

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

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

- **1.1 Product identifier**
 - **Trade name:** Typ II
 - **CAS Number:**
9016-87-9
 - **EC number:**
618-498-9
 - **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:**
Vosschemie GmbH
Esinger Steinweg 50
D-25436 Uetersen
Phone: +49 (0)4122 717 0; Fax: +49 (0)4122 717158; info@vosschemie.de
 - **Further information obtainable from:**
Abteilung Labor / +49 (0)4122 717 0
s.schaller@vosschemie.de
 - **1.4 Emergency telephone number:**
Giftinformationszentrum (GIZ)-Nord, Goettingen, Deutschland
Phone: +49 (0)551 19240
-

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.

(Contd. on page 2)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 1)

Carc. 2 H351 Suspected of causing cancer.

STOT RE 2 H373 May cause damage to the lung through prolonged or repeated exposure. Route of exposure: Inhalation.



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.

· **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:**

EINECS-Nr.

618-498-9

diphenylmethanediisocyanate, isomeres and homologues

· **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 the lung through prolonged or repeated exposure. Route of exposure: Inhalation.

· **Precautionary statements**

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read label before use.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P285 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.

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

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

GB

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 2)

· Additional information:

Persons already sensitised to diisocyanates may develop allergic reactions when using this product.

Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.

This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.

Contains isocyanates. May produce an allergic reaction.

· 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 diphenylmethanediisocyanate, isomeres and homologues

· Identification number(s)**· EC number:** 618-498-9**SECTION 4: First aid measures****· 4.1 Description of first aid measures****· General information:**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Personal protection for the First Aider.

Take affected persons out of danger area and lay down.

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

Immediately remove any clothing soiled by the product.

· After inhalation:

Supply fresh air or oxygen; call for doctor.

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:**

Do not induce vomiting; call for medical help immediately.

Rinse out mouth and then drink plenty of water.

· 4.2 Most important symptoms and effects, both acute and delayed

Breathing difficulty

Coughing

· 4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

GB

(Contd. on page 4)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 3)

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.
Violent reaction with water at higher temperatures.
- **5.2 Special hazards arising from the substance or mixture**
Formation of toxic gases is possible during heating or in case of fire.
Carbon monoxide and carbon dioxide
Nitrogen oxides (NO_x)
Hydrogen cyanide (HCN)
- **5.3 Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.
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**
Particular danger of slipping on leaked/spilled product.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Do not inhale gases / fumes / aerosols.
Use respiratory protective device against the effects of fumes/dust/aerosol.
Avoid contact with the eyes and skin.
- **6.2 Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
- **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Pls. refer to section 10
Do not seal receptacle gas tight.
Danger of bursting.
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**
Open and handle receptacle with care.
Avoid contact with the eyes and skin.
Do not inhale gases / fumes / aerosols.
Use respiratory protective device against the effects of fumes/dust/aerosol.

(Contd. on page 5)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 4)

- Ensure good ventilation/exhaustion at the workplace.
- Prevent formation of aerosols.
- **Information about fire - and explosion protection:** 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:** Store only in the original receptacle.
- **Information about storage in one common storage facility:**
Store away from water.
Do not store together with acids.
Do not store together with alkalis (caustic solutions).
Store away from oxidising agents.
Pls. refer to section 10
Keep away from foodstuffs, beverages and feed.
- **Further information about storage conditions:**
Store receptacle in a well ventilated area.
Store in cool, dry conditions in well sealed receptacles.
Do not seal receptacle gas tight.
Protect from humidity and water.
Protect from frost.
Protect from heat and direct sunlight.
- **Recommended storage temperature:** +15 °C - +25 °C
- **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:**

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

WEL (Great Britain)	Short-term value: 0.07 mg/m ³ Long-term value: 0.02 mg/m ³ Sen; as -NCO
---------------------	---

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

WEL (Great Britain)	Short-term value: 0.07 mg/m ³ Long-term value: 0.02 mg/m ³ Sen; as -NCO
---------------------	---

