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

1.1. Product identifier

GermanBond RFE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Hardener, Adhesives, sealants, Reserved for industrial and professional use.

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

germanBelt GmbH
Company name:
Street: Carl-Vollrath-Str. 8
Place: D-07422 Bad Blankenburg
Telephone: +49 (0)36741 / 5680-0
Telefax: +49 (0)36741 / 5680-70
e-mail: sales@germanbelt.de

1.4. Emergency telephone number:

Giftnotruf England: +44 (171) 635 91 91, Giftnotruf England: +44 (171) 635 91 91, Giftnotruf Norwegen: +47 (22) 591 300,

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Flammable liquid: Flam. Liq. 2
Specific target organ toxicity - single exposure: STOT SE 3

Hazard Statements:
Highly flammable liquid and vapour.
May cause drowsiness or dizziness.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling
Ethyl acetate

Signal word: Danger

Pictograms:

Hazard statements

H225 Highly flammable liquid and vapour.
H336 May cause drowsiness or dizziness.

Precautionary statements

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P243 Take action to prevent static discharges.
P240 Ground and bond container and receiving equipment.
P233 Keep container tightly closed.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Special labelling of certain mixtures
EUH066 Repeated exposure may cause skin dryness or cracking.
EUH204 Contains isocyanates. May produce an allergic reaction.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization
Mixture in organic solvents

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>70 - &lt; 75 %</td>
<td>Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336 EUH066</td>
</tr>
<tr>
<td>205-500-4</td>
<td>Tris-(p-isocyanatophenyl)-thiophosphat</td>
<td>25 - &lt; 30 %</td>
<td>Acute Tox. 4; H302 EUH066</td>
</tr>
<tr>
<td>108-90-7</td>
<td>chlorobenzene</td>
<td>&lt; 1 %</td>
<td>Flam. Liq. 3, Acute Tox. 4, Skin Irrit. 2, Aquatic Chronic 2; H226 H332 H315 H411</td>
</tr>
</tbody>
</table>

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

- **General information**
  - Remove contaminated, saturated clothing immediately.

- **After inhalation**
  - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. In case of respiratory tract irritation, consult a physician.

- **After contact with skin**
  - After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.

- **After contact with eyes**
  - After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

- **After ingestion**
  - Do NOT induce vomiting. Call a physician in any case!

4.2. Most important symptoms and effects, both acute and delayed
- First Aid, decontamination, treatment of symptoms.

4.3. Indication of any immediate medical attention and special treatment needed
- No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media

Unsuitable extinguishing media
High power water jet.

5.2. Special hazards arising from the substance or mixture
In case of fire may be liberated: Carbon monoxide Nitrogen oxides (NOx). Hydrogen cyanide (hydrocyanic acid).

5.3. Advice for firefighters
In case of fire: Wear self-contained breathing apparatus.

Additional information
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Personal protection equipment: see section 8 Keep away from sources of ignition - No smoking. Provide adequate ventilation.

6.2. Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up
Take up mechanically. Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

6.4. Reference to other sections
SECTION 13: Disposal considerations

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Advice on safe handling
Provide adequate ventilation. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

Advice on protection against fire and explosion
The accumulation in lowlying or closen rooms can cause increased danger of fire and explosion.

Further information on handling
Take off immediately all contaminated clothing. Avoid contact with eyes and skin.

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels
Keep container tightly closed in a cool, well-ventilated place.

