UOP

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY INFORMATION

Product Name: Molecular Sieve Type 5A

Chemical Name: Sodium/Calcium Aluminosilicate Synonyms: Zeolite
Trade Name: UOP Molecular Sieve; Formerly UNION CARBIDE Molecular Sieve

Emergency Assistance
24 Hour Emergency Telephone Numbers

USA:	UOP	847-391-2123
	Chemtrec	800-424-9300
In Canada:	Canutec	613-996-6666
Outside USA:	Chemtrec	202-483-7616
In Europe from 08.00 until 17.00:		+39-2-57540.214

In the USA
UOP
Molecular Sieve Division
25 E. Algonquin Road
P.O. Box 5017
Des Plaines IL 60017-5017
Telephone: 847-391-3189
FAX: 847-391-2953

In Canada
UOP Canada Inc.
Molecular Sieve Division
120 Eglinton Ave., East
Suite 304
Toronto, Ontario M4P lE2
Telephone: 416-488-3562
FAX: 416-488-4354

In Europe
UOP M.S., S.p.A.
Viale Milanoffori
Strada 1 - Palazzo El
20090 Assago Mi
Italy

2. COMPOSITION

Ingredient	CAS No.	Wt%	ACGIH TLV-TWA	OSHA PEL-TWA
Silicon oxide	7631-86-9	<65	10 mg/M3 as Silicon	15 mg/m3 Total dust, 5 mg/m3 Respirable dust
Aluminum oxide (non-fibrous)	1344-28-1	<40	10 Mg/M3 Total dust	15 mg/m3 Total dust 5 mg/m3 Respirable dust
Sodium oxide	1313-59-3	<20	None established	None established
Calcium oxide	1305-78-8	<20	2 mg/m3	5 mg/m3

ACGIH - American Conference of Govermentat industrial Hygienists TLV - Threshold Limit VaLue
OSHA - Occupational Safety and Health Administration USA TWA - Time Weighted Average
PEL Permissible Exposure Limit

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

The product is odorless tan pellets, granules, beads, white powder or cake. In the fresh unused state, this product is not flammable. When first wetted, the product can heat up to the boiling point of water. Flooding will reduce the temperature.

POTENTIAL HEALTH EFFECTS:

Primary Routes of Exposure: Contact with skin and eyes. Exposure may also occur via inhalation or ingestion if product dust is generated during handling and/or processing.

Skin Contact: The product dust may dry the skin. This material becomes hot when it first comes into contact with moisture. The hot material could cause thermal burns.

Eye Contact: Dust and/or product may cause eye discomfort and/or irritation seen as tearing and reddening.

Ingestion: The product gets hot as it adsorbs water. Burns to moist body tissues can result if contact is prolonged.

Inhalation: Inhalation of product and/or dust may cause irritation of the respiratory tract. Irritation may be accompanied by coughing and chest discomfort.

Target C)rgan: Prolonged or repeated exposure may cause lung injury.

Carcinogenicity Classification:

International Agencv for Research on Cancer (IARC):

Silicon oxide - Not classifiable as human carcinogen (Group 3).

U.S. National Toxicologv Program (NIP):

Neither the product nor the component(s) are classified.

U.S. Occupational Safety and Health Administration (OSHA):

Neither the product nor the component(s) are classified or regulated.

4. FIRST AID MEASURES

Skin Contact: Wash affected area with soap and water.

Eye Contact: Flush with water for at least 15 minutes.

Ingestion: Drink at least 2 glasses of water. Obtain medical attention.

Inhalation: Remove affected person to fresh air. If respiratory problems develop, obtain medical attention.

Notes to Physician: : This product is a desicant and generates heat as it adsorbs water. This used product can contain material of a hazardous nature. Identify that material and treat symptomatically.

5. FIRE FIGHTING MEASURES

Flash Point: Not combustible

Extinguishing Media: Unused material will not burn. Use media appropriate for surrounding fire.

Fire and Explosion Hazards: Used material may contain materials of a hazardous nature. The user of this product must identify the hazards of the retained material and inform the fire lighters of these hazards.

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6. ACCIDENTAL RELEASE MEASURES

Large Spill: Isolate the affected areas. Confine entry into the affected area to those persons properly protected. Special attention should be given to eye and respiratory protection because recovery of dry material is expected to generate dust. Sweep, shoves or vacuum spilled material into appropriate containers.

Small Spill: Sweep or vacuum spilled material into appropriate container. Product should be disposed of in accordance with all applicable government regulations.

7. HANDLING AND STORAGE

Store in tightly closed, properly labelled containers. A Copy of UOPs booklet, "Precautions and Safe Practices for Handling Molecular Sieves in Process Units," M-1001, can be obtained from your UOP representative at no cost.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection: Where natural ventilation is inadequate, use mechanical ventilation, other engineering controls, or a toxic dust respirator (in USA - NIOSH/MSHA approved) to prevent inhalation of product dust.

Skin Protection: Gloves and work uniform as necessary to prevent repeated or prolonged skin contact.

