

SAFETY DATA SHEET
RASCOflex US409 B-Comp
According to WHMIS 2015

1. Identification**Product identifier**

Product name RASCOflex US409 B-Comp

Recommended use of the chemical and restrictions on use

Application Semi-flexible silicate polyurethane Injection Resin

Details of the supplier of the safety data sheet

Supplier **Rascor Construction Chemicals GmbH**, Ratsgasse 6, 97688 Bad Kissingen, Germany
Phone: +49 (0) 971 130 2738, Fax: +49 (0) 971 133 6251

Rascor International AG, Gewerbestrasse 4, 8162 Steinmaur, Switzerland
Phone: +41 (0) 44-857 11 11, Fax: +41 (0) 44-857 11 00

Emergency telephone number

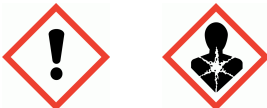
Emergency telephone Phone: +41 (0) 44-857 11 11 (8.00h - 17.00h)

2. Hazard(s) identification**Classification of the substance or mixture**

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 Resp. Sens. 1 - H334 Skin Sens.
1 - H317 Carc. 2 - H351 STOT SE 3 - H335 STOT RE 2 - H373

Environmental hazards Not Classified

Label elements**Pictogram**

Signal word

Danger

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Hazard statements

H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 H319 Causes serious eye irritation.
 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.

Precautionary statements

P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P284 [In case of inadequate ventilation] wear respiratory protection.
 P302+P352 If on skin: Wash with plenty of water.
 P304+P340 If inhaled: Remove person to fresh air and keep 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.

Isocyanic acid, polymethylenepolyphenylene ester, Diphenylmethane 4,4' - diisocyanate
 EUH204: Contains isocyanates. May produce an allergic reaction.

Contains

3. Composition/information on ingredients

Mixtures

Isocyanic acid, polymethylenepolyphenylene ester

60-100%

CAS number: 9016-87-9

Classification

Acute Tox. 4 - H332
 Skin Irrit. 2 - H315
 Eye Irrit. 2A - H319
 Resp. Sens. 1 - H334
 Skin Sens. 1 - H317
 Carc. 2 - H351
 STOT SE 3 - H335
 STOT RE 2 - H373

Diphenylmethane 4,4' - diisocyanate

30-60%

CAS number: 101-68-8

Classification

Acute Tox. 4 - H332
 Skin Irrit. 2 - H315
 Eye Irrit. 2A - H319
 Resp. Sens. 1 - H334
 Skin Sens. 1 - H317
 Carc. 2 - H351
 STOT SE 3 - H335
 STOT RE 2 - H373

The full text for all hazard statements is displayed in Section 16.

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4. First-aid measures

Description of first aid measures

General information	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Get medical attention. Treat symptomatically.
Inhalation	IF INHALED: Get medical attention immediately. Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Do not induce vomiting.
Ingestion	IF SWALLOWED: Get medical attention immediately. If throat irritation or coughing persists, proceed as follows. Rinse mouth thoroughly with water. Promptly get affected person to drink large volumes of water to dilute the swallowed chemical. Stop if the affected person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
Skin Contact	IF ON SKIN: Rinse immediately with plenty of water. Continue to rinse for at least 10 minutes. Get medical attention if irritation persists after washing. Remove contaminated clothing.
Eye contact	IF IN EYES: Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention. Get medical attention if irritation persists after washing.
Protection of first aiders	First aid personnel should wear appropriate protective equipment during any rescue.

Most important symptoms and effects, both acute and delayed

General information	Treat symptomatically. See Section 11 for additional information on health hazards.
Inhalation	May cause sensitisation by inhalation. The liquid may be irritating to eyes, respiratory system and skin. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Development of symptoms may be delayed for 24 to 48 hours.
Ingestion	Gastrointestinal symptoms, including upset stomach.
Skin contact	May cause skin irritation. May cause sensitization or allergic reactions in sensitive individuals.
Eye contact	Causes skin and eye irritation.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
Specific treatments	Treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use fire-extinguishing media suitable for the surrounding fire. Extinguish with alcohol-resistant foam, carbon dioxide or dry powder.
Unsuitable extinguishing media	Do not use water, if avoidable.

