Safety Data Sheet

according to Regulation (EC) No 1907/2006

Film release agent PVA

Print date: 23.06.2017  Product code: 165110  Page 1 of 10

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

1.1. Product identifier
Film release agent PVA

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture
Lubricants, greases, release products

1.3. Details of the supplier of the safety data sheet

| Company name: | R&G Faserverbundwerkstoffe GmbH |
| Street:       | Im Meißel 7 - 13 |
| Place:        | D-71111 Waldenbuch |
| Post-office box: | 1145 D-71107 Waldenbuch |
| Telephone:    | +49 (0)7157 5304-60 |
| e-mail:       | info@r-g.de |
| Internet:     | www.r-g.de |
| Responsible Department: | Management |

1.4. Emergency telephone number:
Vergiftungs-Informations-Zentrale Freiburg
Tel: +49 (0)761 19240

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

<table>
<thead>
<tr>
<th>Hazard categories:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquid: Flam. Liq. 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation: Eye Irrit. 2</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure: STOT SE 3</td>
</tr>
</tbody>
</table>

Hazard Statements:

- Highly flammable liquid and vapour.
- Flammable liquid and vapour.
- May cause respiratory irritation.
- Causes serious eye irritation.
- May cause drowsiness or dizziness.

2.2. Label elements

Regulation (EC) No. 1272/2008

<table>
<thead>
<tr>
<th>Hazard components for labelling</th>
</tr>
</thead>
<tbody>
<tr>
<td>propan-2-ol; isopropyl alcohol; isopropanol</td>
</tr>
<tr>
<td>butan-2-ol</td>
</tr>
</tbody>
</table>

Signal word: Danger

Pictograms:

H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H335 May cause respiratory irritation.
H319 Causes serious eye irritation.
Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P271 Use only outdoors or in a well-ventilated area.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>propan-2-ol, isopropyl alcohol; isopropanol</td>
<td>40-45%</td>
</tr>
<tr>
<td>67-63-0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200-661-7</td>
<td></td>
<td>603-117-00-0</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336</td>
<td></td>
</tr>
<tr>
<td>78-92-2</td>
<td>butan-2-ol</td>
<td>5-10 %</td>
</tr>
<tr>
<td>201-158-5</td>
<td></td>
<td>603-127-00-5</td>
</tr>
<tr>
<td></td>
<td>Flam. Liq. 3, Eye Irrt. 2, STOT SE 3, STOT SE 3; H226 H319 H335 H336</td>
<td></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

Take off immediately all contaminated clothing and wash it before reuse. Artificial respiration on respiratory arrest. If unconscious, storage and transport in stable lateral position Remove affected person from the danger area and lay down. Call a doctor if you feel unwell.

After inhalation

Provide fresh air. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). The typical signs are headaches, dizziness, fatigue, muscle weakness, numbness, and in serious cases unconsciousness.

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

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

Rinse mouth immediately and drink plenty of water. Consult physician. never give an unconscious person things thru the mouth.

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

SECTION 11: Toxicological information

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

Treat symptomatically.
SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media
Water. Water spray jet, Sand, Carbon dioxide (CO2), Foam, Extinguishing powder.

5.2. Special hazards arising from the substance or mixture

Combustible. Vapours can form explosive mixtures with air.
In case of fire may be liberated: Carbon dioxide (CO2), Carbon monoxide

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. 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

Remove all sources of ignition. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not discharge into drains, surface or groundwater.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Only use the material in places where open light, fire and other flammable sources can be kept away. When using do not eat, drink or smoke.

Advice on protection against fire and explosion

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Advice on storage compatibility

Keep away from oxidising agents.

Further information on storage conditions

In the original container at room temperature. Do not store out of doors. Protect against the effects of heat and direct sunlight.

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>78-92-2</td>
<td>Butan-2-ol</td>
<td>100</td>
<td>308</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td>67-63-0</td>
<td>Propan-2-ol</td>
<td>150</td>
<td>462</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400</td>
<td>999</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500</td>
<td>1250</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls
If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Protective and hygiene measures
Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.
Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection
Suitable eye protection: goggles.

