RESICHEM CC
SUPERIOR URETHANE FOAM SYSTEMS

3 Detroit Street, Apex, Benoni
P.O. Box 131118, Northmead, 1511
Tel: (011) 421 0313
Fax: (011) 421 0410
www.rigifoam.com

POLYURETHANES

SAFETY DATA SHEET – RESINATE 200

1. Identification of the substance / preparation and the company

RESINATE 200

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3 Detroit Street, Apex, Benoni
In case of an emergency call +27(0)114210313 or +27(0)83 280 3577

2. Composition / information on ingredients

diphenylmethane−diisocyanate, isomers and homologues
weight %: approx. 100
CAS No.: 9016−87−9 Index No.: −−
EEC No.: −−
Classification: Xn R20; Xi R36/37/38; R42/43
Specific threshold concentration
Xn ; R 42 = from 0,1 %
Xn ; R 42/43 = from 1 %
Xn ; R 36/37/38−42/43 = from 5 %
Xn ; R 20−36/37/38−42/43 = from 25 %

3. Hazards identification

Harmful by inhalation. Irritating to eyes, respiratory system and skin. May cause sensitization by inhalation and skin contact.
For their own protection, persons who suffer from hypersensitivity of the respiratory tract (e.g. asthmatics and chronic bronchitis sufferers) should avoid handling this product. Symptoms affecting the respiratory tract can also occur several hours after overexposure. Vapours and aerosols are the primary risk to the respiratory tract.

4. First Aid Measures

General: Soiled, soaked clothing and shoes must be immediately removed, decontaminated and disposed of.
If aerosol or vapour is inhaled in high concentrations: Take the person into the fresh air and keep him warm, let him rest; if there is difficulty in breathing, medical advice is required.
After skin contact: In the event of contact with the skin, preferably wash with a cleanser based on polyethylene glycol or with plenty of warm water and soap. Consult a doctor in the event of a skin reaction.
After eye contact: Hold the eyes open and rinse with preferably lukewarm water for a sufficiently long period of time (at least 10 minutes). Contact an ophthalmologist.
After swallowing:
DO NOT induce the patient to vomit, medical advice is required.
Information for the physician:
The product irritates the respiratory tract and may trigger sensitisation of the skin and respiratory tract.
Treatment of acute irritation or bronchial constriction is primarily symptomatic. Extended medical care may be necessary, depending on the extent of the exposure and the symptoms.

5. Fire-Fighting measures

Extinguishing media: CO2, foam, dry powder;
in cases of larger fires, water spray should be used.

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In case of fire, formation of carbon monoxide, nitrogen oxide, isocyanate vapour, and traces of hydrogen cyanide is possible. Firemen have to wear self−contained breathing apparatus. Do not let enter contaminated extinguishing water into the soil, groundwater or surface waters.
Fire in vicinity poses risk of pressure build−up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area.

6. Accidental release measures

Put on protective equipment (see chapter 8). Ensure adequate ventilation/exhaust ventilation. Keep unauthorized persons away. Do not empty into drains. Remove mechanically; cover remainders with wet, absorbent material (e.g. sawdust, chemical binder based on calcium silicate hydrate, sand). After approx. one hour transfer to waste container and do not seal (evolution of CO2!). Keep damp in a safe ventilated area for several days.
For further disposal measures see chapter 13.

7. Handling and storage

Handling: Ensure adequate ventilation or exhaust ventilation in the working area. The personal protective measures described in Chapter 8 must be observed. The threshold limit values noted in Chapter 8 must be monitored.
Avoid contact with skin and eyes.
In all workplaces or parts of the plant where high concentrations of isocyanate aerosols and/or vapors may be generated (e.g. during pressure release, mold venting or when cleaning mixing heads with an air blast), appropriately located exhaust ventilation must be provided in order to prevent occupational exposure limits from being exceeded. The air should be drawn away from the personnel handling the product and the efficiency of the exhaust equipment should be periodically checked.
Storage: Keep container tightly closed and dry.
Prevent cooling below 10 °C and heating above 40 °C.
Can be warmed briefly to 50 °C.
Further specific information see our :"Technical Information"

8. Exposure controls / Personal protection

Protection of workers −
Threshold value in air defined by TRGS 900 (MAK value):
diphenylmethane−4,4'−diisocyanate (sum of vapours and aerosols)
CAS No.: 101−68−8 0,005 ml/m³ (ppm) corresponding to 0,05 mg/m³
(eight hours average value)
maximum limit of excess factor 1
Remark: DFG, 29, 36
Attention is drawn to the relevant BAT value (TRGS 903).
Exposition assessment value (EBW) per TGRS 430:
Polyisocyanate content (MDI oligomers and/or prepolymers): 57 %
Use an exposition assessment value of 0,05 mg/m³.
The product may contain traces of phenylisocyanate.

