1 Identification

· Product identifier
  · Trade name: Jowapur 1 K J PUR 686.25
  · Article number: 68625
  · Application of the substance / the mixture: Adhesives
  · Uses advised against: Restricted to professional users.

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    JOWAT Swiss AG
    Chemische & Leimfabrik
    CH - 6033 Buchrain
    Tel.: +41 (0)41-445 1111
  · Department issuing SDS:
    Environmental management
    Ellen Lange / Tina Friedrich / Jan-Peter Boelcke
    Fon +49 5231 749 218 / 270 / 211
    e-mail: umweltmanagement@jowat.de
  · Information provided by department:
    Jowat Corporation
    5608 Uwharrie Rd.
    Archdale, NC 27263
    P.O.Box 1368
    High Point, NC 27261
    Tel.: +1 336 434-9000
    Fax: +1 336 434-9019
    E-Mail: info@jowat.com
  · Emergency telephone number: 1 800 424 9300 (Chemtrec 24 hours service)

2 Hazard(s) identification

· Classification of the substance or mixture

  GHS08 Health hazard

  Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  Carc. 2 H351 Suspected of causing cancer.
  STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

  GHS07

  Acute Tox. 4 H332 Harmful if inhaled.
  Skin Irrit. 2 H315 Causes skin irritation.
  Eye Irrit. 2A H319 Causes serious eye irritation.
  Skin Sens. 1 H317 May cause an allergic skin reaction.
  STOT SE 3 H335 May cause respiratory irritation.

· Label elements
  · GHS label elements
    The product is classified and labeled according to the Globally Harmonized System (GHS).
  · Hazard pictograms

(Contd. on page 2)
Trade name: Jowapur 1 K J PUR 686.25

- **Signal word** Danger

- **Hazard-determining components of labeling:**
diphenylmethane diisocyanate

- **Hazard statements**
  H332 Harmful if inhaled.
  H315 Causes skin irritation.
  H319 Causes serious eye irritation.
  H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  H317 May cause an allergic skin reaction.
  H351Suspected of causing cancer.
  H335 May cause respiratory irritation.
  H373 May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P280 Wear protective gloves.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system**

  - **NFPA ratings (scale 0-4)**
    Health = 1
    Fire = 0
    Reactivity = 0
  
  - **HMIS ratings (scale 0-4)**
    Health = *2
    Flammability = 0
    Reactivity = 0

- **Other hazards**
  - Results of PBT and vPvB assessment
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Adhesive.
  Isocyanate resin

  - **Dangerous components:**
    - 26447-40-5 diphenylmethane disocyanate 25 - <50%

- **Additional information**
  In case any risk phrases are listed, please refer to paragraph 16 for the exact wording.

### 4 First-aid measures

- **Description of first aid measures**
  
  - **General information**
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  
  - **After inhalation**
    Supply fresh air and call in physician to be on the safe side.
    In case of unconsciousness place patient in stable side position for transportation.
  
  - **After skin contact**
    Immediately wash with water and soap and rinse thoroughly.
  
  - **After eye contact**
    Flush out opened eye for several minutes under running water. If symptoms persist, consult physician.
  
  - **After swallowing**
    If symptoms persist consult physician.
5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents
    - CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol-resistant foam.
  - Special hazards arising from the substance or mixture
    - Formation of toxic gases is possible during heating or in case of fire.
      - In case of fire, the following can be released:
        - Nitrogen oxides (NOx)
        - Carbon monoxide (CO)
        - Hydrogen cyanide (HCN)
- Advice for firefighters
  - Protective equipment:
    - Wear self-contained respiratory protective device.
    - Wear respiratory protective device.
    - Do not inhale explosion gases or combustion gases.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Wear protective clothing.
- Environmental precautions:
  - Do not allow product to reach sewer system or open water.
  - Prevent from spreading (e.g. by damming-in or oil barriers).
- Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, general-purpose binders, sawdust).
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.
- Reference to other sections
  - See Section 7 for information on safe handling
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

7 Handling and storage

- Handling
  - Precautions for safe handling
    - Extractors are required on all machines used for thermal processing.
    - Store in cool, dry place in tightly closed containers.
    - Provide good ventilation/extraction system in the workplace.
    - Prevent formation of aerosols.
  - Information about protection against explosions and fires: No special measures required.
- Conditions for safe storage, including any incompatibilities
  - Storage
    - Requirements to be met by storage facilities and containers: No special requirements.
    - Information concerning mixed product storage facilities: Not required.
    - Further information on storage conditions:
      - Keep container tightly sealed.
      - Store in dry conditions.
      - Protect from humidity and water.
    - Storage class 12
  - Specific end use(s) No further relevant information available.
8 Exposure controls/personal protection

- Additional information technical layout: No further data; see item 7.

