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

1.1. Product identifier
BERGQUIST GAP PAD TGP 5000 known as Gap Pad 5000S35

1.2. Relevant identified uses of the substance or mixture and uses advised against
Intended use:
Thermal Interface Material

1.3. Details of the supplier of the safety data sheet
Henkel AG & Co. KGaA
Henkelstr. 67
40589 Düsseldorf
Germany
Phone: +49 211 797 0
Fax-no.: +49 211 798 2009
ua-productsafety.uk@henkel.com

1.4. Emergency telephone number
24 Hours Emergency Tel: +44 (0)1442 278497

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification (CLP):
Substances and preparations marketed in a specific form or within specific containers need not to be classified according to the REACH Regulation Article 3 (3).

2.2. Label elements
Label elements (CLP):
Substances and preparations marketed in a specific form or within specific containers need not to be classified according to the REACH Regulation Article 3 (3).

2.3. Other hazards
None if used properly.
Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
SECTION 3: Composition/information on ingredients

3.2. Mixtures

General chemical description:
Manufactured item - article

Declaration of the ingredients according to CLP (EC) No 1272/2008:

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>EC Number</th>
<th>content</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride</td>
<td>246-140-8</td>
<td>10- &lt; 20 %</td>
<td>Aquatic Chronic 2</td>
</tr>
<tr>
<td>24304-00-5</td>
<td></td>
<td></td>
<td>H411</td>
</tr>
</tbody>
</table>

For full text of the H - statements and other abbreviations see section 16 "Other information". Substances without classification may have community workplace exposure limits available.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:
Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:
Rinse with running water and soap.
Obtain medical attention if irritation persists.

Eye contact:
Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

Ingestion:
Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

Prolonged or repeated contact may cause eye irritation.

Prolonged or repeated contact may cause skin irritation.

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

See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
water, carbon dioxide, foam, powder

Extinguishing media which must not be used for safety reasons:
High pressure waterjet

5.2. Special hazards arising from the substance or mixture

In the event of a fire, carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx) can be released.
In case of fire, keep containers cool with water spray.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Additional information:
In case of fire, keep containers cool with water spray.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
Avoid contact with skin and eyes.
Wear protective equipment.
Ensure adequate ventilation.

6.2. Environmental precautions
Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up
Scrape up as much material as possible.
Sweep up spilled material. Avoid creating dust.
Keep in suitable and closed containers for disposal.

6.4. Reference to other sections
See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid skin and eye contact.
See advice in section 8

Hygiene measures:
Good industrial hygiene practices should be observed.
Wash hands before work breaks and after finishing work.
Do not eat, drink or smoke while working.

7.2. Conditions for safe storage, including any incompatibilities
Ensure good ventilation/extraction.
Keep container tightly sealed.
Refer to Technical Data Sheet

7.3. Specific end use(s)
Thermal Interface Material
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for: Great Britain

<table>
<thead>
<tr>
<th>Ingredient [Regulated substance]</th>
<th>ppm</th>
<th>mg/m³</th>
<th>Value type</th>
<th>Short term exposure limit category / Remarks</th>
<th>Regulatory list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES, INHALABLE DUST]</td>
<td>10</td>
<td></td>
<td>Time Weighted Average (TWA):</td>
<td>EH40 WEL</td>
<td></td>
</tr>
<tr>
<td>Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES, RESPIRABLE DUST]</td>
<td>4</td>
<td></td>
<td>Time Weighted Average (TWA):</td>
<td>EH40 WEL</td>
<td></td>
</tr>
</tbody>
</table>

Occupational Exposure Limits

Valid for: Ireland

<table>
<thead>
<tr>
<th>Ingredient [Regulated substance]</th>
<th>ppm</th>
<th>mg/m³</th>
<th>Value type</th>
<th>Short term exposure limit category / Remarks</th>
<th>Regulatory list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES, RESPIRABLE DUST]</td>
<td>4</td>
<td></td>
<td>Time Weighted Average (TWA):</td>
<td>IR_OEL</td>
<td></td>
</tr>
<tr>
<td>Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES, TOTAL INHALABLE DUST]</td>
<td>10</td>
<td></td>
<td>Time Weighted Average (TWA):</td>
<td>IR_OEL</td>
<td></td>
</tr>
</tbody>
</table>

Biological Exposure Indices:

None

8.2. Exposure controls:

Engineering controls:
Ensure good ventilation/extraction.

Respiratory protection:
Ensure adequate ventilation.
An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area
Filter type: A (EN 14387)

Hand protection:
Chemical-resistant protective gloves (EN 374).
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):
- nitrile rubber (NBR; >= 0.4 mm thickness)
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):
- nitrile rubber (NBR; >= 0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.
Eye protection:
Wear protective glasses.
Protective eye equipment should conform to EN166.

Skin protection:
Wear suitable protective clothing.
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:
The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>solid</td>
</tr>
<tr>
<td>Odor</td>
<td>slightly</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Solidification temperature</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Initial boiling point</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Product is a solid.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Flammability</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Relative vapour density:</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Density</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Bulk density</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Solubility (qualitative)</td>
<td>Insoluble</td>
</tr>
<tr>
<td>(Solvent: Water)</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Viscosity (kinematic)</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available / Not applicable</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available / Not applicable</td>
</tr>
</tbody>
</table>

9.2. Other information
No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
None.

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
See section reactivity

10.4. Conditions to avoid
Stable under normal conditions of storage and use.
10.5. Incompatible materials
See section reactivity.

