

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Molsiv Adsorbents HM 2000 1.3 MM

Product Use: Adsorbent

UOP LLC
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USA
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Emergency Assistance - 24 hour Emergency Telephone Numbers:

EUROPE (BIG) : + 32-14-58.45.45
USA (UOP LLC) : + 1-847-391-2123
USA (CHEMTREC) : + 1-703-527-3887

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>INGREDIENT & CAS No</u>	<u>% WEIGHT</u>	<u>EC SYMBOL</u>	<u>EC R-PHRASES</u>	<u>EC Exposure Limit mg/m³</u>
Zeolites 1318-02-1	> 70	N.E.	N.E.	10(I) 3(R)
Mineral binder 999999-99-4	< 30	N.E.	N.E.	N.E.
Quartz 14808-60-7	< 3	N.E.	N.E.	0.1(R)

Note: A list of abbreviations is compiled in Section 16.

3. HAZARD IDENTIFICATION

No hazard classification.

When first wetted, the product can heat up to the boiling point of water. Flooding will reduce the temperature. Repeated and prolonged inhalation of crystalline silica in the form of quartz from occupational sources may cause cancer.

4. FIRST AID MEASURES

- 4.1 Eye contact:** Flush immediately with plenty of water for at least 15 minutes. If eye irritation persists, consult a physician.
- 4.2 Skin contact:** Wash off with soap and plenty of water. If skin irritation persists, call a physician.
- 4.3 After inhalation:** Remove the victim into fresh air. If symptoms persist, call a physician.
- 4.4 After ingestion:** Immediately give large volume of water to drink. If symptoms persist, call a physician.

5. FIRE FIGHTING MEASURES

- 5.1 Suitable extinguishing media:** Non-combustible. Use extinguishing media for surrounding fire.
- 5.2 Unsuitable extinguishing media:** N.A.
- 5.3 Fire and explosion hazards:** The product itself does not burn. The used product can retain material of a hazardous nature. Identify that material and inform the fire fighters.
- 5.4 Special protective equipment:** In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

6. ACCIDENTAL RELEASE MEASURES

- 6.1 Personal protection:** See 8.2
- 6.2 Environmental precautions:** No special environmental precautions required.
- 6.3 Clean-up:** Sweep, shovel or vacuum spilled product into appropriate containers (do not use a vacuum if material has contacted a hydrocarbon material). Pick-up and arrange disposal without creating dust. Never use spilled product.
Spilled product should be disposed of in accordance with all applicable government regulations.

7. HANDLING AND STORAGE

- 7.1 Handling:** Handle and open container with care. Avoid formation of dust particles. Avoid contact with skin and eyes. Provide an electrical ground connection during loading and transfer operations to avoid static discharge in an explosive atmosphere and to prevent persons handling the product from receiving static shocks. A copy of UOP's booklet, "Precautions and Safe Practices for Handling Molecular Sieves in Process Units", M-100C, can be obtained from your UOP representative at no cost.
- 7.2 Storage:** Store in original container. Keep in a dry place.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

- 8.1 Engineering measures:** Ensure adequate ventilation, especially in confined areas.
- 8.2 Personal protection equipment:** Handle in accordance with good industrial hygiene and safety practice.
- Eye protection:** Safety glasses or goggles.
- Hand protection:** Protective gloves.
- Skin and body protection:** Work uniform and gloves to prevent prolonged contact.
- Respiratory protection:** In case of insufficient ventilation wear suitable respiratory equipment. Breathing apparatus with filter: NIOSH classification N-100 or if oil/liquid aerosols are present P-100 (42 CFR 84).
- 8.3 Exposure limit(s):** **International Exposure Limits (mg/m³)**

<u>INGREDIENT & CAS No</u>	<u>% WEIGHT</u>	<u>UK OES/MEL</u>	<u>Germany MAK</u>	<u>The Netherlands MAC</u>	<u>France VME</u>
Zeolites 1318-02-1	> 70	10(I) 4(R)	4(I) 1.5(R)	10(I) 5(R)	10(I) 5(R)
Mineral binder 999999-99-4	< 30	10(I) 4(R)	4(I) 1.5(R)	10(I) 5(R)	10(I) 5(R)
Quartz 14808-60-7	< 3	0.3(R)	0.15(R)	0.075(R)	0.1(R)

Note : In case no information on national exposure limits is available, the exposure limit for 'general dust' is presented.

9. PHYSICAL AND CHEMICAL PROPERTIES

These data do not represent technical or sales specifications.

9.1 Form:	Beads
9.2 Color:	Tan
9.3 Odor:	None
9.4 pH:	8 - 11 (AS)
9.5 Boiling point/range:	N.A.
9.6 Melting point/range:	N.A.
9.7 Flash point:	N.A.
9.8 Autoignition temperature:	N.A.
9.9 Bulk density:	N.D.
9.10 Explosion limits:	N.A.
9.11 Vapor pressure:	N.A.
9.12 Relative density/Specific Gravity:	N.A.
9.13 Vapor density:	N.A.
9.14 Viscosity:	N.A.
9.15 Water solubility:	N.D.
9.16 Solubility:	N.D.