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Special hazards arising from the substance or mixture

Specific hazards	The product is not flammable. Irritating gases or vapors.
Hazardous combustion products	Harmful gases or vapors.
<u>Advice for firefighters</u>	
Protective actions during firefighting	Stop leak if safe to do so. If leakage cannot be stopped, evacuate area. Move containers from fire area if it can be done without risk.
Special protective equipment for firefighters	Use air-supplied respirator, gloves and protective goggles.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	No action shall be taken without appropriate training or involving any personal risk. Keep unnecessary and unprotected personnel away from the spillage. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Follow precautions for safe handling described in this safety data sheet.
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Environmental precautions

Environmental precautions	Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.
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Methods and material for containment and cleaning up

Methods for cleaning up	If leakage cannot be stopped, evacuate area. Move containers from spillage area. Large Spillages: Absorb spillage with sand or other inert absorbent. Collect and place in suitable waste disposal containers and seal securely. Small Spillages: Absorb small quantities with paper towels and evaporate in a safe place. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.
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Reference to other sections	For personal protection, see Section 8. For waste disposal, see Section 13. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards.
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7. Handling and storage

Precautions for safe handling

Usage precautions	For professional users only. Do not handle until all safety precautions have been read and understood. Use only in well-ventilated areas. Protect from moisture. Keep container dry. Container must be kept tightly closed when not in use. Do not eat, drink or smoke when using this product.
Advice on general occupational hygiene	Do not eat, drink or smoke when using this product. Provide eyewash station. Wash promptly with soap and water if skin becomes contaminated. Promptly remove any clothing that becomes contaminated.

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Conditions for safe storage, including any incompatibilities

Storage precautions Store at temperatures between 4°C and 30°C. Store in tightly-closed, original container in a dry, cool and well-ventilated place. Do not store near heat sources or expose to high temperatures. Store away from the following materials: Acids. Protect from moisture.

Storage class Chemical storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

8. Exposure Controls/personal protection

Diphenylmethane 4,4' - diisocyanate (CAS: 101-68-8)

DNEL

Workers - Dermal; Short term systemic effects: 50 mg/kg/day Workers - Inhalation; Short term systemic effects: 0.1 mg/m³ Workers - Dermal; Short term local effects: 28.7 mg/cm² Workers - Inhalation; Short term local effects: 0.1 mg/m³ Workers - Inhalation; Long term systemic effects: 0.05 mg/m³ Workers - Inhalation; Long term local effects: 0.05 mg/m³ Consumer - Dermal; Short term systemic effects: 25 mg/kg/day Consumer - Inhalation; Short term systemic effects: 0.05 mg/m³ Consumer - Oral; Short term systemic effects: 20 mg/kg/day Consumer - Dermal; Short term local effects: 17.2 mg/cm² Consumer - Inhalation; Short term local effects: 0.05 mg/m³ Consumer - Inhalation; Long term systemic effects: 0.025 mg/m³ Consumer - Inhalation; Long term local effects: 0.025 mg/m³

PNEC

- Fresh water; 1 mg/l - Marine water; 0.1 mg/l - Soil; 1 mg/kg - STP; 1 mg/l

Exposure controls

Protective equipment



Appropriate engineering controls

This product is not to be used under conditions of poor ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/face protection

Tight-fitting safety glasses. Personal protective equipment for eye and face protection should comply with OSHA 1910.133.

Hand protection

To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. It is recommended that gloves are made of the following material: Nitrile rubber. Butyl rubber.

Other skin and body protection

Wear appropriate clothing to prevent skin contamination.

Hygiene measures

Wash hands thoroughly after handling. Promptly remove any clothing that becomes contaminated. Do not eat, drink or smoke when using this product.

Respiratory protection

Combination filter, type A2/P3.

Environmental exposure controls

Keep container tightly sealed when not in use. Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance Colored liquid.

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Color	Brown.
Odor	Characteristic.
Odor threshold	Not determined.
pH	Not determined.
Melting point	Not applicable.
Initial boiling point and range	Not determined.
Flash point	>200°C
Evaporation rate	Not determined.
Evaporation factor	Not determined.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Not applicable.
Other flammability	Not applicable.
Vapour pressure	Not determined.
Vapour density	Not determined.
Bulk density	Not applicable.
Solubility(ies)	Not determined.
Partition coefficient	Not determined.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	100-250 mPa s @ 25°C
Explosive properties	Not applicable.
Explosive under the influence of a flame	Not considered to be explosive.
Oxidising properties	Not applicable.
Density	1.160 kg/l @ 23°C

10. Stability and reactivity

Reactivity	Water-reactive materials.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	The following materials may react with the product: Water, moisture.
Conditions to avoid	Avoid exposure to high temperatures or direct sunlight.
Materials to avoid	Avoid contact with the following materials: Strong alkalis. Amines. Alcohols.
Hazardous decomposition products	Heating may generate the following products: Hydrogen cyanide (HCN). Carbon dioxide (CO ₂). Carbon monoxide (CO). Nitrous gases (NO _x).