· **DNELs**

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

Oral	Long-term exposure - systemic effects	0.5 mg/kg bw/day (general population)
Dermal	Long-term exposure - systemic effects	0.5 mg/kg bw/day (general population) 1 mg/kg bw/day (worker)
Inhalative	Long-term exposure - systemic effects	1.8 mg/m ³ (general population) 7.28 mg/m ³ (worker)

· **PNECs**

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

PNEC aqua	0.1 mg/l (freshwater)
-----------	-----------------------

(Contd. on page 6)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 5)

	0.01 mg/l (marine water)
	1 mg/l (intermittent releases)
PNEC sediment	8.2 mg/kg (freshwater)
	0.82 mg/kg (marine water)
PNEC STP	100 mg/l
PNEC soil	1.58 mg/kg (soil dw)

· **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.

Do not eat, drink, smoke or sniff while working.

Wash hands before breaks and at the end of work.

Immediately remove all soiled and contaminated clothing

Store protective clothing separately.

Avoid contact with the eyes and skin.

Use skin protection cream for skin protection.

Do not inhale gases / fumes / aerosols.

· **Respiratory protection:**

Adhere to the workplace limit values and / or other threshold values.

Use respiratory protective device against the effects of fumes/dust/aerosol.

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.

DIN EN 14387

Filter A/P2

· **Protection of hands:**

Check the permeability prior to each renewed use of the glove.

Preventive skin protection by use of skin-protecting agents is recommended.



Protective gloves

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

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

· **Material of gloves**

DIN EN 374

Butyl rubber, BR

Recommended thickness of the material: ≥ 0.7 mm

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.4 mm

Chloroprene rubber, CR

Recommended thickness of the material: ≥ 0.5 mm

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**

Value for the permeation: Level ≤ 6 (≥ 480 min.)

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

· **Not suitable are gloves made of the following materials:** PVC or PE gloves

(Contd. on page 7)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 6)

· 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:	Brown
Odour:	Characteristic
Odour threshold:	Not applicable

· pH-value: Not applicable

· Change in condition

Melting point/freezing point:	< 10 °C
Initial boiling point and boiling range:	> 300 °C

· Flash point: > 200 °C

· Flammability (solid, gas): Product is not flammable.

· Ignition temperature: > 600 °C

· Decomposition temperature: > 230 °C

· Auto-ignition temperature: Product is not selfigniting.

· Explosive properties: Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomised.

· Vapour pressure at 25 °C: < 0.01 Pa

Density at 25 °C:	1.23 g/cm ³
Relative density at 20 °C	~ 1.22 g/cm ³
Vapour density	Not determined.

· Solubility in / Miscibility with water: Hydrolised.

· Partition coefficient: n-octanol/water: Not applicable

· Viscosity:

Dynamic at 25 °C:	~ 210 mPas
Kinematic:	Not determined.

· 9.2 Other information: No further relevant information available.

SECTION 10: Stability and reactivity

· 10.1 Reactivity: No decomposition if used according to specifications.

· 10.2 Chemical stability: No decomposition if used and stored according to specifications.

(Contd. on page 8)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 7)

· 10.3 Possibility of hazardous reactions

Reacts with numerous chemical compounds, especially those with mobile hydrogen atoms.

Reacts with alcohols, amines, aqueous acids and alkalis.

Reacts with water.

Do not seal receptacle gas tight.

Danger of bursting.

· 10.4 Conditions to avoid

To avoid thermal decomposition do not overheat.

Protect from humidity and water.

< 15 °C

· 10.5 Incompatible materials:

Reacts with water.

Reacts with alcohols, amines, aqueous acids and alkalis.

· 10.6 Hazardous decomposition products:

Formation of toxic gases is possible during heating or in case of fire.

SECTION 11: Toxicological information**· 11.1 Information on toxicological effects****· Acute toxicity**

Harmful if inhaled.

· LD/LC50 values relevant for classification:

Oral	LD50	> 10000 mg/kg (rat)
Dermal	LD50	> 10000 mg/kg (rabbit)
Inhalative	LC50 /4h	~ 0.493 mg/l (rat)

9016-87-9 diphenylmethanediiisocyanate, isomeres and homologues

Oral	LD 50	> 10000 mg/kg (rat) (OECD 401)
Dermal	LD 50	> 9400 mg/kg (rabbit) (OECD 402)
Inhalative	LC50 /4h	1.5 mg/l (rat) (expert assessment, Dust/Mist)
	LC50 /4h	310 mg/m ³ (rat) (OECD-403, Aerosol)

· Primary irritant effect:**· Skin corrosion/irritation**

Causes skin irritation.

