

Material Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date 08.08.2007

Revision: 13.12.2006

1 Identification of substance

- **Product details**
- **Trade name** **Injection Resin PUR**
Rofaplast PUR Injection Resin
- **Article number:** 0946
- **Application of the substance / the preparation** Sealing
- **Manufacturer/Supplier:**
Remmers Baustofftechnik GmbH
Postfach 1255
D-49624 Lönningen / Germany
Tel.: 05432/83-0
Fax: 05432/3985
- **Informing department:**
Product Safety department: Tel.: +49 (0)5432/83-138/-538
E-Mail: sales@remmers.co.uk
- **Emergency information:**
during working hours:
U.K.: Tel.: +44 (0) 845 373 0103
Far East: Tel.: +65 (0) 67410277
Head Office Germany: Tel.: +49 (0)5432 83 185
after working hours: Tel.: +49 (0)171/6428-297

2 Hazards identification

- **Hazard designation:**



Xn Harmful

- **Information pertaining to particular dangers for man and environment**
R 20 Harmful by inhalation.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 42/43 May cause sensitisation by inhalation and skin contact.
Contains isocyanates. See information supplied by the manufacturer
- **Classification system**
The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information furnished by supplier companies.

3 Composition/information on ingredients

- **Chemical characterization**
- **Description:** Polyisocyanate-prepolymer on a diphenylmethan-diisocyanate base (solvent-free)

- **Dangerous components:**

CAS: 101-68-8	diphenylmethane-4,4'-di-isocyanate	Xn, Xi; R 20-36/37/38-42/43	40-<60%
EINECS: 202-966-0			

- **Additional information** For the wording of the listed risk phrases refer to section 16.

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4 First aid measures

- **General information** Immediately remove any clothing soiled by the product.
- **After inhalation**
Take affected persons into the open air and position comfortably
Seek medical treatment in case of complaints.
In case of unconsciousness bring patient into stable side position for transport.
- **After skin contact**
Remove product mechanically; wash thoroughly with plenty of soap and water.
If skin irritation continues, consult a doctor.
- **After eye contact** Rinse opened eye for several minutes under running water. Then consult doctor.
- **After swallowing** Call a doctor immediately.

5 Fire fighting measures

- **Suitable extinguishing agents**
Carbon dioxide
Foam
Fire-extinguishing powder
For larger fires also sprayed water.
- **Special hazards caused by the material, its products of combustion or flue gases:**
May be released in case of fire
Carbon monoxide (CO)
Nitrogen oxides (NO_x)
Isocyanate fumes
Under certain fire conditions, traces of other toxic gases cannot be excluded, e.g.:
Hydrogen cyanide (HCN)
- **Protective equipment:** Wear self-contained breathing apparatus.

6 Accidental release measures

- **Person-related safety precautions:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
- **Measures for environmental protection:**
Do not allow product to reach sewage system or water bodies.
Do not allow to enter the ground/soil.
- **Measures for cleaning/collecting:**
Remove mechanically: Cover remains with damp, liquid-binding material (e.g. sawdust, chemical binders on a calcium silicate-hydrate base, sand). After approx. 1 hour, take up and place in refuse container. Do not close (CO₂-development!) Keep damp and allow to stand in a safe place outdoors for several days.
Ensure adequate ventilation.
- **Additional information:** See Section 13 for information on disposal.

7 Handling and storage

- **Handling**
- **Information for safe handling:** Use only in well ventilated areas.
- **Information about protection against explosions and fires:** Keep breathing equipment ready.
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in cool location.
- **Information on storage in a common storage facility:**
Suitable material for containers and pipes: Light metals and their alloys.
- **Further information about storage conditions:**
Store cool and dry in tightly closed containers.

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Protect from frost.

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8 Exposure controls and personal protection

- **Additional information about design of technical systems:**

In workshops in which isocyanate aerosols and/or fumes can occur in higher concentrations, exceeding hygienic workplace limits must be prevented by deliberate air extraction. The air must be moved away from the persons.

