

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

Printing date 01.10.2017

Version number 2

Revision: 01.10.2017

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

- **1.1 Product identifier**
- **Trade name: Polyurethane Casting Resin Slow Cure Part B**
- **Utilization of the substance of the formulation: polyurethane resin**
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application for the substance / the preparation polyurethane resin**
- **Uses advised against None**
- **1.3 Details of the supplier of the safety data sheet**
- **Supplier:**
DWR plastics
Broadway
Newport
Shropshire
TF10 7TP
Tel: +44 (0) 7576028547
- **Further information obtainable from: environment protection department**
- **1.4 Emergency telephone number:**
phone : + 44 (0) 117 9550448

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 allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

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



GHS07 GHS08

- **Signal word Danger**

- **Hazard determining components of labelling:**
4,4'-methylenediphenyl diisocyanate, oligomeric

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· **Hazard statements**

- H332 Harmful if inhaled.
- H315 Cause skin irritation.
- H319 Causes serious eye irritation.
- H317 May cause 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**

- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P284 [In case of inadequate ventilation] wear respiratory protection.
- P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P321 Specific treatment (see on this label).
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

The product does not contain any organic halogen compounds (AOX), nitrates, heavy metal compounds or formaldehydes.

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
- **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**

- **Description:** Mixture of substances listed below with nonhazardous additions.

Dangerous components:

CAS: 101-68-8	4,4'-methylenediphenyl diisocyanate. Oligomeric	50 -100 %
Reg.nr.: 01-2119457014-47	~ Resp. Sens. 1, H334; Carc. 2, H351; STOT RE 2, H373; ~ Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; Skin Sens. 1, H317; STOT SE 3, H335	

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

SECTION 4: First aid measures

· **4.1 Description of first aid measures**

· **General information:**

Immediately remove any clothing soiled by the product.

In case of irregular breathing or respiratory arrest provide artificial respiration. Involve doctor immediately.

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 and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

After

· **After swallowing:**

Do not induce vomiting; call for medical help immediately. Seek immediate medical advice.

If swallowed, rinse mouth with water (only if the person is conscious).

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- **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:** Extinguishing powder. Do not use water.
- **For safety reasons unsuitable extinguishing agents:** Water
- **5.2 Special hazards arising from the substance or mixture**
In case of fire, formation of carbon monoxide, nitrogen oxide, isocyanate vapour, and traces of hydrogen cyanide is possible. Fireman have to wear self-contained breathing apparatus. Do not let enter contaminated extinguishing water into the soil, groundwater or surface waters.
- **5.3 Advice for firefighters**
- **Protective equipment:**
Do not inhale explosion gases or combustion gases.
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Cool endangered receptacles with water spray.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**
Avoid contact with eyes and skin.
Wear protective equipment. Keep unprotected persons away.
Keep people at a distance and stay on the windward side.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **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**
The protective measures necessary when dealing with isocyanates must be observed. Avoid contact with skin and eyes and inhalation of vapors.
Open and handle receptacle with care.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about fire - and explosion protection:**
Protect against electrostatic charges.
Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Keep container tightly closed and dry and storage in a good ventilated room.
Storage temperature: 15 - 25 °C.

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- **Information about storage in one common storage facility:**
Store away from foodstuffs.
Store away from water.
- **Further information about storage conditions:**
Protect from humidity and water. Protect from frost.
Keep container tightly sealed.
- **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:**

25686-28-6 4,4'- methylenediphenyl diisocyanate, oligomeric

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 valid during the making were used as basis.
- **8.2 Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
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:**
Full-contained breathing apparatus with a gas mask. The respirators used for protection can be used with Type A filter against organic vapors, where powder or aerosol is present at least with the A / P2 filter.
In case of hypersensitivity of the respiratory tract and skin (asthma, chronic bronchitis, chronic skin disease) is inadvisable to work with the product. Symptoms in the respiratory tract can also occur several hours after overexposure.
- **Protection of hands:**
Preventive skin protection (3-point program) required



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

- **Material of gloves**

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**

Suitable materials for protective gloves, EN 374-3:

Polychloroprene - CR: thickness > = 0.5 mm, breakthrough time > = 480 min.