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Protection of workers –
Threshold value in air defined by TRGS 900 (MAK value):
phenylisocyanate 0,01 ml/m³ (ppm) corresp. to 0,05 mg/m³
CAS No.: 103−71−9 (eight hours average value)
maximum limit of excess factor 1
Remarks: ARW, 36
Respiratory protection:
Required at inadequately ventilated workplaces. If product is sprayed, wear air−fed mask or (for short periods only) a combination of charcoal filter and particulate filter mask (German type A2−P2).
Hand protection:
Suitable materials for safety gloves; DIN EN 374−3:
Polychloroprene − CR: thickness >=0,5mm; breakthrough time >=480min.
Nitrile rubber − NBR: thickness >=0,35mm; breakthrough time >=480min.
Butyl rubber − IIR: thickness >=0,5mm; breakthrough time >=480min.
Fluorinated rubber − FKM: thickness >=0,4mm; breakthrough time >=480min.
Polyvinyl chloride − PVC: thickness >=0,5mm; breakthrough time >=480min.
Recommendation: contaminated gloves should be disposed of.
Eye protection: Wear eye/face protection.
Body protection: Wear suitable protective clothing.
Protection and hygienic measures: Keep away from foodstuffs, drinks and tobacco. Wash hands before breaks and at end of work. Store work clothes and street clothes separately. Decontaminate, destroy and dispose of soiled
protective clothing
(see Section 13)
Safety precautions for handling freshly molded polyurethane parts: see
section 16

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9. Physical and chemical properties

Form: liquid
Colour: brown
Odour: earthy, musty
Pour point: < 0 °C DIN ISO 3016
Initial boiling point: > 300 °C at 1013 hPa
Density: approx. 1,23 g/cm³ at 20 °C DIN 51757
Vapour pressure: 1 hPa at 20 °C
12 hPa at 50 °C
diphenyl−methane−diisocyanate < 0,00001 mbar at 20 °C
Viscosity: approx. 200 mPa•s at 20 °C DIN 53019
Solubility in water: insoluble, reacts
pH value: not applicable
Flash point: > 200 °C DIN EN 22719
Ignition temperature: > 400 °C DIN 51794
Explosive limits: Limits not determined.

10. Stability and reactivity

Thermal decomposition: Polymerises at about 200 °C with evolution of CO2.
Hazardous decomposition products: No hazardous decomposition products when stored and handled correctly.
Hazardous reactions:
Exothermic reaction with amines and alcohols; reacts with water forming
CO2, in closed containers risk of bursting owing to increase of pressure.
Hazardous reactions: No hazardous reaction when used as directed.

11. Toxicological Information

data on diphenylmethane−diisocyanate, isomers and homologues
Acute toxicity:
LD50 oral, rat (female): >15000 mg/kg
LC50 inhalation, rat: 370 mg as aerosol/m³, 4,0 h of exposure.
Concentration of the saturated vapour of Diphenylmethane−4,4'−di−isocyanate
(MDI) at 25 °C: 0,09 mg/m³
Effect on the eyes: irritant
Effect on the skin: irritant
Effect on the respiratory tract: irritant
Long−term inhalation study of tech. diphenylmethane diisocyanate (PMDI)
carried out using mechanically produced, inhalable PMDI aerosols.
Aerodynamic diameter: 95 % below 5 µm
Concentrations: 0,2 ; 1,0 and 6,0 mg/m³
Animal groups: 120 rats in each (60 female, 60 male) Results after clinical
and histopathological examination of the animals:
0,2 mg aerosols/m³: No irritation of the respiratory tract or lungs −

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"no effect level" (NOEL).
1,0 mg aerosols/m³: Slight irritation of and inflammatory changes to the nose, respiratory tract and lungs. No lung tumours.
6,0 mg aerosols/m³: More severe irritation of and chronic inflammatory changes to the nose, respiratory tract and lungs.
Accumulation of a yellow substance in the lungs.
8 benign (statistically increased) and 1 malignant (statistically insignificant) lung tumours were found.
The overall increased incidence of lung tumours only in the group which received the highest concentration is closely attributed to the chronic irritation of and the inflammatory changes to the respiratory organs and to the accumulation of the yellow substance in the lungs of the animals.
preparation − Irritating/corrosive effects:
Effect on the eyes: Causes slight temporary reddening and swelling of the conjunctiva and slight reversible clouding of the cornea. In high concentrations vapour of product has irritating effects on eyes and mucous membranes.
Effect on the skin: Irritant. In case of longer contact with skin, tanning and irritating effects are possible.
Effect on the respiratory tract: In high concentrations vapour of product has irritating effects on eyes and mucous membranes.
Special properties/effects:
Experience on humans: Irritation of the mucous membranes in the nose, throat and lungs, dryness of the throat, pressure on the chest, sometimes accompanied by breathing difficulties and headaches. Delayed appearance of the symptoms and allergic reaction in susceptible persons possible.
Sensitisation: May cause sensitization by inhalation.
Dermal sensitisation: not evaluable since experimental results are contradictory.