10. STABILITY AND REACTIVITY

10.1 Stability:	Stable.
10.2 Hazardous decomposition products:	No decomposition if used as directed. Hydrocarbons and other materials that contact the product during normal use can be retained on the product. It is reasonable to expect that decomposition products will come from these retained materials of use.
10.3 Conditions/Materials to avoid:	Sudden contact with high concentrations of chemicals having high heats of adsorption such as olefins, HCl, etc. When first wetted, the product can heat up to the boiling point of water. Flood with water to cool material.

11. TOXICOLOGICAL INFORMATION

11.1 Acute toxicity:

LD50/oral/rat = > 32 000 mg/kg *

LD50/dermal/rabbit = > 2 000 mg/kg *

LC50/inhalation/rat = No data available.

11.2 Chronic toxicity:

Classification of Ingredients

EC Carcinogenic: Not listed.

EC Mutagenic: Not listed.

EC Toxic for Reproduction: Not listed.

Carcinogenicity (ACGIH): A2 (Quartz)

IARC classification: Group 1 (Quartz)
Group 3 (Zeolites)

11.3 Routes of exposure:

Exposure may occur via inhalation, contact with skin and eyes.

11.4 Irritation:

Skin (rabbit): Not classified as a skin irritant in animal testing. *

Eye (rabbit): Not classified as an eye irritant in animal testing. *

11.5 Additional product information:

* The toxicological data has been taken from products of similar composition.

12. ECOLOGICAL INFORMATION

- 12.1 Mobility:** No data available.
- 12.2 Biodegradation:** No data available.
- 12.3 Bioaccumulation:** No data available.
- 12.4 Aquatic toxicity:** No data available.
- 12.5 Further Information:** No information available.

13. DISPOSAL INFORMATION

- 13.1 Provisions relating to waste:** EC Directives 75/442/EC; 91/156/EC; 91/689/EC and 94/31/EC.
- 13.2 Disposal information:** Can be landfilled after chemical and physical treatment, when in compliance with the local regulations. Store containers and offer for recycling of material according to the local regulations. Contact waste disposal services. Materials of a hazardous nature that contact the product during normal use may be retained on this product. The user of the product must identify the hazards associated with the retained material in order to assess the waste disposal options.

14. TRANSPORT INFORMATION

- 14.1 Proper shipping name:** Not applicable.
- 14.2 UN-No.:** N.A.
Packing group: N.A.
- 14.3 ADR/RID:** Not regulated.
Danger Code: N.A.
Danger labels: N.A.
- 14.4 IMO:** Not regulated.
EmS: N.A.
MFAG: N.A.
Marine pollutant: No
- 14.5 ICAO - IATA:** Not regulated.
Instruction "passenger": N.A.
Instruction "cargo": N.A.
- 14.6 Further Information:**
Not classified as hazardous or dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION

The product is classified and labelled in accordance with the EC Directives and Regulations.

The product does not need to be labelled in accordance with EC-Directives.

Symbol(s): N.A.

Contains: N.A.

Risk Phrases: None.

Safety phrases: None.

European Inventory of Existing Commercial Chemical Substances:

All components of this product are included in EINECS/ELINCS.

WGK Classification (VwVWS - Germany, June 1999): nwg

16. OTHER INFORMATION

Summary of changes: New MSDS
Supersedes: None.
Prepared by: UOP Health, Safety & Environmental Department

Abbreviations:

N.A. - Not applicable
N.E. - None established
N.D. - Not determined
OES/MEL - Occupational Exposure Standard / Maximum Exposure Limit
TWA - Time-Weighted Average
STEL - Short-Term Exposure Limit
MAK - Maximale Arbeitsplatz-Konzentration
MAC - Maximale Arbeidsplaats Concentratie
VME - des Valeurs limites de Moyenne d'Exposition
EC - European Community
IARC - International Agency for Research on Cancer
SC - Soluble Compounds
FD - Fine Dust
TD - Total Dust
FuD - Fume and Dust
Fu - Fume
I - Inhalable
R - Respirable
AS - Aqueous slurry
IS - Insoluble Compounds

For additional information concerning this product, contact the following:

For health, safety and environmental information, please contact:

Product Stewardship Manager
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For technical or purchasing information, please contact:

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PRODUCT EMERGENCIES

If you have a product-related emergency, resulting in an incident such as a spill or release of product or human exposure and need assistance from UOP, please contact the following number :

24-Hour EMERGENCY NUMBER (BIG) : + 32 - 14 - 58.45.45

The data and recommendations presented in this data sheet concerning the use of our product and the materials contained therein are believed to be accurate and are based on information which is considered reliable as of the date hereof. However, the customer should determine the suitability of such materials for his purpose before adopting them on a commercial scale. Since the use of our products by others is beyond our control, no guarantee, express or implied, is made and no responsibility assumed for the use of this material or the results to be obtained therefrom. Information on this form is furnished for the purpose of compliance with Government Health and Safety Regulations and shall not be used for any other purposes. Moreover, the recommendations contained in this data sheet are not to be construed as a license to operate under, or a recommendation to infringe, any existing patents, nor should they be confused with state, municipal or insurance requirements, or with national safety codes.