· Serious eye damage/irritation

Causes serious eye irritation.

· Subacute to chronic toxicity:**9016-87-9 diphenylmethanediiisocyanate, isomeres and homologues**

Inhalative	LOAEL	1 mg/m ³ (rat) (OECD 453, 2 a, 6h/day, Aerosol)
	NOAEL	0.2 mg/m ³ (rat) (OECD 453, 2 a, 6h/day, Aerosol)

· Additional toxicological information: Irritating to respiratory system.**· Sensitisation**

May cause an allergic skin reaction.

Sensitisation possible through inhalation.

Sensitisation possible through skin contact.

(Contd. on page 9)

-GB-

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 8)

· **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

· **Carcinogenicity**

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

Inhalative	LOAEL (carcinogenicity)	6 mg/m ³ (rat) (OECD 453, 2a, 6h/day, Aerosol)
------------	-------------------------	---

· **Reproductive toxicity/Fertility** No further relevant information available.

· **Reproductive toxicity/Teratogenicity**

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

Inhalative	NOAEL (developmental toxicity)	0.004 mg/l (rat) (OECD 414, 20d, 6h/day, Aerosol)
	NOAEL (teratogenicity)	0.012 mg/l (rat) (OECD 414, 20d, 6h/day, Aerosol)
	NOAEL (maternally)	0.004 mg/l (rat) (OECD 414, 20d, 6h/day, Aerosol)

· **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 the lung through prolonged or repeated exposure. Route of exposure: Inhalation.

· **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**

EC0	> 500 mg/l (daphnia) (24h)
EC0/72h	1640 mg/l (scenedesmus subspicatus)
LC0/96h	> 1000 mg/l (piscis)

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

EC50	> 1000 mg/l (daphnia magna) (24h, OECD 202)
EC50/72h	> 1640 mg/l (scenedesmus subspicatus) (OECD-201)
EC50/3h	> 100 mg/l (activated slugde) (OECD 209)
LC50/96h (static)	> 1000 mg/l (danio rerio) (OECD 203)
NOEC	> 10 mg/l (daphnia magna) (21 d, OECD 202)

· **12.2 Persistence and degradability**

Based on previous experience, this product is inert and non-degradable.

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

BSB	<10 % (activated slugde) (OECD 302 C)
Biodegradation	0 % (activated slugde) (28d, OECD 302 C)

· **12.3 Bioaccumulative potential**

9016-87-9 diphenylmethanediisocyanate, isomeres and homologues

BCF	< 14 (Cyprinus carpio) (OECD 305 C, 42 d)
-----	---

· **Behaviour in environmental systems:**

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

(Contd. on page 10)

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 9)

- **Additional ecological information:**
- **General notes:** Do not allow product 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 not be disposed together with household garbage. Do not allow product to reach sewage system. Disposal must be made according to official regulations.
- **Waste disposal key:**
The waste codes given above are to be considered recommendations; because of regional and industrial sector specific features, application of different waste codes is possible.

· European waste catalogue

07 02 08*	other still bottoms and reaction residues
-----------	---

- **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: | Not applicable. |
| · 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. |

SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** Substance is not listed.

(Contd. on page 11)

GB

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

Printing date 21.04.2017

V - 4

Revision: 21.04.2017

Trade name: Typ II

(Contd. of page 10)

- **REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3**
- **National regulations:**
- **Information about limitation of use:**
Employment restrictions concerning juveniles must be observed.
Employment restrictions concerning pregnant and lactating women must be observed.
- **Other regulations, limitations and prohibitive regulations**
Adhere to the Ordinances on the Prohibition of Certain Chemicals.
- **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.

- **Department issuing SDS:** Abteilung Labor
- **Contact:** Frau S. Schaller
- **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
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
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 – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
Carc. 2: Carcinogenicity – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
- *** Data compared to the previous version altered.**

GB