Hand protection
When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Suitable gloves type:
Wearing time with permanent contact > 480min.
FKM (fluoro rubber) - Thickness of the glove material: 0,7mm
Butyl caoutchouc (butyl rubber) - Thickness of the glove material: 0,7mm
NBR (Nitrile rubber) - Thickness of the glove material: 0,4mm

Wearing time with occasional contact (splashes): > 60min.
Disposable gloves: NBR (Nitrile rubber) - Thickness of the glove material: 0,2mm

Skin protection
Flame-retardant protective clothing. Wear anti-static footwear and clothing

Respiratory protection
In case of inadequate ventilation wear respiratory protection.
Combination filtering device (EN 14387) A1P1/A2P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state:</th>
<th>viscus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour:</td>
<td>colourless</td>
</tr>
<tr>
<td>Odour:</td>
<td>characteristic</td>
</tr>
</tbody>
</table>

Test method
## Film release agent PVA

<table>
<thead>
<tr>
<th>pH-Value (at 20 °C):</th>
<th>6,5 DIN 19268</th>
</tr>
</thead>
</table>

### Changes in the physical state
- **Melting point:** not determined
- **Initial boiling point and boiling range:** > 82 °C
- **Flash point:** 18 °C DIN EN ISO 2719

### Flammability
- **Solid:** not applicable
- **Gas:** not applicable

### Lower explosion limits: 1,4 vol. %

### Upper explosion limits: 12 vol. %

### Ignition temperature: > 340 °C

### Auto-ignition temperature
- **Solid:** not applicable
- **Gas:** not applicable

### Decomposition temperature: not determined

### Oxidizing properties
- Not oxidizing.

### Vapour pressure:
- **(at 20 °C):** < 41 hPa
- **(at 50 °C):** < 225 hPa

### Density (at 20 °C): 0,94 g/cm³ DIN 51757

### Water solubility:
- **(at 20 °C):** easily soluble

### Solubility in other solvents
mixable with most organic solvent cleaners: Alcohol Aldehyde Ketone

### Partition coefficient: not determined

### Viscosity / kinematic:
- **(at 23 °C):** > 7 mm²/s EN ISO 2431

### Flow time:
- **(at 23 °C):** 194 s 3 DIN EN ISO 2431

### Vapour density:
- **(at 25 °C):** > 2,1

### Evaporation rate: not determined

### 9.2. Other information
- **Solid content:** not determined

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity
- no decomposition when stored and handled properly

#### 10.2. Chemical stability
- The product is stable under storage at normal ambient temperatures.

#### 10.3. Possibility of hazardous reactions
- Exothermic reaction with: Oxidising agent, Alkali metals, Aluminium, Acid chlorides, inorganic
10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air.

10.5. Incompatible materials

Oxidising agent, Alkali metals, Aluminium, Acid chlorides, inorganic

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-63-0</td>
<td>propan-2-ol; isopropyl alcohol; isopropanol</td>
<td>oral</td>
<td>LD50</td>
<td>5840 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dermal</td>
<td>LD50</td>
<td>12800 mg/kg</td>
<td>Rabbit</td>
</tr>
<tr>
<td>78-92-2</td>
<td>butan-2-ol</td>
<td>oral</td>
<td>LD50</td>
<td>2190 mg/kg</td>
<td>Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalative (4 h)</td>
<td>LC50</td>
<td>48,5 mg/l</td>
<td>Rat</td>
</tr>
</tbody>
</table>

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information

12.1. Toxicty

According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Aquatic toxicity</th>
<th>[h]</th>
<th>[d]</th>
<th>Species</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>67-63-0</td>
<td>propan-2-ol; isopropyl alcohol; isopropanol</td>
<td>Acute fish toxicity</td>
<td>LC50</td>
<td>8970 mg/l</td>
<td>96 h Leuciscus idus (golden orfe)</td>
<td>IUCLID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute crustacea toxicity</td>
<td>EC50</td>
<td>9714 mg/l</td>
<td>48 h Daphnia magna (Big water flea)</td>
<td>IUCLID</td>
</tr>
<tr>
<td>78-92-2</td>
<td>butan-2-ol</td>
<td>Acute fish toxicity</td>
<td>LC50</td>
<td>3670 mg/l</td>
<td>96 h Pimephales promelas</td>
<td>GESTIS</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

The product has not been tested.
12.3. Bioaccumulative potential
The product has not been tested.

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>67-63-0</td>
<td>propan-2-ol; isopropyl alcohol; isopropanol</td>
<td>0,05</td>
</tr>
<tr>
<td>78-92-2</td>
<td>butan-2-ol</td>
<td>0,65</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
The product has not been tested.

