SAFETY DATA SHEET
RASCOflex US509F A-Comp

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

1.1. Product identifier
Product name RASCOflex US509F A-Comp

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses Semi-flexible silicate polyurethane Injection Resin

1.3. Details of the supplier of the safety data sheet
Supplier Rascor Tunnel- und Spezialtiefbau 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

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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification
Physical hazards Not Classified
Health hazards Skin Irrit. 2 - H315 Eye Irrit. 2 - H319
Environmental hazards Not Classified

2.2. Label elements
Pictogram
Signal word Warning
Hazard statements H315 Causes skin irritation.
H319 Causes serious eye irritation.
Precautionary statements P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.

Supplementary precautionary statements P264 Wash contaminated skin thoroughly after handling.
P321 Specific treatment (see medical advice on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
SECTION 3: Composition/information on ingredients

3.2. Mixtures

<table>
<thead>
<tr>
<th>SODIUM SILICATE</th>
<th>30-60%</th>
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<tbody>
<tr>
<td>CAS number: 1344-09-8</td>
<td></td>
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<tr>
<td>EC number: 215-687-4</td>
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<tr>
<td>REACH registration number: 01-2119448725-31-0001</td>
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</table>

Classification

Skin Irrit. 2 - H315
Eye Irrit. 2 - H319

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

SECTION 4: First aid measures

4.1. 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 (or hair): 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.

4.2. 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 irritation.

Ingestion
May cause stomach pain or vomiting. May cause irritation. Gastrointestinal symptoms, including upset stomach.

Skin contact
May cause skin irritation.

Eye contact
Causes skin and eye irritation.

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

Notes for the doctor
Treat symptomatically.

Specific treatments
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
RASCOflex US509F A-Comp

Suitable extinguishing media
Use fire-extinguishing media suitable for the surrounding fire. Extinguish with alcohol-resistant foam, carbon dioxide or dry powder.

5.2. Special hazards arising from the substance or mixture

Specific hazards
Irritating gases or vapours.

Hazardous combustion products
Harmful gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting
No action shall be taken without appropriate training or involving any personal risk. 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.

SECTION 6: Accidental release measures

6.1. 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 vapours. Follow precautions for safe handling described in this safety data sheet.

6.2. Environmental precautions

Environmental precautions
Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. 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.

6.4. Reference to other sections

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.

SECTION 7: Handling and storage

7.1. 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. 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.

7.2. Conditions for safe storage, including any incompatibilities
RASCOflex US509F A-Comp

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. Alkalis.

Storage class

Chemical storage.

7.3. Specific end use(s)

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

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

SODIUM SILICATE

The existing OEL (TRGS 900, June 2008) for dust is 3 mg/m3 (alveolar fraction) and 10 mg/m3 (respirable fraction). There are different sodium silicates dangerousness depending on their MR values (molar ratio) and concentration. DNELs and PNECs values found in the table below correspond to the worst case evaluated (MR<1.6, and high concentration).

SODIUM SILICATE (CAS: 1344-09-8)

<table>
<thead>
<tr>
<th></th>
<th>DNEL</th>
<th>PNEC</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Workers - Inhalation; Long term systemic effects: 5.61 mg/kg/day</td>
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<tr>
<td></td>
<td></td>
<td>General population - Inhalation; Long term systemic effects: 1.38 mg/kg/day</td>
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<tr>
<td></td>
<td></td>
<td>Workers - Dermal; Long term systemic effects: 1.59 mg/kg/day</td>
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<tr>
<td></td>
<td></td>
<td>General population - Oral; Long term local effects: not determined</td>
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</tbody>
</table>

8.2. Exposure controls

Protective equipment

This product is not to be used under conditions of poor ventilation.

Eye/face protection

Personal protective equipment for eye and face protection should comply with European Standard EN166. Tight-fitting safety glasses.

Hand protection

To protect hands from chemicals, gloves should comply with European Standard EN374. It is recommended that gloves are made of the following material: Nitrile 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.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties
RASCOflex US509F A-Comp

Appearance  Clear liquid.
Colour  Colourless.
Odour  Characteristic.
Odour threshold  Not determined.
pH  Not available.
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.
Relative density  Not applicable.
Bulk density  Not applicable.
Solubility(ies)  Not determined.
Partition coefficient  Not determined.
Auto-ignition temperature  Not determined.
Decomposition Temperature  Not determined.
Viscosity  200 - 300 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  1.30 - 1.35 g/cm³

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity
10.2. Chemical stability
Stability  Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions
Possibility of hazardous reactions  The following materials may react with the product: Acids or Isocyanate

10.4. Conditions to avoid
RASCOflex US509F A-Comp

Conditions to avoid
Avoid exposure to high temperatures or direct sunlight.