Advice on storage compatibility
Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)
No data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Exposure limits (EH40)

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>ppm</th>
<th>mg/m³</th>
<th>fibres/ml</th>
<th>Category</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-90-7</td>
<td>Chlorobenzene</td>
<td>1</td>
<td>4.7</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>14</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

DNEL/DMEL values

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>Exposure route</th>
<th>Effect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>inhalation</td>
<td>local</td>
<td>1468 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>734 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>734 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>local</td>
<td>63 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>37 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>local</td>
<td>367 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation</td>
<td>local</td>
<td>4.5 mg/kg bw/day</td>
</tr>
<tr>
<td>4151-51-3</td>
<td>Tris-(p-isocyanatophenyl)-thiophosphat</td>
<td>inhalation</td>
<td>local</td>
<td>0.047 mg/m³</td>
</tr>
</tbody>
</table>

PNEC values

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Substance</th>
<th>Environmental compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>Freshwater</td>
<td>0.26 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.026 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>0.34 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>0.034 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>0.22 mg/kg</td>
</tr>
<tr>
<td>4151-51-3</td>
<td>Tris-(p-isocyanatophenyl)-thiophosphat</td>
<td>Freshwater</td>
<td>0.1 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine water</td>
<td>0.01 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Freshwater sediment</td>
<td>2557 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine sediment</td>
<td>155 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Micro-organisms in sewage treatment plants (STP)</td>
<td>100 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil</td>
<td>510 mg/kg</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

**Protective and hygiene measures**

When using do not eat, drink, smoke, sniff.

**Eye/face protection**

- Wear eye/face protection. EN 374: Butyl caoutchouc (butyl rubber), Thickness of the glove material: >= 0.5 mm, Breakthrough time (maximum wearing time): >= 60 min

**Hand protection**

- Wear suitable gloves.

**Respiratory protection**

- If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>yellow, light brown</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>fruity</td>
<td></td>
</tr>
<tr>
<td>Changes in the physical state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>ca. 77 °C</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>ca. -4 °C</td>
<td>DIN 51755</td>
</tr>
<tr>
<td>Lower explosion limits</td>
<td>2,2 vol. %</td>
<td></td>
</tr>
<tr>
<td>Upper explosion limits</td>
<td>11,5 vol. %</td>
<td></td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>ca. 460 °C</td>
<td></td>
</tr>
<tr>
<td>Vapour pressure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(at 20 °C)</td>
<td>97 hPa</td>
<td></td>
</tr>
<tr>
<td>Density (at 20 °C):</td>
<td>ca. 1.0 g/cm³</td>
<td>DIN 53217</td>
</tr>
<tr>
<td>Viscosity / dynamic (at 20 °C)</td>
<td>3 mPa·s</td>
<td>DIN 53019</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity
No data available

10.2. Chemical stability
at room temperature: No known hazardous decomposition products.

10.3. Possibility of hazardous reactions
Exothermic reaction with: Amines, Alcohols; After contact with water: Carbon dioxide (CO2)

10.4. Conditions to avoid
Heating may cause a fire or explosion.

10.5. Incompatible materials
Reacts with: Amines, Alcohols, Oxidising agent, Water

10.6. Hazardous decomposition products
The product is stable under storage at normal ambient temperatures.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity
Based on available data, the classification criteria are not met.
### Safety Data Sheet

**GermanBond RFE**

**Revision date:** 09.05.2018  
**Product code:** 22  
**Page 6 of 9**

#### CAS No Chemical name

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute fish toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>LD50 mg/kg</td>
<td>600</td>
<td>Rat</td>
<td>Pimephales promelas (fathead minnow)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute crustacea toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>EC50 mg/l</td>
<td>717</td>
<td>Daphnia magna (Big water flea)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Fish toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>NOEC mg/l &lt; 9,65</td>
<td>32 d</td>
<td>Promephales promelas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute algae toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-90-7</td>
<td>EC50 mg/l</td>
<td>12,5</td>
<td>Selenastrum capricornutum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute crustacea toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-90-7</td>
<td>EC50 mg/l</td>
<td>20</td>
<td>Daphnia magna</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Irritation and corrosivity
Based on available data, the classification criteria are not met.

#### Sensitising effects
Based on available data, the classification criteria are not met.

#### Carcinogenic/mutagenic/toxic effects for reproduction
Based on available data, the classification criteria are not met.

