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

1.1. Product identifier

2060 TUNSEAL Scheibenkleber 310 ml K12060031AB

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

Use of the substance/mixture

Adhesives, sealants

1.3. Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Company name:</th>
<th>TUNAP GmbH &amp; Co. KG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street:</td>
<td>Bürgermeister-Seidl-Str. 2</td>
</tr>
<tr>
<td>Place:</td>
<td>D-82515 Wolfratshausen</td>
</tr>
<tr>
<td>Telephone:</td>
<td>+49 (0) 8171/1600 - 0</td>
</tr>
<tr>
<td>e-mail:</td>
<td><a href="mailto:sdb@tunap.com">sdb@tunap.com</a></td>
</tr>
<tr>
<td>Internet:</td>
<td><a href="http://www.tunap.com">www.tunap.com</a></td>
</tr>
</tbody>
</table>

1.4. Emergency telephone number:

+49 (0) 30 30 686 790 (Giftnotruf Berlin)

**SECTION 2: Hazards identification**

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

**Hazard categories:**

- Respiratory or skin sensitisation: Resp. Sens. 1

**Hazard Statements:**

- May cause allergy or asthma symptoms or breathing difficulties if inhaled.

2.2. Label elements

Regulation (EC) No. 1272/2008

**Hazard components for labelling**

- 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate

**Signal word:** Danger

**Pictograms:**

- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Precautionary statements**

- P260 Do not breathe vapours.
- P280 Wear eye protection/face protection.
- P282 Do not get in eyes, on skin, or on clothing.
- P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
- P314 Get medical advice/attention if you feel unwell.

**Special labelling of certain mixtures**

- EUH204 Contains isocyanates. May produce an allergic reaction.

2.3. Other hazards

- May cause sensitization by inhalation and skin contact.
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>101-68-8</td>
<td>4,4’-methylenediphenyl diisocyanate; diphenylmethane-4,4’-diisocyanate</td>
<td>0.1 - &lt; 1 %</td>
</tr>
</tbody>
</table>

Classification according to Regulation (EC) No. 1272/2008 [CLP]

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

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection! Remove persons to safety. Never give anything by mouth to an unconscious person or a person with cramps.

After inhalation

Remove person to fresh air and keep comfortable for breathing. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with skin

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles or persistent symptoms, consult an ophthalmologist.

After contact with eyes

Do NOT induce vomiting. Observe risk of aspiration if vomiting occurs. Call a physician in any case!

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

Headache, nausea, dizziness, fatigue, skin irritation

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

Treat symptomatically. Call a POISON CENTER. Symptoms can occur only after several hours.

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

Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO2, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

5.3. Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Move undamaged containers from immediate hazard area if it can be done safely. 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
   Wear breathing apparatus if exposed to vapours/dusts/aerosols. Remove all sources of ignition. Keep away
   from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
   Wear personal protection equipment.

6.2. Environmental precautions
   Do not allow to enter into surface water or drains. Prevent spread over a wide area (e.g. by containment or oil
   barriers). Ensure all waste water is collected and treated via a waste water treatment plant.

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). Clean
   contaminated articles and floor according to the environmental legislation.

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
   Observe instructions for use.
   Dust must be exhausted directly at the point of origin. Vapours/aerosols must be exhausted directly at the point
   of origin. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated
   by technical means.
   When using do not eat, drink, smoke, sniff.
   Wear personal protection equipment (refer to section 8).

   Advice on protection against fire and explosion
   Keep away from sources of ignition - No smoking.

   Further information on handling
   Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities
   Requirements for storage rooms and vessels
   Keep container tightly closed. Observe legal regulations and provisions.

   Hints on joint storage
   Do not store together with: Oxidizing agents. Pyrophoric or self-heating substances. Food and feedingstuffs.

   Further information on storage conditions
   Store in a cool dry place. Observe legal regulations and provisions.

7.3. Specific end use(s)
   No information 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>-</td>
<td>Isocyanates, all (as -NCO) Except methyl isocyanate</td>
<td>-</td>
<td>0.02</td>
<td></td>
<td>TWA (8 h)</td>
<td>WEL</td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>-</td>
<td>0.07</td>
<td></td>
<td>STEL (15 min)</td>
<td>WEL</td>
</tr>
</tbody>
</table>

Additional advice on limit values

- a no restriction
- b End of exposure or end of shift
- c at long term exposure: after several previous shifts
- d before next shift

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

Avoid exposure. Wear suitable protective clothing. Draw up and observe skin protection programme.