- **Components with limit values that require monitoring at the workplace:**

101-68-8 diphenylmethane-4,4'-di-isocyanate

WEL	Short-term value: 0.07 mg/m ³ Long-term value: 0.02 mg/m ³
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- **Additional information:** The lists that were valid during compilation were used as a basis.

- **Personal protective equipment**

- **General protective and hygienic measures**

Keep away from food, beverages and animal feed.

Immediately remove soiled, saturated clothing.

Do not eat, drink or smoke while working.

Store protective clothing separately.

Wash hands before pauses and after work.

Use skin protection cream for preventive skin protection.

Avoid contact with eyes and skin.

Do not inhale gases / vapours / aerosols.

The handling of this product is not recommended for persons with respiratory system and skin hypersensitivity (asthma, chronic bronchitis, chronic skin disease).

- **Respiratory equipment:**

Not necessary if room is well-ventilated.

In case of a risk of inhaling, wear half-mask with combination filter for organic vapours and particles.

Short term filter device:

Filter A/P2.

- **Protection of hands:** Impervious gloves

- **Material of gloves**

Nitrile rubber, NBR

Chloroprene rubber, CR

- **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:**

Safety glasses

Face protection

- **Body protection:** Protective work clothing.

9 Physical and chemical properties:

- **General Information**

Form:	Fluid
Colour:	Yellowish
Odour:	Aromatic

- **Change in condition**

Melting point/Melting range: Not determined

Boiling point/Boiling range: ca. 230°C

- **Flash point:** ca. 214°C (DIN EN 22719ich mit Wasse)

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· Ignition temperature:	ca. 445°C (DIN 51794 ich mit Wasse)
· Self-inflammability:	Product is not self-igniting.
· Danger of explosion:	Product is not explosive.
· Vapour pressure at 20°C:	ca. 4 mbar (EG A 4 ich mit Wasse)
· Density at 20°C	ca. 1.02 g/cm ³ (DIN 51757 ich mit Wasse)
· Solubility in / Miscibility with Water:	unsolubly as resin; reacts s. Point 10
· Viscosity:	
dynamic at 25°C:	ca. 860 mPas
kinematic at 20°C:	> 100 s (DINISO2431/6ich mit Wasse)

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
No decomposition if handled and stored according to specifications.
- **Dangerous reactions**
Exothermic reaction with amines and alcohols.
With water carbon dioxide development, pressure build-up in closed containers.
Danger of bursting
- **Dangerous decomposition products:**
None if used properly.
None if stored properly.

11 Toxicological information

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

101-68-8 diphenylmethane-4,4'-di-isocyanate

Oral	LD50	> 15000 mg/kg (Ratte)
Inhalative	LC50/4 h	ca. 0.490 mg/l (Ratte)

- **Primary irritant effect:**
- **on the skin:** Irritates skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitisation:** Sensitisation possible by inhalation.
- **Other information (on experimental toxicology):**
Long-term inhalation study with polymer diphenylmethane-diisocyanate (PMDI) tested on mechanically produced breathable PMDI aerosols.
Aerodynamic diameter: 95% below 5 µm
Concentrations: 0.2; 1.0 and 6.0 mg/m³
Species: 120 rats each (60 female, 60 male)
Results after clinical and histopathological examination of the animals:
0,2 mg aerosol/m³: No irritation of respiratory tract and lungs
 "No effect level" (NOEL)
1.0 mg aerosol/m³: Slight irritation and inflammation of nose, respiratory tract and lungs, no lung tumors.
6.0 mg aerosol/m³: Stronger irritation and chronic inflammation of nose, respiratory tract and lungs. Accumulation of a yellow substance in the lungs. 8 benign tumor (not significant statistically) were found.
(statistically increased) and 1 malignant lung

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The in total increased occurrence of lung tumors exclusively in the group that was exposed to the highest concentrations is viewed in close connection with the chronic irritation and changes in the respiratory organs and the accumulation of yellow material in the lungs of the animals.