NBR - NBR: thickness > = 0,35 mm, Breakthrough time > = 480 min.

Butyl rubber - IIR: thickness > = 0.5 mm, breakthrough time > = 480 min.

Fluorine rubber - FKM: thickness > = 0.4 mm; breakthrough time > = 480 min.

Recommendation: Dispose of contaminated gloves ..

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

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· 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:	Yellow
Odour:	Characteristic
Odour threshold:	Not determined.

· pH-value: <7 (ISO 8975)

· Change in condition

Melting point/Melting range:	15 °C
Boiling point/Boiling range:	230 °C

· Flash point: 141 °C

· Flammability (solid, gaseous): Not applicable.

· Ignition temperature: 450 °C

· Decomposition temperature: Not determined.

· Self-igniting: Product is not selfigniting.

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

· Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

· Vapour pressure at 25 °C: 0,0002 hPa

Density at 20 °C:	1,43 g/cm ³ Not determined.
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.

· Solubility in / Miscibility with water:

Insoluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity:

Dynamic at 20 °C:	35 mPas (ISO 9371)
Kinematic:	Not determined.

· Solvent content:

Organic solvents:	0,0 %
9.2 Other information	No further relevant information available.

SECTION 10: Stability and reactivity

· 10.1 Reactivity No further relevant information available.

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- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**
Exothermic reaction with amines and alcohols; reacts with water forming CO₂, in closed containers risk of bursting owing to increase of pressure.
- **10.4 Conditions to avoid** Heat, flames and sparks.
- **10.5 Incompatible materials:**
water , alcohol , amine , base and acid
Incompatible with oxidizing agents, acids
- **10.6 Hazardous decomposition products:** Hydrogen cyanide (prussic acid)

SECTION 11: Toxicological information

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

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

25686-28-6 4,4'- methylenediphenyl diisocyanate. oligomeric

Oral	LD50	> 2000 mg/kg (Rat)
Dermal	LD50	>9400 mg/kg (Ka)

Primary irritant effect:

- **Skin corrosion/irritation**
Causes skin irritation.
- **Serious eye damage/irritation**
Causes serious eye irritation.
- **Respiratory or skin sensitisation**
May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
- **CMR effects (carcinogenicity, 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:**

25686-28-6 4,4'- methylenediphenyl diisocyanate. oligomeric

LC50 (96 h)	> 1000 mg/l (Brachydanio Reio)
	>1000mg/l (Danio Rerio)
EC50 (72 h)	>100 mg/l (B)
	>1000 mg/l (D)

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EC50 (24h)	>1000 mg/l (Daphnia Magna)
EC50(3h)	>100 mg/l (sludge)

- **12.2 Persistence and degradability** No further relevant information available.
- **Other information:** Elimination by adsorption onto activated sludge
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**
Must be specially treated adhering to official regulations.
Do not allow product to reach sewage system. Do not empty into drains.
In an appropriate facility or burn in an approved landfill
Dispose. All applicable local and national or regional rules.
- **European waste catalogue** 08 05 01* Isocyanate

- **Uncleaned packaging:**
- **Recommendation:**

Disposal 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

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· 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.
· UN "Model Regulation":	Void

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Danger
- **Hazard-determining components of labelling:**
4,4'-diphenyl-methane diisocyanate. oligomeric
- **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**
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P284 [In case of inadequate ventilation] wear respiratory protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321 Specific treatment (see on this label).
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.
- **National regulations:**
- **Waterhazard class:** Water hazard class 1 (VwVwS 17.05.99): slightly hazardous for water.
- **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**
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

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*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.*

· **Department issuing MSDS:** environment protection department

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

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 ELINCS:

European List of Notified Chemical Substances

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

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

GB