#### STOT-single exposure
May cause drowsiness or dizziness. (ethyl acetate)

#### STOT-repeated exposure
Repeated exposure may cause skin dryness or cracking.

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

### SECTION 12: Ecological information

#### 12.1. Toxicity

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute fish toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>LD50 mg/kg</td>
<td>600</td>
<td>Rat</td>
<td>Pimephales promelas (fathead minnow)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute crustacea toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>EC50 mg/l</td>
<td>717</td>
<td>Daphnia magna (Big water flea)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Fish toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>NOEC mg/l &lt; 9,65</td>
<td>32 d</td>
<td>Promephales promelas</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute algae toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-90-7</td>
<td>EC50 mg/l</td>
<td>12,5</td>
<td>Selenastrum capricornutum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Acute crustacea toxicity</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-90-7</td>
<td>EC50 mg/l</td>
<td>20</td>
<td>Daphnia magna</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and degradability

---

**Revision No:** 1.01 - Replaces version: 1  
**Print date:** 09.05.2018
12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-90-7</td>
<td>chlorobenzene</td>
<td>2.84</td>
</tr>
</tbody>
</table>

BCF

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>BCF</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>30</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal
Dispose of waste according to applicable legislation.

Waste disposal number of waste from residues/unused products
080409 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS; wastes from MFSU of adhesives and sealants (including waterproofing products); waste adhesives and sealants containing organic solvents or other hazardous substances; hazardous waste

Contaminated packaging
Contaminated packages must be completely emptied and can be re-used following proper cleaning. Packing which cannot be properly cleaned must be disposed of. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: UN 1173
14.2. UN proper shipping name: ETHYL ACETATE, LÖSUNG
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3

Classification code: F1
Limited quantity: 1 L
Excepted quantity: E2
Transport category: 2
Hazard No: 33
Tunnel restriction code: D/E
Inland waterways transport (ADN)

14.1. UN number: UN 1173
14.2. UN proper shipping name: ETHYL ACETATE, LÖSUNG
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3

Classification code: F1
Limited quantity: 1 L
Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number: UN 1173
14.2. UN proper shipping name: ETHYL ACETATE, SOLUTION
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3

Special Provisions: -
Limited quantity: 1 L
Excepted quantity: E2
EmS: F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 1173
14.2. UN proper shipping name: ETHYL ACETATE, SOLUTION
14.3. Transport hazard class(es): 3
14.4. Packing group: II
Hazard label: 3

Limited quantity Passenger: 1 L
Passenger LQ: Y341
Excepted quantity: E2
IATA-packing instructions - Passenger: 353
IATA-max. quantity - Passenger: 5 L
IATA-packing instructions - Cargo: 364
IATA-max. quantity - Cargo: 60 L

14.6. Special precautions for user
Reference to other sections: 6 - 8; Highly flammable; Thermal decomposition: >40°C; Keep away from food, drink and animal feedingstuffs.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
No data available
SECTION 15: Regulatory information

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

EU regulatory information
- 2010/75/EU (VOC): 72%
- 2004/42/EC (VOC): 72%
- Information according to 2012/18/EU (SEVESO III): P5c FLAMMABLE LIQUIDS

National regulatory information
- Water contaminating class (D): 1 - slightly water contaminating

Additional information
- Merkblätter der BG Chemie M044 "Polyurethan-Herstellung und Verarbeitung/Isocyanate" und M17 "Lösemittel"

SECTION 16: Other information

Changes
This data sheet contains changes from the previous version in section(s): 1, 3, 8, 15.

Relevant H and EUH statements (number and full text)
- H225 Highly flammable liquid and vapour.
- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H336 May cause drowsiness or dizziness.
- H411 Toxic to aquatic life with long lasting effects.
- EUH066 Repeated exposure may cause skin dryness or cracking.
- EUH204 Contains isocyanates. May produce an allergic reaction.

Further Information
The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)