1. Product and company identification

1.1 Identification of the substance or preparation:

Commercial product name: HDK® H18 HYDROPHOBIC PYROGENIC SILICA


1.2 Company/undertaking identification:

Manufacturer/distributor: Wacker Chemie AG
Hanns-Seidel-Platz 4
81737 München
Germany

Customer information: Wacker Chemical Corporation
3301 Sutton Road
Adrian, Michigan 49221-9397
USA

InfoLine:
Tel (517) 264-8240, Fax (517) 264-8740

Hours of operation:
Monday - Friday, 8 am to 5 pm (eastern standard time)

Corporate website: www.wacker.com

Emergency telephone no. (24h):
(517) 264-8500

Transportation emergency:
(800) 424-9300 (CHEMTREC, USA)
(703) 527-3887 (CHEMTREC, international)

This MSDS was prepared by the Regulatory Affairs and Product Safety Department (RAPS) of Wacker Chemical Corporation.

2. Composition/information on ingredients

2.1 Chemical characterization (substance)

CAS No.  Chemical characteristics
67762-90-7 Hydrophobized highly dispersed silica, synthetic, x-ray amorphous silicon dioxide

2.2 Information on ingredients:

<table>
<thead>
<tr>
<th>Type</th>
<th>CAS No.</th>
<th>Substance</th>
<th>Content [wt. %]</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHA</td>
<td>67762-90-7</td>
<td>Hydrophobic Silica</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Substances listed in the Subsections "HAPS" and "California Proposition 65 Carcinogens / Reproductive Toxins" that are not listed in Section 2 are only present at quantities below 0.1% for California Proposition 65 listed toxins or below 1% for non-carcinogenic HAPS or they are inextricably bound in the product.

3. Hazards identification

3.1 Hazards classifications

HMIS® rating (product as packaged):
Health: 1  Fire: 1  Reactivity: 0  PPE: E

Note: Respiratory protection is only recommended in the event that ventilation or engineering controls are unable to maintain exposures below recommended levels; or in the event of a spill or other emergency response situation. Hazardous Materials Identification System and HMIS are registered trademarks of the National Paint and Coatings Association. (HMIS codes are based on contact with the product as packaged and any hydrolysis by-products, if present.)
3.2 Emergency overview and potential hazards

Physical Hazards:
Nuisance dust.

Acute health effects
Route of entry or possible contact:
eyes, skin, inhalation

Eye contact:
No acute toxic effects are expected. Slight irritation by mechanical effects is possible.

Skin contact:
No acute toxic effects are expected. Temporary discomfort like feeling of dryness on the skin.

Inhalation:
No acute toxic effects are expected. May cause physical discomfort to the respiratory tract.

Ingestion:
Not expected in industrial use.

Additional information on acute health effects:
Re Sect. 11.2 "Toxicological data", LC50 (inhalative): no mortalities at highest technical achievable concentration (rat).

3.3 Further information:

Chronic health effects:
Toxicological test results with a similar hydrophobic amorphous silica: A long term exposure exceeding TLV can lead to damaging effect as a result of mechanical overloading of the respiratory tract. Chronic respiratory exposure: Changes in respiratory organs observed in animal experiments (inflammatory processes) were reversible; no indication of silicosis. Animal tests have shown no indication to carcinogenic or to reproduction effects.

Medical conditions which may be aggravated by exposure:
unknown

Carcinogens/Reproductive toxins:
This material does not contain any reportable carcinogenic ingredients. This material does not contain any reproductive toxins at or above OSHA or WHMIS reportable levels.

See Section 11 for Toxicological Information, if any.

4. First-aid measures

4.1 General information:
Get medical attention if irritation occurs or if breathing becomes difficult.

4.2 After inhalation
If inhaled, remove to fresh air.

4.3 After contact with the skin
If contact with skin, wash skin with plenty of water or with water and soap.

4.4 After contact with the eyes
If contact with eyes, immediately flush eyes with plenty of water.

4.5 After swallowing
Drink plenty of water. Get medical attention if symptoms occur. Show label if possible.

5. Fire-fighting measures

5.1 Flammable properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>not applicable</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>not applicable</td>
<td></td>
</tr>
<tr>
<td>Lower explosion limit (LEL)</td>
<td>1500 g/m³</td>
<td></td>
</tr>
</tbody>
</table>
Upper explosion limit (UEL): not determined

5.2 Fire and explosion hazards:
Material does not burn. Electrostatic charging is possible. Ensure all components are well earthed. Use inert gas when working with combustible and explosive liquids. Substance is rated to dust explosion class ST 1 according to German VDI 2263.