- Control parameters
  - Components with limit values that require monitoring in the workplace:
    The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

- CAS No. Designation of material   %   Type   Value Unit

- Additional Occupational Exposure Limit Values for possible hazards during processing:

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Designation of material</th>
<th>%</th>
<th>Type</th>
<th>Value Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>diphenylmethane diisocyanate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEL</td>
<td>Ceiling limit value: 0.2 mg/m³, 0.02 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REL</td>
<td>Long-term value: 0.05 mg/m³, 0.005 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ceiling limit value: 0.2* mg/m³, 0.02* ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*10-min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TLV</td>
<td>Long-term value: 0.051 mg/m³, 0.005 ppm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Additional information:
  The lists that were valid at the date of compilation of this SDS were used as basis.

- Exposure controls
  - Personal protective equipment
    - General protection and hygiene precautions
      The standard precautionary measures for handling chemicals should be observed.
      Keep away from food, beverages and animal feed.
      Immediately remove all soiled and contaminated clothing
      Wash hands before breaks and at the end of work.
      Do not inhale gases / fumes / aerosols.
      Avoid contact with the eyes and skin.
      Do not eat or drink while working.
    - Breathing equipment:
      Use suitable respiratory protective device in case of insufficient ventilation.
      Short term filter device:
      Filter A/B/P2.
    - Protection of hands: Impervious gloves
      - Material of gloves Nitrile rubber, NBR
    - Penetration time of glove material
      Please contact the glove manufacturer for the exact time of penetration/resistance level and observe this limit.
    - In case of permanent contact in work areas where the risk of injury is low (e.g. labs) gloves made of the following material are suitable:
      PVC gloves
      Butyl rubber, BR
      Fluorocarbon rubber (Viton)
    - In case of permanent contact, gloves made of the following materials are suitable:
      Butyl rubber, BR
      Fluorocarbon rubber (Viton)
    - In case of skin contact of maximum of 15 minutes gloves made of the following materials are suitable:
      Nitrile rubber, NBR
  - The following materials are unsuitable for gloves:
    Leather gloves
    Strong gloves
  - Eye protection:
    Goggles recommended during refilling an spraying.
    Safety glasses

(Contd. on page 5)
### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Viscous</td>
</tr>
<tr>
<td>Color</td>
<td>According to product specification</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined.</td>
</tr>
<tr>
<td>pH-value</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Change in condition</td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>208 °C (406 °F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>&gt; 500 °C (&gt; 932 °F)</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Self-igniting</td>
<td>Product is not self-igniting.</td>
</tr>
<tr>
<td>Danger of explosion</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>Explosion limits</td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>0.4 Vol %</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Density at 20 °C (68 °F)</td>
<td>1.15 g/cm³ (9.597 lbs/gal)</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water</td>
<td>Not miscible or difficult to mix</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Dynamic at 20 °C (68 °F)</td>
<td>8500 mPas</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Solvent content</td>
<td></td>
</tr>
<tr>
<td>Organic solvents</td>
<td>0.1 %</td>
</tr>
<tr>
<td>Solid content</td>
<td>99.5 %</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available.</td>
</tr>
<tr>
<td>VOC - Volatile Organic Compounds</td>
<td></td>
</tr>
<tr>
<td>European Union</td>
<td>0.13 %</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.13 %</td>
</tr>
<tr>
<td>U.S.A (less water and less exempts)</td>
<td>1.5 g/l / 0.01 lb/gl</td>
</tr>
</tbody>
</table>

### 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.

**Possibility of hazardous reactions**
Reacts with water
Reacts with humid air
Reacts with strong acids and alkali
Can form explosive mixtures in air if heated above flash point and/or when sprayed or atomized

**Conditions to avoid** No further relevant information available.

**Incompatible materials**: No further relevant information available.

**Hazardous decomposition products**:
- Nitrogen oxides
- Hydrogen cyanide (prussic acid)
- Isocyanate
- Flammable gases/vapors
- Carbon monoxide and carbon dioxide
- Nitrogen oxides (NOx)

## 11 Toxicological information

**Information on toxicological effects**

**Acute toxicity**:

<table>
<thead>
<tr>
<th>Substance</th>
<th>LD50/LC50 values that are relevant for classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>26447-40-5 diphenylmethane diisocyanate</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>LD50 oral 10000 mg/kg (rat)</td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50 dermal 10000 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50 / 4 h 0.49 mg/l (rat)</td>
</tr>
</tbody>
</table>

**Primary irritant effect**:
- **on the skin**: Irritant to skin and mucous membranes.
- **on the eye**: Irritating effect.