10.5. Incompatible materials
Materials to avoid

10.6. Hazardous decomposition products
Hazardous decomposition products
Carbon dioxide (CO2). Carbon monoxide (CO). Nitrous gases (NOx).

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Toxicological effects
This information has been determined by consideration of the toxicological data for the components and for analogous products.

Acute toxicity - oral
Notes (oral LD₅₀)
Method(s) - Metodo OCDE 401 Condiciones - rat male/female
Results/Conclusions - LD₅₀ = 3400 mg/Kg bw.

Acute toxicity - dermal
Notes (dermal LD₅₀)
Methods(s) - EPA OPPTS 870.1200 Condiciones - rat (Sprague-Dawley) male/female
Material: CAS 1312-76-1 Results/Conclusions - LD₅₀ > 5000 mg/kg bw.

Acute toxicity - inhalation
Notes (inhalation LC₅₀)
Method(s) - EPA OPPTS 870.1300 Condiciones - rat (Sprague-Dawley) male/female
Material: CAS 1312-76-1
Results/Conclusions - LC₅₀ (4hr) > 2.06 mg/L air.

Skin corrosion/irritation
Animal data
Primary dermal irritation index: 0.4

Serious eye damage/irritation
Slightly irritating.

Respiratory sensitisation
Respiratory sensitisation
Based on available data the classification criteria are not met.

Skin sensitisation
Based on available data the classification criteria are not met.

Germ cell mutagenicity
Conclusive data but not sufficient for classification.

Genotoxicity - in vitro
Conclusive data but not sufficient for classification.

Genotoxicity - in vivo
Conclusive data but not sufficient for classification.

Carcinogenicity
Based on available data the classification criteria are not met. Conclusive data but not sufficient for classification.

Reproductive toxicity
Reproductive toxicity - fertility
Based on available data the classification criteria are not met.

Reproductive toxicity - development
This substance has no evidence of toxicity to reproduction.

Specific target organ toxicity - single exposure
STOT - single exposure
Not determined.

Specific target organ toxicity - repeated exposure
RASCOflex US509F A-Comp

STOT - repeated exposure
NOAEL =159 mg/kg bw/day, Oral, (rat Sprague-Dawley male/female). NOAEL =2400 mg/kg bw/day, Oral, (rat Charles River Cesarean-derived male/female).

Aspiration hazard
Not anticipated to present an aspiration hazard, based on chemical structure.

SECTION 12: Ecological Information

Ecotoxicity
Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

12.1. Toxicity
No data is available on the product itself.

Acute toxicity - fish
NOEC, 96 hours: 1108 mg/l, Brachydanio rerio (Zebra Fish)
NOEC, (96 hours: Mortality)=348 mg/l, Brachydanio rerio (Zebra Fish)

Acute toxicity - aquatic invertebrates
(OECD Guideline 202, part 1), 48 hours: 1700 mg/l, Daphnia magna

Acute toxicity - aquatic plants
DIN 38412, Teil 9 according to OECD 201
72 hours: 207 mg/l, Scenedesmus subspicatus
72 hours: >345.4 mg/l, Scenedesmus subspicatus

Acute toxicity - microorganisms
Scientifically unjustified.

12.2. Persistence and degradability
The product is degraded completely by abiotic reduction.

Phototransformation
Scientifically unjustified.

Biodegradation
Scientifically unjustified.

12.3. Bioaccumulative potential
Bioaccumulation is unlikely.

Partition coefficient
Not determined.

12.4. Mobility in soil
The product is soluble in water. The product is non-volatile.

12.5. Results of PBT and vPvB assessment
This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects
None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Waste should be treated as controlled waste.

SECTION 14: Transport information
RASCOflex US509F A-Comp

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

14.1. UN number
Not applicable.

14.2. UN proper shipping name
Not applicable.

14.3. Transport hazard class(es)
No transport warning sign required.

14.4. Packing group
Not applicable.

14.5. Environmental hazards
Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user
Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

SECTION 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).

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

Guidance
Workplace Exposure Limits EH40.

Restrictions (Title VIII Regulation 1907/2006)
No specific restrictions on use are known for this product.
RASCOflex US509F A-Comp

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories
EU - EINECS/ELINCS
All the ingredients are listed or exempt.

SECTION 16: Other information

<table>
<thead>
<tr>
<th>General information</th>
<th>Only trained personnel should use this material.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision date</td>
<td>02/09/2015</td>
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<tr>
<td>Revision</td>
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<td>SDS number</td>
<td>5130</td>
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<tr>
<td>Hazard statements in full</td>
<td>H315 Causes skin irritation.</td>
</tr>
<tr>
<td></td>
<td>H319 Causes serious eye irritation.</td>
</tr>
</tbody>
</table>

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.