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11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) LD₅₀ >10000 mg/kg, Oral, Rat

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ >9400 mg/kg, Dermal, Rabbit

Acute toxicity - inhalation

Notes (inhalation LC₅₀) LD₅₀ 0.49 mg/m³, Inhalation, Rat

ATE inhalation (vapours mg/l) 11.0

Skin corrosion/irritation

Animal data

Isocyanic acid, polymethylenepolyphenylene ester
 Test - OECD 404 Acute Dermal Irritation/Corrosion
 Species - Rabbit
 Route of Exposure - Skin
 Result - Mild irritant

Serious eye damage/irritation

Serious eye damage/irritation Product/ingredient name - 4,4'-Methylenediphenyl diisocyanate
 Test - OECD 405 Acute Eye Irritation/Corrosion
 Species - Rabbit
 Route of exposure - Eyes
 Result - Non-irritant

Respiratory sensitization

Respiratory sensitisation

Isocyanic acid, polymethylenepolyphenylene ester:
 Test - No official guidelines
 Route of exposure - Respiratory
 Species - Guinea pig
 Result - Sensitising 4,4'-Methylenediphenyl diisocyanate:
 Test - No official guidelines
 Route of exposure - Respiratory
 Species - Guinea pig
 Result - Sensitising

Skin sensitization

Skin sensitisation

Isocyanic acid, polymethylenepolyphenylene ester:
 Route of exposure - Skin
 Species - Mouse
 Result - Sensitising 4,4'-Methylenediphenyl diisocyanate:
 Route of exposure - Skin
 Species - Mouse
 Result - Sensitising

Carcinogenicity

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Carcinogenicity	Isocyanic acid, polymethylenepolyphenylene ester Carcinogenicity Studies EU 2 years; 5 days per week , Inhalation, Rat Result - Negative 4,4'-Methylenediphenyl diisocyanate OECD 453 Combined Chronic Toxicity, Carcinogenicity Studies EU 2 years; 5 days per week , Inhalation, Rat Result - Positive Target organs - lungs Rats have been exposed for two years to a respirable aerosol of polymeric MDI which resulted in chronic pulmonary irritation at high concentrations. Only at the top level (6 mg/m ³), there was a significant incidence of a benign tumour of the lung (adenoma) and one malignant tumour (adencarcinoma). There were no lung tumours at 1 mg/m ³ and no effects at 0.2 mg/m ³ . Overall, the tumour incidence, both benign and malignant, and the number of animals with the tumours were not different from controls. The increased incidence of lung tumours is associated with prolonged respiratory irritation and the concurrent accumulation of yellow material in the lung, which occurred throughout the study. In the absence of prolonged exposure to high concentrations leading to chronic irritation and lung damage, it is highly unlikely that tumour formation will occur.
IARC carcinogenicity	Isocyanic acid, polymethylenepolyphenylene ester - 3 4,4'-Methylenediphenyl diisocyanate - 3
Reproductive toxicity	
Reproductive toxicity - development	Teratogenicity: - OECD 414 Prenatal Developmental Toxicity Study: 4 mg/m ³ , NOAEL, Rat - Male, Female 4,4'-Methylenediphenyl diisocyanate Does not contain any substances known to be toxic to reproduction. No evidence of reproductive toxicity in animal studies.
Specific target organ toxicity - single exposure	
STOT - single exposure	Isocyanic acid, polymethylenepolyphenylene ester Category 3 - Inhalation - Respiratory tract irritation 4,4'-Methylenediphenyl diisocyanate Category 3 - Inhalation - Respiratory tract irritation
Specific target organ toxicity - repeated exposure	
STOT - repeated exposure	Isocyanic acid, polymethylenepolyphenylene ester Category 2 - Inhalation - Respiratory tract 4,4'-Methylenediphenyl diisocyanate Category 2 - Inhalation - Respiratory tract
Aspiration hazard	
Aspiration hazard	Not anticipated to present an aspiration hazard, based on chemical structure.
General information	Mutagenicity: Isocyanic acid, polymethylenepolyphenylene ester Test - OECD 474 Result - Negative Equivocal Product/ingredient name - 4,4'-Methylenediphenyl diisocyanate Test - EU EC B. 13/14 Mutagenicity -Reverse Mutation Testing using Bacteria Result - Negative Test - OECD 474 Mammalian Erythrocyte Micronucleus Test Result - Negative No specific health hazards known.
Skin Contact	The liquid may be irritating to skin.
Eye contact	The product is irritating to eyes and skin.
Acute and chronic health hazards	Potential chronic health effects: Isocyanic acid, polymethylenepolyphenylene ester Test - OECD 453 Combined Chronic Toxicity/Carcinogenicity Studies Result type - NOEC Dusts and mists Result - 0.2 mg/m ³ Inhalation - LC50 (rat): ca. 490 mg/m ³ (4 hours) : using experimentally produced respirable aerosol having aerosol having aerodynamic <5microns. Repeated exposure may cause chronic upper respiratory irritation. This product may cause skin and eye irritation. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.