Eye Protection: Safety glasses or goggles as necessary to prevent eye contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

These data do not represent technical or sales specifications.

Appearance: Tan pellets or beads, white powder orcake

Odor None
pH: Aqueous slurry 8 to 11
Specific Gravity:
% Volatile: Not applicable
Pour Point: Not applicable
Viscosity:

pparent Bulk Density: _
Solubility in Water Not applicable
Boiling Point: Not applicable
Freezing Point: Not applicable
Vapor Pressure: Not applicable
Vapor Density: Not applicable
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10. STABILITY

Stability: Stable

Conditions to Avoid: The addition of moisture (water) without flooding can cause rise in temperature from heat of adsorption, and contact with skin might result in burns.

Hazardous Decomposition Products: 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. The product itself does not readily decompose unless subject to extreme temperature or chemical conditions. If such decomposition did occur, the products would include the mix of oxides shown in Section 2.

Hazardous Polymerization: Will not occur
Incompatible Materials: Sudden contact with high concentrations of chemicals having high heats of adsorption such as olefins, HO, etc.

11. TOXICOLGICAL INFORMATION

Acute Oral Toxicity: An oral LD50 is not available for this product.
Acute Dermal Toxicity: A dermal LD50 is not available for this product.
Acute Inhalation Toxicity: An inhalation LD50 is not available for this product.
Irritation: Not available

Additional Toxicological Information:

A similar product has an extremely low order of toxicity by swallowing. The similar pellets were pulverized and suspended in semi-solid agar for ease of administration.

When the Molecular Sieve was administered by stomach intubation to male rats, the animals survived single massive doses equivalent to 32.0 gram per kilogram of body weight with good weight gains. There were no significant micropathological findings on tissue taken fourteen days after dosing.

12. ECOLOGICAL INFORMATION

Aquatic Toxicity: None known.
Waterfowl Toxicity: None known.

Biochemical Oxygen Demand: None.
Food Chain Concentration Potential: None expected.

13. DISPOSAL INFORMATION

Discard any product (including any retained matenals of use), disposable container or liner in an environmentally acceptable manner, in full compliance with all applicable government regulations. This product (in its fresh unused state) is not listed by generic name or trademark name in the U.S. EPA's Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Regulations and does not possess any of the four identifying characteristics of hazardous waste.

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14. TRANSPORTATION INFORMATION

U.S. Department of Transportation Shipping Name: Not regulated.

International Maritime Organization (IMO): Not regulated.

15. REGULATORY INFORMATION

United States

Toxic Substances Control Act (TSCA):

All the ingredients of this mixture are registered in the TSCA Chemical Substance Inventory.

Superfund Amendments and Reauthorization Act Title III, Section 313:

The following component(s) of this product are subject to the release reporting requirements of

Section 313 of the Emergency Planning and Community Right-to-Know Act:

--None-

Superfund Amendments and Reauthorization Act Title III:

The following component(s) of this product are subject to emergency planning based on Threshold Planning Quantities (TPQ's) and release reporting based on Reportable Quantities (RQ's) in 40 CFR

355 (used for SARA 302, 304, 311 and 312):

--None-

State Community Right-to-Know Legislation:

The following component(s) of this product are regulated under California's Proposition 65:

--None-

European Union (KU)

European Inventory of Existing Commercial Chemical Substances:

All components of this preparation are induded in EINECS.
Zeolites are also listed under EINECS No. 2152838.
Silicon oxide
Aluminum oxide (non-fibrous)
Sodium oxide
Calcium oxide

2315454 2156916 2152089 2151389

Council of European Communities Directive on Classification, Packaging and Labelling of Dangerous Substances/Preparation (67/548/EEC & 88/379/EEC):

Not shown.

Canadian Hazardous Products Act

This product is not classified as a controlled product under regulations pursuant to the federal Hazardou Product Act (e.g. WHMIS).

16. OTHER INFORMATION

Summary of Changes: New area code.
I.D./Form: M-4503
Supersedes: March 1995

HMIS - Hazardous Materials Identification System

HMIS Ratings	
HEALTH	1
FLAMMABILITY	0
REACTIVlTY	0

0=Minimal hazard, 1=Slight hazard, 2=Serious hazard, 4=Severe hazard

For additional information concerning this product, contact the following:

For health, safety & environmental information, please contact:

UOP Product Stewardship Manager
Health, Safety & Environmental Dept.
25 E. Algonquin Road
P.O. Box 5017
Des Plaines, IL 60017-5017
Telephone: (847) 391-3189

FAX: (847) 391-2953

For technical or purchasing information, please contact:

Adsorbent Sales
UOP - Molecular Sieve Dept.
13105 Northwest Freeway
Suite 600
Houston, TX 77040 USA
Telephone: (713) 774-2811
FAX`: (713) 744-2802

PRODUCT EMERGENCIES

UOP 24-Hour Emergency Telephone Number: 847-391-2123

This 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, expressed 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.