**Sensitization**:
- Sensitization possible through inhalation.
- Sensitization possible through skin contact.

**Additional toxicological information**:
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations (Directive 1999/45/EC of the European Parliament and of the Council) as issued in the latest version:
- **Harmful**
- **Irritant**

**Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)**
  - None of the ingredients is listed.
- **NTP (National Toxicology Program)**
  - None of the ingredients is listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**
  - None of the ingredients is listed.

## 12 Ecological information

**Toxicity**

**Aquatic toxicity**:

<table>
<thead>
<tr>
<th>Substance</th>
<th>LC0</th>
<th>EC50 / 24 h</th>
<th>EC50 / 3 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>26447-40-5 diphenylmethane diisocyanate</td>
<td>&gt; 10000 mg/l (zebrafish)</td>
<td>&gt; 1000 mg/l (water flea)</td>
<td>&gt; 100 mg/l (pseudomonas putida)</td>
</tr>
</tbody>
</table>

**Persistence and degradability** No further relevant information available.

**Behavior in environmental systems**:
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation
  Must not be disposed of together with household garbage. Do not allow product to reach sewer system. Hand over to hazardous waste disposers.

- Uncleaned containers/packaging materials:
  - Recommendation:
  Dispose of packaging according to regulations on the disposal of packagings. Empty contaminated packaging thoroughly. They can be recycled after thorough and proper cleaning. Packagings that cannot be cleansed are to be disposed of in the same manner as the product.

14 Transport information

- UN-Number
  - DOT, ADR, ADN, IMDG, IATA Void

- UN proper shipping name
  - DOT, ADR, ADN, IMDG, IATA Void

- Transport hazard class(es)
  - DOT, ADR, ADN, IMDG, IATA
    - Class Void

- Packing group
  - DOT, ADR, IMDG, IATA Void

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user
  Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  Not applicable.

- UN "Model Regulation": Void

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - SARA Section 355 (extremely hazardous substances)
    None of the ingredients is listed.

  - SARA Section 313 (specific toxic chemical listings)
    None of the ingredients is listed.

  - TSCA (Toxic Substances Control Act) (Substances not listed)
    All ingredients are listed.

  - Proposition 65
    None of the ingredients is listed.
Trade name: Jowapur 1 K J PUR 686.25

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- Chemicals known to cause reproductive toxicity for females
  None of the ingredients is listed.

- Chemicals known to cause reproductive toxicity for males
  None of the ingredients is listed.

- Chemicals known to cause developmental toxicity
  None of the ingredients is listed.

- Canadian ingredient disclosure list
  - Limit 0,1 %
    None of the ingredients is listed.
  - Limit 1 %
    None of the ingredients is listed.

- Cancerogenity categories
  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.
  - TLV (Threshold Limit Value established by ACGIH)
    None of the ingredients is listed.

- NIOSH-Ca (National Institute for Occupational Safety and Health)
  None of the ingredients is listed.

- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

These data are based on our present state of information. They shall, however, not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship. All standard industrial precautions apply, concerning protection of health, and safe handling. The recommendations have to be examined in the context of the application for which the product is intended, and observed as necessary.

- Date of preparation / last revision 09/21/2016 / 16
- Abbreviations and acronyms:
  RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  ICAO: International Civil Aviation Organisation
  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
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  ACGIH: American Conference of Governmental Industrial Hygienists
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMSI: Hazardous Materials Identification System (USA)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  NIOSH: National Institute for Occupational Safety
  OSHA: Occupational Safety & Health
  TLV: Threshold Limit Value
  PEL: Permissible Exposure Limit
  REL: Recommended Exposure Limit
  Acute Tox. 4: Acute toxicity – Category 4
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  Resp. Sens. 1: Respiratory sensitisation – Category 1
  Skin Sens. 1: Skin sensitisation – Category 1
  Carc. 2: Carcinogenicity – Category 2
  STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
  STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

* Data in paragraphs with asterisk are revised in comparison to the previous version.