5.3 Recommended extinguishing media:
Use extinguishing measures appropriate to the source of fire.

5.4 Unsuitable extinguishing media:
none known.

5.5 Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases
not applicable

5.6 Fire fighting procedures:
Fire fighters should wear full protective clothing including a self-contained breathing apparatus.

6. Accidental release measures

6.1 Precautions:
Avoid dust formation. Do not breathe dust. Wear personal protection equipment (see section 8).
HAZWOPER PPE Level: D

6.2 Containment:
Cover any spilled material in accordance with regulations to prevent dispersal by wind.
Spills of material which could reach surface waters must be reported to the United States Coast Guard National Response Center's toll free phone number (800) 424-8802.

6.3 Methods for cleaning up
Take up mechanically and dispose of according to local/state/federal regulations.

6.4 Further information:
Eliminate all sources of ignition.

7. Handling and storage

7.1 Handling
Precautions for safe handling:
Avoid dust formation.

Precautions against fire and explosion:
Observe the general rules for fire prevention. Substance is rated to dust explosion class ST 1 according to German VDI 2263. Necessary ignition energy is not attained when stored, transported and manufactured as usual. Keep away from sources of ignition and do not smoke. Electrostatic discharge possible during transport and processing. Take precautionary measures against electrostatic charging. Ensure all parts of equipment are well earthed. Use inert gas when working with combustible and explosive liquids. Avoid dust deposit, remove dust regularly.

7.2 Storage
Conditions for storage rooms and vessels:
none known

Advice for storage of incompatible materials:
not applicable

Further information for storage:
Keep container tightly closed.
8. Exposure controls and personal protection

8.1 Engineering controls

Ventilation:
Use only with adequate ventilation.

Local exhaust:
In case of dust formation: (To maintain concentration below TLV.) Local exhaust ventilation which meets the requirements of ANSI Z9.2 is recommended to control airborne contaminants at the point of use.

8.2 Associate substances with specific control parameters such as limit values

8.3 Personal protection equipment (PPE)

Respiratory protection:
In case of dust formation: A NIOSH approved particulate respirator with a P95 or higher rating.

Hand protection:
Recommendation: rubber gloves.

Eye protection:
Recommendation: Safety glasses with side shields or chemical safety goggles.

Other protective clothing or equipment:
Barrier cream may be used to prevent dryness of skin. If working with hydrophobic silica powder in areas where flammable or combustible vapors are present, measures to control static electric charging are recommended. This may include wearing personal anti-static clothing and conductive shoes in addition to process and equipment related engineering controls.

8.4 General hygiene and protection measures:

Do not breathe dust/vapor/mist/gas/aerosol. Avoid contact with eyes and skin. Preventive skin protection recommended. Do not eat, drink or smoke when handling.

9. Physical and chemical properties

9.1 Appearance

Physical state / form: solid - powder
Colour: white
Odour: odourless

9.2 Safety parameters

<table>
<thead>
<tr>
<th>Property</th>
<th>Value:</th>
<th>Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point / melting range</td>
<td>1700 °C (3,092 °F)</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>not applicable</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>not applicable</td>
<td></td>
</tr>
<tr>
<td>Lower explosion limit (LEL)</td>
<td>1500 g/m³</td>
<td></td>
</tr>
<tr>
<td>Upper explosion limit (UEL)</td>
<td>not determined</td>
<td></td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>not applicable</td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>approx. 2.2 g/cm³ at 20 °C (68 °F)</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>30 - 100 kg/m²</td>
<td></td>
</tr>
<tr>
<td>Water solubility / miscibility</td>
<td>virtually insoluble at 20 °C (68 °F)</td>
<td></td>
</tr>
<tr>
<td>pH-Value</td>
<td>3.6 - 5.6</td>
<td></td>
</tr>
<tr>
<td>Viscosity (dynamic)</td>
<td>not applicable</td>
<td></td>
</tr>
</tbody>
</table>

9.3 Further information

Thermal decomposition: not applicable

disturbed dust

Dust explosion class: ST1
Ignition temperature: 460 °C (860 °F)
Minimum ignition energy: > 10000 mJ

VDI 2263
DIN EN 13821
10. Stability and reactivity

10.1 General information:
If stored and handled in accordance with standard industrial practices no hazardous reactions are known.

