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

1.1. Product identifier

2060 TUNSEAL Scheibenkleber 400 ml Folienbeutel K12060040AB

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

Company name: TUNAP GmbH & Co. KG
Street: Bürgermeister-Seidl-Str. 2
Place: D-82515 Wolfratshausen
Telephone: +49 (0) 8171/1600 - 0  Telefax: +49 (0) 8171/1600 - 40
sdb@tunap.com e-mail:
www.tunap.com Internet:

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:

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

Precautionary statements
P281 Avoid breathing dust/fume/gas/mist/vapours/spray.
P284 Wear respiratory protection.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P501 Dispose of contents/container to ....

Special labelling of certain mixtures
EUH204 Contains isocyanates. May produce an allergic reaction.

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>4,4'-methylenediphenyl diisocyanate; diphenylmethane-4,4'-diisocyanate</td>
<td>0.1 - &lt; 1 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
</tr>
<tr>
<td>202-966-0</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
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
Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. Medical treatment necessary.

After contact with skin
After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary.

After contact with eyes
Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an ophthalmologist.

After ingestion
Rinse mouth immediately and drink plenty of water.

4.2. Most important symptoms and effects, both acute and delayed
No information available.

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
Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media
High power water jet.

5.2. Special hazards arising from the substance or mixture
Non-flammable.

5.3. Advice for firefighters
Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information
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

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

Take up mechanically. 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
If handled uncovered, arrangements with local exhaust ventilation have to be used. Avoid dust formation. Do not breathe dust.

Advice on protection against fire and explosion
No special fire protection measures are necessary.

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.

Hints on joint storage
No special measures are necessary.

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

7.3. Specific end use(s)

Adhesives, sealants

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

blood (B)
Urine (U)

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
Wear eye protection/face protection.

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.

Skin protection
Wear suitable protective clothing.

Respiratory protection
In case of inadequate ventilation wear respiratory protection.

Environmental exposure controls
Observe legal regulations and provisions.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>viscous</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>black</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
<td></td>
</tr>
</tbody>
</table>

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

Changes in the physical state

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point</td>
<td>not determined</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>208 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>164 °C ISO 3679</td>
</tr>
</tbody>
</table>

Flammability

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>not determined</td>
</tr>
<tr>
<td>Gas</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

Lower explosion limits: not determined

Upper explosion limits: not determined

Auto-ignition temperature

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid</td>
<td>not determined</td>
</tr>
<tr>
<td>Gas</td>
<td>not applicable</td>
</tr>
</tbody>
</table>

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
- not determined

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

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 storage at normal ambient temperatures.

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.

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 diisocyanate; diphenylmethane-4,4'-diisocyanate</td>
<td>oral</td>
<td>LD50</td>
<td>9200</td>
<td>Rat</td>
<td>GESTIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>mg/kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inhalation vapour</td>
<td>ATE</td>
<td>11 mg/l</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inhalation aerosol</td>
<td>ATE</td>
<td>1,5 mg/l</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Irritation and corrosivity
Based on available data, the classification criteria are not met.

Sensitising effects
May cause sensitisation by inhalation and skin contact. (4,4’-methylenediphenyl 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 Directive 1999/45/EC.

### 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
Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**Advice on disposal**
Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. 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
Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

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'-methylene diphenyl 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): 2 - clearly water contaminating
Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

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%

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification Classification procedure
Resp. Sens. 1; H334 Calculation method

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.

Further Information
The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

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