Eye/face protection

Suitable eye protection: Tightly sealed safety glasses.
DIN EN 166

Hand protection

Protect skin by using skin protective cream. 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.

Suitable material: NBR (Nitrile rubber) Breakthrough time (maximum wearing time) 480min
Thickness of the glove material 0.45 mm
DIN EN 374

Skin protection

Wear suitable protective clothing. Take off immediately all contaminated clothing and wash it before reuse.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
When exceeding the relevant workplace exposure limits, note the following:
Suitable respiratory protective equipment: Combination filter device (DIN EN 141).
Filtering device with filter or ventilator filtering device of type: A
Observe the wear time limits as specified by the manufacturer.
Observe legal regulations and provisions.

Environmental exposure controls

Observe legal regulations and provisions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: viscous
Colour: black
Odour: characteristic

Test method
pH-Value (at 20 °C): not determined DIN 19268

Changes in the physical state
Melting point: not determined
Initial boiling point and boiling range: 270 °C
Flash point: 164 °C ISO 3679

Flammability
Solid: not applicable
Gas: not applicable

Lower explosion limits: not determined
Upper explosion limits: not determined

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

Decomposition temperature: not determined

Oxidizing properties
Not oxidising.

Vapour pressure: not determined

Density (at 20 °C): 1,142 g/cm³ DIN 51757

Water solubility: The study does not need to be conducted because the substance is known to be insoluble in water.

Solubility in other solvents
Partition coefficient: not determined
Viscosity / dynamic: DIN 53019-1
Viscosity / kinematic: DIN EN ISO 3104
(at 40 °C)
Flow time: DIN EN ISO 2431
(at 20 °C)
Vapour density: not determined
Evaporation rate: not determined

9.2. Other information
Solid content: not determined

SECTION 10: Stability and reactivity

10.1. Reactivity
No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability
The product is stable under normal conditions.

10.3. Possibility of hazardous reactions
No known hazardous reactions.

10.4. Conditions to avoid
none

10.5. Incompatible materials
No information available.
10.6. Hazardous decomposition products

No known hazardous decomposition products.

Further information

Do not mix with other chemicals.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

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

<table>
<thead>
<tr>
<th>CAS No</th>
<th>Chemical name</th>
<th>Exposure route</th>
<th>Dose</th>
<th>Species</th>
<th>Source</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>4,4’-methylene diphenyl disocyanate; diphenylmethane-4,4’-diisocyanate</td>
<td>oral</td>
<td>LD50</td>
<td>Rat</td>
<td>GESTIS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation vapour</td>
<td>ATE</td>
<td>11 mg/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation aerosol</td>
<td>ATE</td>
<td>1.5 mg/l</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Irritation and corrosivity

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

Sensitising effects

Contains isocyanates. May produce an allergic reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. (4,4’-methylene diphenyl diisocyanate; diphenylmethane-4,4’-diisocyanate)

Carcinogenic/mutagenic/toxic effects for reproduction

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

No indications of human carcinogenicity exist.

No indications of human germ cell mutagenicity exist.

No indications of human reproductive toxicity exist.

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

Specific effects in experiment on an animal

No information available.

Additional information on tests

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

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.
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
Avoid release to the environment.

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
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

Waste disposal number of used product
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

Waste disposal number of contaminated packaging
150110 WASTE PACKAGING; ABSORBENTS, WIPING 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; hazardous waste

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

SECTION 14: Transport information

Land transport (ADR/RID)
14.1. UN number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)
14.1. UN number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Marine transport (IMDG)
14.1. UN number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No dangerous good in sense of this transport regulation.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

- Entry 56: 4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate
- 2010/75/EU (VOC): No information available.
- 2004/42/EC (VOC): No information available.

Additional information

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

National regulatory information

Employment restrictions:

Observe restrictions to employment for juvenils according to the ‘juvenile work protection guideline’ (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Water contaminating class (D): 1 - slightly water contaminating

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1,2,5,11,15.

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%
Safety Data Sheet

according to Regulation (EC) No 1907/2006

TUNAP GmbH & Co. KG

2060 TUNSEAL Scheibenkleber 310 ml K12060031AB
Revision date: 07.12.2017 Product code: K12060031AB Page 9 of 9

Relevant H and EUH statements (number and full text)

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.
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.)