· **Additional toxicological information:**

The product shows the following dangers based on the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:

Harmful

Irritant

Special characteristics/effects of isocyanates:

In case of over-exposure - especially when spraying isocyanate based varnishes without protective measures - there is a danger of a concentration-dependent, irritating effect on eyes, nose, throat, and respiratory tract. The delayed appearance of symptoms and the development of hypersensitivity (trouble breathing, cough, asthma) are possible. For hypersensitive persons, reactions may be triggered by very low isocyanate concentrations, also below the TLV value. In case of prolonged contact with skin, tanning and irritating effects are possible.

· **Sensitisation** May cause sensitisation by inhalation and skin contact.

12 Ecological information:

· **General notes:**

Water hazard class 1 : slightly hazardous to water.

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

The product reacts with water at the interface while forming carbon dioxide to become a solid, high-melting and insoluble reaction product (polyurea). This reaction is strongly promoted by interface-active substances (e.g. liquid soaps) or water soluble solvents.

13 Notes on disposal:

· **Product:**

· **Recommendation**

Not hardened material must be disposed of as hazardous waste according to official regulations. Hardened product remains may be disposed of as building rubble or put into household garbage.

The given refuse codes are recommendations based upon the intended use of the product. Because of special use and disposal conditions at the user's, other codes may apply under other conditions.

· **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.

14 Transport information

· **Land transport ADR/RID and GGVs/GGVE (cross-border/domestic)**

· **ADR/RID-GGVs/E Class:** /

· **Maritime transport IMDG/GGVSea:**

· **IMDG/GGVSea Class:** /

· **Air transport ICAO-TI and IATA-DGR:**

· **ICAO/IATA Class:** /

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- **Transport/Additional information:** Not a hazardous good according to the above regulations.

15 Regulatory information

- **Designation according to EC guidelines:**

The product has been classified and labelled in accordance with EC Guidelines / Ordinance on Hazardous Materials (GefStoffV)

- **Code letter and hazard designation of product:**



Xn Harmful

- **Hazard-determining components of labelling:**

diphenylmethanediisocyanate, isomeres and homologues

- **Risk phrases:**

20 Harmful by inhalation.
36/37/38 Irritating to eyes, respiratory system and skin.
42/43 May cause sensitisation by inhalation and skin contact.

- **Safety phrases:**

2 Keep out of the reach of children.
26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
28 After contact with skin, wash immediately with plenty of soap and water.
38 In case of insufficient ventilation, wear suitable respiratory equipment.
45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

- **Special labelling of certain preparations:**

Contains isocyanates. See information supplied by the manufacturer

- **National regulations**

- **Ordinance on hazardous incidents (StfV):** - MDI: Appendix III, Part I (storage): 200,000 kg

- **Technical instructions (air):**

Class	Proportion in %
I	40-<60

- **Water hazard class:**

Water hazard class 1: slightly hazardous to water.
according to appendix 4 VwVwS

- **Other regulations, limitations and prohibition ordinances**

Classification according to TLV (MAK) list, section III B:
In the form of respirable aerosols as a material there is a well-founded suspicion of being potentially carcinogen.

- **Professional Association (BG) Code of Practice:** M 044 "Polyurethane production/isocyanates"

16 Other information:

This data is based on our present state of knowledge. However, it does not constitute a guarantee for any specific product features and does not establish a legally valid contractual relationship.
Delivery specifications are found in the respective Technical Information Sheets.

- **Relevant R-phrases**

20 Harmful by inhalation.
36/37/38 Irritating to eyes, respiratory system and skin.
42/43 May cause sensitisation by inhalation and skin contact.

- **Department issuing data specification sheet:** Product Safety department