10.2 Conditions to avoid
none known

10.3 Materials to avoid
none known

10.4 Hazardous decomposition products
If stored and handled properly: none known.

10.5 Further information:
Hazardous polymerization cannot occur.

11. Toxicological information

11.1 Information on toxicological effects
Toxicological testing has not been conducted with this material.

11.1.1 Acute toxicity
Assessment:
Based on the available data acute toxic effects are not expected after single oral exposure.

Product details:

<table>
<thead>
<tr>
<th>Route of exposure</th>
<th>Result/Effect</th>
<th>Species/Test system</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral</td>
<td>LD$_{50}$ &gt; 1000 mg/kg</td>
<td>rat</td>
<td>literature</td>
</tr>
<tr>
<td>dermal</td>
<td>LD$_{50}$ &gt; 2000 mg/kg</td>
<td>rat</td>
<td>literature</td>
</tr>
</tbody>
</table>

11.1.2 Skin corrosion/irritation
Assessment:
Based on the available data a clinically relevant skin irritation hazard is not expected.

Product details:

<table>
<thead>
<tr>
<th>Result/Effect</th>
<th>Species/Test system</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>not irritating</td>
<td>rabbit</td>
<td>literature</td>
</tr>
</tbody>
</table>

11.1.3 Serious eye damage / eye irritation
Assessment:
Based on the available data a clinically relevant eye irritation hazard is not expected.

Product details:

<table>
<thead>
<tr>
<th>Result/Effect</th>
<th>Species/Test system</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>not irritating</td>
<td>rabbit</td>
<td>literature</td>
</tr>
</tbody>
</table>

11.1.4 Respiratory or skin sensitization
Assessment:
For this endpoint no toxicological test data is available for the whole product.

11.1.5 Germ cell mutagenicity
Assessment:
Based on known data a significant mutagenic potential may be excluded.
11.1.6 Carcinogenicity
Assessment:
Animal tests have not revealed any carcinogenic effects.

11.1.7 Reproductive toxicity
Assessment:
In animal experiments there have not been any indications of reproduction toxicity.

11.1.8 Specific target organ toxicity (single exposure)
Assessment:
For this endpoint no toxicological test data is available for the whole product.

11.1.9 Specific target organ toxicity (repeated exposure)
Assessment:
Chronic inhalative exposure: Changes in respiratory organs observed in animal experiments (inflammatory processes) were reversible; no indication of silicosis.

11.1.10 Aspiration hazard
Assessment:
Based on the physical-chemical properties of the product no aspiration hazard must be expected.

11.1.11 Further toxicological information
Other information: Product degreases the skin. By handling the product for many years no damage to health was observed.
Remark for the listed toxicological data: Evaluation in analogy to similar product.

12. Ecological information

12.1 Toxicity
Assessment:
Non-toxic for organisms in water. Evaluation in analogy to a similar tested product. According to current knowledge adverse effects on water purification plants are not expected.

12.2 Persistence and degradability
Assessment:
Insoluble in water.

12.3 Bioaccumulative potential
Assessment:
No adverse effects expected.

12.4 Mobility in soil
Assessment:
No adverse effects expected.

12.5 Other adverse effects
none known

13. Disposal considerations
13.1 Product disposal
Recommendation:
Can be disposed of as household waste. Local legislation must be observed.

13.2 Packaging disposal
Recommendation:
Completely discharge containers (no tear drops, no powder rest, scraped carefully). Containers may be recycled or re-used. Observe local/state/federal regulations.