10.6. Hazardous decomposition products
carbon oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:
This material is considered to have low toxicity if swallowed.

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Value type</th>
<th>Value</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride 24304-00-5</td>
<td>LD50</td>
<td>&gt; 2.000 mg/kg</td>
<td>rat</td>
<td>not specified</td>
</tr>
</tbody>
</table>

Acute dermal toxicity:
This product is considered to have low dermal toxicity.
No substance data available.

Acute inhalative toxicity:
Not considered harmful under normal conditions of industrial use.

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Value type</th>
<th>Value</th>
<th>Test atmosphere</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride 24304-00-5</td>
<td>LC50</td>
<td>&gt; 0.317 mg/l</td>
<td>dust/mist</td>
<td>4 h</td>
<td>rat</td>
<td>equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation:
Prolonged or repeated contact may cause skin irritation.

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Result</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride 24304-00-5</td>
<td>not irritating</td>
<td></td>
<td>Human, EpiSkinTM (SM), Reconstructed Human Epidermis (RHE)</td>
<td>OECD Guideline 439 (In Vitro Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method)</td>
</tr>
<tr>
<td>Aluminium nitride 24304-00-5</td>
<td>not corrosive</td>
<td></td>
<td>Human, in vitro skin model</td>
<td>OECD Guideline 431 (In Vitro Skin Corrosion: Reconstructed Human Epidermis (RHE) Test Method)</td>
</tr>
</tbody>
</table>

Serious eye damage/irritation:
Prolonged or repeated contact may cause eye irritation.

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Result</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride 24304-00-5</td>
<td>not irritating</td>
<td></td>
<td>rabbit</td>
<td>OECD Guideline 405 (Acute Eye Irritation / Corrosion)</td>
</tr>
</tbody>
</table>

Respiratory or skin sensitization:
No data available.

Germ cell mutagenicity:
No data available.
Carcinogenicity

No data available.

Reproductive toxicity:

No data available.

STOT-single exposure:

No data available.

STOT-repeated exposure:

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Result / Value</th>
<th>Route of application</th>
<th>Exposure time / Frequency of treatment</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride</td>
<td>NOAEL 0.07 mg/l</td>
<td>inhalation</td>
<td>4 w, 6 h/d, 5 d/w</td>
<td>rat</td>
<td>OECD Guideline 412 (Repeated Dose Inhalation Toxicity: 28/14-Day)</td>
</tr>
</tbody>
</table>

Aspiration hazard:

No data available.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity (Fish):

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Value type</th>
<th>Value</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride</td>
<td>LC50</td>
<td>&gt; 1.8 - 8.2 mg/l</td>
<td>96 h</td>
<td>Pimephales promelas</td>
<td>other guideline:</td>
</tr>
<tr>
<td>Aluminium nitride</td>
<td>NOEC</td>
<td>0.053 mg/l</td>
<td>73 d</td>
<td>Oncorhynchus mykiss</td>
<td>other guideline:</td>
</tr>
</tbody>
</table>

Toxicity (Daphnia):

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>Value type</th>
<th>Value</th>
<th>Exposure time</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride</td>
<td>9.95 mg/l</td>
<td>96 h</td>
<td>Daphnia magna</td>
<td>OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)</td>
<td></td>
</tr>
</tbody>
</table>

Chronic toxicity to aquatic invertebrates

No data available.

Toxicity (Algae):
12.2. Persistence and degradability

No data available.

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Hazardous substances</th>
<th>CAS-No.</th>
<th>Bioconcentration factor (BCF)</th>
<th>Exposure time</th>
<th>Temperature</th>
<th>Species</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium nitride</td>
<td>24304-00-5</td>
<td>&gt; 85,2 - 84,8</td>
<td>30 d</td>
<td>other</td>
<td>other</td>
<td>other guideline:</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or vPvB.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:
Do not empty into drains / surface water / ground water.
Dispose of in accordance with local and national regulations.

Disposal of uncleaned packages:
Dispose of in accordance with local and national regulations.
SECTION 14: Transport information

14.1. UN number
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.2. UN proper shipping name
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.3. Transport hazard class(es)
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.4. Packing group
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.5. Environmental hazards
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

14.6. Special precautions for user
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.

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
VOC content (2010/75/EC) 0 %

15.2. Chemical safety assessment
A chemical safety assessment has not been carried out.
SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

H411 Toxic to aquatic life with long lasting effects.

Further information:

This Safety Data Sheet has been produced for sales from Henkel to parties purchasing from Henkel, is based on Regulation (EC) No 1907/2006 and provides information in accordance with applicable regulations of the European Union only. In that respect, no statement, warranty or representation of any kind is given as to compliance with any statutory laws or regulations of any other jurisdiction or territory other than the European Union. When exporting to territories other than the European Union, please consult with the respective Safety Data Sheet of the concerned territory to ensure compliance or liaise with Henkel’s Product Safety and Regulatory Affairs Department (ua-productsafety.de@henkel.com) prior to export to other territories than the European Union.

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Substances and preparations marketed in a specific form or within specific containers need not to be classified according to the REACH Regulation Article 3 (3).

Dear Customer,

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Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.