12. Ecological Information

Do not allow to escape into waters, wastewater or soil.
Behaviour in open waters: Immiscible in water.
Reacts with water at the interface producing CO2 and forming a solid and insoluble product with high melting point (polyurea). This reaction is accelerated by surfactants (e.g. detergents) or by water soluble solvents.
Previous experience shows that polyurea is inert and non−degradable.
data on diphenylmethane−diisocyanate, isomers and homologues
Biodegradability: 0 %, i.e. not degradable.
Degradation rate in 28 days.
(Method: respirometer test)
Acute fish toxicity: LC0 = >1000 mg/l
Test species: Brachydanio rerio (Zebra barbel) Duration of test: 96 h
Acute bacteria toxicity: EC50 = >100 mg/l
Tested on activated sludge microorganism. Duration of test: 3 h
Acute toxicity for daphnia: EC50 = >1000 mg/l
Test species: Daphnia magna Duration of test: 24 h.

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13. Disposal considerations

Waste: May be transported to controlled incinerator if local official regulations are observed.

14. Transport Information

GGVSE: –– UN: NODG PG: ––
RID/ADR: –– UN: NODG PG: ––
ADNR: –– UN: NODG PG: ––
GGVSee/IMDG Code: –– UN: NODG PG: –– MPO: ––
ICAO–TI/IATA–DGR: –– UN: NRES PG: ––
Declaration for land shipment: ––
Declaration for sea shipment: ––
Declaration for shipment by air: ––
Other information:
Not dangerous cargo. Irritating to skin and eyes. Avoid temperatures below +10 °C. Avoid heat above +50 °C. Keep dry. Keep away from foodstuffs, acids and alkalis.

15. Regulatory Information

Labelling in accordance with Annex I of directive 67/548/EEC and its amendments and adaptations:
Symbol: Xn, hazard description: harmful
Contains: diphenylmethane–diisocyanate, isomers and homologues
R 20: Harmful by inhalation.
R 36/37/38: Irritating to eyes, respiratory system and skin.
R 42/43: May cause sensitization by inhalation and skin contact.
S 23: Do not breathe vapour/spray.
S 36/37: Wear suitable protective clothing and gloves.
S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
TRGS 905–classification:
Tech. ("polymer") MDI (pMDI) CAS No.: 9016–87–9 (in the form of respirable aerosols, measured as the alveolar aerosol content) cancerogenic, category 3
Any existing national regulations on the handling of isocyanates must be observed.
Swiss law of poison: class of poison 3; BAG–T–No. 614463.Not dangerous cargo. Irritating to skin and eyes. Avoid temperatures below +10 °C. Avoid heat above +50 °C. Keep dry. Keep away from foodstuffs, acids and alkalis.

16. Other Information

Text of all R phrases referred to in sections 2 and 3:
R 20: Harmful by inhalation.
R 36/37/38: Irritating to eyes, respiratory system and skin.
R 42/43: May cause sensitization by inhalation and skin contact.
For internal US delivery:

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Under § 172.101,Appendix A,DOT (Department of Transportation) it is requested: MDI Reportable Quantity (RQ):5000lbs (2270kg).
ISOPA Guidelines for safe loading/unloading, transport and storage of TDI and MDI.
ISOPA Order No.: PSC−0005−GUIDL
Safety precautions for handling freshly molded polyurethane parts:
Depending on the production parameters, any uncovered surfaces of polyurethane moldings produced using this raw material may contain traces of substances (e. g. starting and reaction products, catalysts, release agents) with hazardous characteristics.
Skin contact with traces of these substances must be avoided. When demolding or otherwise handling freshly molded polyurethane parts, protective textile gloves must be worn as a minimum. Their palm and finger areas should preferably be coated on the outside with nitrile rubber, PVC or polyurethane. Protective gloves should be changed daily. The wearing of
protective clothing suited to the conditions normally encountered when handling freshly molded polyurethane parts is recommended.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the product's properties.

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