14. Transport information

14.1 US DOT & CANADA TDG SURFACE
Valuation ..............................................: Not regulated for transport

14.2 Transport by sea IMDG-Code
Valuation ..............................................: Not regulated for transport

14.3 Air transport ICAO-TI/IATA-DGR
Valuation ..............................................: Not regulated for transport

15. Regulatory information

15.1 U.S. Federal regulations
TSCA inventory status and TSCA information:
This material or its components are listed on or are in compliance with the requirements of the TSCA Chemical Substance Inventory.

TSCA 12(b) Export Notification:
This material does not contain any TSCA 12(b) regulated chemicals.

CERCLA Regulated Chemicals:
This material does not contain any CERCLA regulated chemicals.

SARA 302 EHS Chemicals:
This material does not contain any SARA extremely hazardous substances.

SARA 311/312 Hazard Class:
This product does not present any SARA 311/312 hazards.

SARA 313 Chemicals:
This material does not contain any SARA 313 chemicals above de minimus levels.

HAPS (Hazardous Air Pollutants):
This material does not contain any hazardous air pollutants.

15.2 U.S. State regulations
California Proposition 65 Carcinogens:
This material does not contain any chemicals known to the state of California to cause cancer.

California Proposition 65 Reproductive Toxins:
This material does not contain any chemicals known to the state of California to cause reproductive effects.

Massachusetts Substance List:
This material contains no listed components.

New Jersey Right-to-Know Hazardous Substance List:
This material contains no listed components.

Pennsylvania Right-to-Know Hazardous Substance List:
This material contains no listed components.
15.3 Canadian regulations
This product has been classified in accordance with the Hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

WHMIS Hazard Classes:
None.

DSL Status:
This material or its components are listed on the Canadian Domestic Substances List.

Canadian Ingredient Disclosure List:
This material contains no listed components.

15.4 Other international regulations

EU Risk Phrases:
- R-

EU Safety Phrases:
- S-

Details of international registration status
Listed on or in accordance with the following inventories:
- EINECS - Europe
- ECL - Korea
- ENCS - Japan
- AICS - Australia
- IECSC - China
- DSL - Canada
- PICCS - Philippines
- TSCA - USA

16. Other information

16.1 Additional information:
This Material Safety Data Sheet (MSDS) meets the requirements of the Federal OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. This information relates to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is to the best of our knowledge and belief accurate and reliable as of the date compiled. However, no representation, warranty or guarantee expressed or implied, is made as to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. We do not accept liability for any loss or damage that may occur from the use of this information. Nothing herein shall be construed as a recommendation for uses which infringe valid patents or as extending a license under valid patents. This MSDS provides selected regulatory information on this product, including its components. This is not intended to include all regulations. It is the responsibility of the user to know and comply with all applicable rules, regulations and laws relating to the product being used.

Vertical lines in the left-hand margin indicate changes compared with the previous version.
All deliveries are subject to the WACKER SILICONES Health Care Policy, which is available at www.wacker.com.

16.2 Glossary of Terms:
- ACGIH - American Conference of Governmental Industrial Hygienists
- DOT - Department of Transportation
- hPa - Hectopascals
- mPa's - Milli Pascal-Seconds
- OSHA - Occupational Safety and Health Administration
- PEL - Permissible Exposure Limit
- ppm - Parts per Million
- SARA - Superfund Amendments and Reauthorization Act
- STEL - Short Term Exposure Limit
- TSCA - Toxic Substances Control Act
- TWA - Time Weighted Average
- WHMIS - Canadian Workplace Hazardous Materials Identification System

Page: 8/9
Flash point determination methods ........................................ Common name
ASTM D56................................................................. Tagliabue (Tag) closed cup
ASTM D92, DIN 51376, ISO 2592 ................................... Cleveland open cup
ASTM D93, DIN 51758, ISO 2719 .................................... Pensky-Martens closed cup
ASTM D3278, DIN 55680, ISO 3679 ................................. Setaflash or Rapid closed cup
DIN 51755................................................................. Abel-Pensky closed cup

### 16.3 Conversion table:

- **Pressure:**
  - $1 \text{ hPa} \times 0.75 = 1 \text{ mm Hg} = 1 \text{ torr}$
  - $1 \text{ bar} = 1000 \text{ hPa}$

- **Viscosity:**
  - $1 \text{ mPa}^\ast \text{s} = 1 \text{ centipoise (cP)}$