14.2 UN proper shipping name**

· **ADR, ADN, IMDG, IATA** Void

· **14.3 Transport hazard class(es)**

· **ADR, ADN, IMDG, IATA**

· **Class** Void

· **14.4 Packing group**

· **ADR, IMDG, IATA** Void

· **14.5 Environmental hazards:**

· **Marine pollutant:** No

· **14.6 Special precautions for user**

Not applicable.

· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

· **Transport/Additional information:**

Not dangerous according to the above specifications.

· **UN "Model Regulation":**

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SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **National regulations:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

· **Information about limitation of use:**

Employment restrictions concerning juveniles must be observed. (94/33/EC)

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Employment restrictions concerning pregnant and lactating women must be observed. (92/85/EC)

· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases** Irritating to skin.

· **Department issuing MSDS:** Laboratory

· **Contact:**

Dr. Amina Chnirheb

Amina.Chnirheb@forbo.com

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

VOC: Volatile Organic Compounds (USA, EU)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2: Serious eye damage/eye irritation, Hazard Category 2

Resp. Sens. 1: Sensitisation - Respirat., Hazard Category 1

Skin Sens. 1: Sensitisation - Skin, Hazard Category 1

Carc. 2: Carcinogenicity, Hazard Category 2

STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3

STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2

· *** Data compared to the previous version altered.**