12.5. Results of PBT and vPvB assessment
The product has not been tested.

12.6. Other adverse effects
No information available.

Further information
No special environmental measures are necessary.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal
Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Waste disposal number of waste from residues/unused products
070204 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; other organic solvents, washing liquids and mother liquors Classified as hazardous waste.

Waste disposal number of used product
070204 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic rubber and man-made fibres; other organic solvents, washing liquids and mother liquors Classified as hazardous waste.

Waste disposal number of contaminated packaging
150110 WASTE PACKAGING; ABSORBENTS, WIPEING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances Classified as hazardous waste.

Contaminated packaging
Wash with plenty of water. Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)
### Safety Data Sheet

**Film release agent PVA**

according to Regulation (EC) No 1907/2006

<table>
<thead>
<tr>
<th><strong>Print date:</strong></th>
<th><strong>Product code:</strong></th>
<th><strong>Page:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>23.06.2017</td>
<td>165110</td>
<td>8</td>
</tr>
</tbody>
</table>

**14.1. UN number:** UN 1987

**14.2. UN proper shipping name:** ALCOHOLS, N.O.S.  (Isopropanol,butanol)

**14.3. Transport hazard class(es):** 3

**14.4. Packing group:** II

**Hazard label:** 3

**Classification code:** F1

**Special Provisions:** 274 601 640D

**Limited quantity:** 1 L

**Transport category:** 2

**Hazard No:** 33

**Tunnel restriction code:** D/E

**Other applicable information (land transport)**

E2

**Inland waterways transport (ADN)**

**14.1. UN number:** UN 1987

**14.2. UN proper shipping name:** ALCOHOLS, N.O.S.  (Isopropanol,butanol)

**14.3. Transport hazard class(es):** 3

**14.4. Packing group:** II

**Hazard label:** 3

**Classification code:** F1

**Special Provisions:** 274 601 640D

**Limited quantity:** 1 L

**E2**

**Other applicable information (inland waterways transport)**

E2

**Marine transport (IMDG)**

**14.1. UN number:** UN 1987

**14.2. UN proper shipping name:** ALCOHOLS, N.O.S.  (Isopropanol,butanol)

**14.3. Transport hazard class(es):** 3

**14.4. Packing group:** II

**Hazard label:** 3

**Special Provisions:** 274

**Limited quantity:** 1 L

**EmS:** F-E, S-D

**E2**

**Other applicable information (marine transport)**

E2

**Air transport (ICAO)**

**14.1. UN number:** UN 1987

**14.2. UN proper shipping name:** ALCOHOLS, N.O.S.  (Isopropanol,butanol)
### 14.3. Transport hazard class(es):
- 3

### 14.4. Packing group:
- II

### Hazard label:
- 3

#### Special provisions:
- A3 A180
- Limited quantity Passenger: 1 L
- IATA-packing instructions - Passenger: 353/Y341
- IATA-max. quantity - Passenger: 5 L/1 L
- IATA-packing instructions - Cargo: 364
- IATA-max. quantity - Cargo: 60 L

#### Other applicable information (air transport)
- E2
- Passenger-LQ: Y341

### 14.5. Environmental hazards
- ENVIRONMENTALLY HAZARDOUS: no

### 14.6. Special precautions for user
- Warning: Combustible liquids.

### 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
- not applicable

### SECTION 15: Regulatory information

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

<table>
<thead>
<tr>
<th>EU regulatory information</th>
<th>National regulatory information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004/42/EC (VOC): 45 %</td>
<td>Employment restrictions: Observe restrictions to employment for juvenils according to the ‘juvenile work protection guideline’ (94/33/EC).</td>
</tr>
<tr>
<td>Water contaminating class (D): 1 - slightly water contaminating</td>
<td></td>
</tr>
</tbody>
</table>

#### 15.2. Chemical safety assessment
- Chemical safety assessments for substances in this mixture were not carried out.

### SECTION 16: Other information

#### Abbreviations and acronyms
- 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 Harmonized System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service
- LC50: Lethal concentration, 50%
- LD50: Lethal dose, 50%

#### Relevant H and EUH statements (number and full text)
- H225: Highly flammable liquid and vapour.
- H226: Flammable liquid and vapour.
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H319  Causes serious eye irritation.
H335  May cause respiratory irritation.
H336  May cause drowsiness or dizziness.

**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.)*