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Route of entry	Inhalation Ingestion Skin and/or eye contact
Medical Symptoms	Symptoms following overexposure may include the following: Allergic rash. Asthma, pulmonary sensitization. Breathlessness. Coughing, chest tightness, feeling of chest pressure.

12. Ecological Information

Toxicity

Acute toxicity - fish	4,4'-Methylenediphenyl diisocyanate LC ₅₀ , 96 hours: >1000 mg/l, Fish
Acute toxicity - aquatic invertebrates	Isocyanic acid, polymethylenepolyphenylene ester OECD 202 Daphnia sp. Acute Immobilisation Test* Acute EC50, 24 hours: >1000 mg/l, Daphnia magna NOEC, 112 days: >10000 mg/l, Daphnia magna OECD 211 Daphnia Magna Reproduction Test, 21 days: >10 mg/l, Daphnia magna OECD 202 Daphnia sp. Acute Immobilisation Test* Acute EC50, 24 hours static: >1000 mg/l, Daphnia OECD 211 Daphnia Magna Reproduction Test, 21 days Semi-static: >10 mg/l, Daphnia
Acute toxicity - aquatic plants	Isocyanic acid, polymethylenepolyphenylene ester OECD 201 Alga, Growth Inhibition Test, 72 days: >1640 mg/l, Algae
Acute toxicity - microorganisms	Isocyanic acid, polymethylenepolyphenylene ester OECD 209 Activated Sludge, Respiration Inhibition Test, 3 hours: >100 mg/l, Bacteria
<u>Persistence and degradability</u>	
Persistence and degradability	No data available.
Biodegradation	Not readily biodegradable.
<u>Bioaccumulative potential</u>	
Bio-Accumulative Potential	log Pow: BCF - 200, 4,4'-Methylenediphenyl diisocyanate log Pow: 4,51 BCF - 200,
Partition coefficient	Not determined.
<u>Mobility in soil</u>	
Mobility	By considering the production and use of the substance, it is unlikely that significant environmental exposure in the air or water will arise. Immiscible with water, but will react with water to produce inert and non-biodegradable solids. Conversion to soluble products, including diamino-diphenylmethane (MDA), is very low under the optimal laboratory conditions of good dispersion and low concentration. In air, the predominant degradation process is predicted to be a relatively rapid OH radical attack, by calculation and by analogy with related diisocyanates.
Adsorption/desorption coefficient	Not available.
<u>Results of PBT and vPvB assessment</u>	
Results of PBT and vPvB assessment	This product does not contain any substances classified as PBT or vPvB.
<u>Other adverse effects</u>	
Other adverse effects	None known.

13. Disposal considerations

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Waste treatment methods

General information	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Waste is classified as hazardous waste.
Disposal methods	Dispose of contents/container in accordance with national regulations. Waste is classified as hazardous waste.
Waste class	European Waste Catalogue (EWC): Waste Code - 08 05 01* Waste Designation - waste isocyanates Waste Code - 16 03 05* Waste Designation - organic wastes containing dangerous substances

14. Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DoT).

UN Number

Not applicable.

UN proper shipping name

Not applicable.

Transport hazard class(es)

No transport warning sign required.

Packing group

Not applicable.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. Regulatory information

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

National regulations Control of Substances Hazardous to Health Regulations 2002 (as amended).
EH40/2005 Workplace exposure limits.
Health and Safety at Work etc. Act 1974 (as amended).
The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).

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EU legislation

Commission Decision 2000/532/EC as amended by Decision 2001/118/EC establishing a list of wastes and hazardous waste pursuant to Council Directive 75/442/EEC on waste and Directive 91/689/EEC on hazardous waste with amendments.

Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work (as amended).

Commission Regulation (EU) No 453/2010 of 20 May 2010.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

Verwaltungsvorschrift wassergefährdende Stoffe (Germany): WGK 1 (slightly water pollutant)

Guidance

Isocyanates: Health hazards and precautionary measures EH16.

Workplace Exposure Limits EH40.

Restrictions (Title VIII Regulation 1907/2006)

No specific restrictions on use are known for this product.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

16. Other information

General information	Only trained personnel should use this material.
Revision date	7/21/2015
Revision	1
SDS No.	5301
Hazard statements in full	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. 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.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.