

Molsiv Adsorbents 13X 1/16**F8936501**

Version 1.1

Revision Date 10/28/2012

Print Date 01/31/2013

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Molsiv Adsorbents 13X 1/16

MSDS Number : F8936501

Product Use Description : Adsorbents

Company : UOP LLC
25 E. Algonquin Road
Des Plaines, IL 60017-5017
USA

Telephone : +1-847-391-2000
Telefax : +1-847-391-2953

In case of emergency call : **Medical (PROSAR): 1-800-498-5701 or +1-651-523-0309**
: **Transportation (CHEMTREC): 1-800-424-9300 or**
: **+1-703-527-3887**

: (24 hours/day, 7 days/week)

SECTION 2. HAZARDS IDENTIFICATION**Emergency Overview**

Form : beads or pellets

Color : white to tan

Odor : none

Hazard Summary : Repeated or prolonged exposure may irritate eyes, skin and respiratory system. When first wetted, the product can heat up to the boiling point of water. Flood with water to cool material. Repeated and prolonged inhalation of crystalline silica in the form of quartz from occupational sources may cause cancer.

Potential Health Effects

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- Skin : May cause skin irritation.
The product gets hot as it first adsorbs water.
- Eyes : Dust and/or product may cause eye discomfort and/or irritation
seen as tearing and reddening.
- Ingestion : The product gets hot as it first adsorbs water.
Burns to moist body tissue can result if contact is prolonged.
- Inhalation : Exposure to dust particles generated from this material may
cause irritation of the respiratory tract.
Repeated and prolonged inhalation of crystalline silica in the
form of quartz from occupational sources may cause cancer.
- Chronic Exposure : Prolonged or repeated inhalation may cause lung injury/cancer.
- Primary Routes of Entry : Contact with skin and eyes.
Exposure may also occur via inhalation or ingestion if product
dust is generated.

Carcinogenicity

NTP:	Quartz (SiO ₂) Known carcinogen.	14808-60-7
IARC:	Quartz (SiO ₂) 1: Human carcinogen.	14808-60-7
ACGIH:	Quartz (SiO ₂) A2: Suspected human carcinogen	14808-60-7

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical Name	CAS-No.	Concentration
Silicon oxide (synthetic)	7631-86-9	<65.00 %

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Aluminum oxide (non-fibrous)	1344-28-1	<50.00 %
Sodium oxide	1313-59-3	<20.00 %
Magnesium oxide	1309-48-4	<10.00 %
Quartz (SiO ₂)	14808-60-7	<5.00 %

SECTION 4. FIRST AID MEASURES

- Inhalation : Remove to fresh air. If symptoms persist, call a physician.
- Skin contact : Wash off with soap and plenty of water. If skin irritation persists, call a physician.
- Eye contact : Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, consult a physician.
- Ingestion : Drink at least 2 glasses of water. Obtain medical attention. Never give anything by mouth to an unconscious person.

Notes to physician

- Treatment : This product is a desiccant and generates heat as it adsorbs water. The used product can contain material of a hazardous nature. Identify that material and treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Not combustible.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Specific hazards during firefighting : The product itself does not burn.
The used product can retain material of a hazardous nature. Identify that material and inform the fire fighters.

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Special protective equipment for firefighters : In the case of respirable dust and/or fumes, use self-contained breathing apparatus and dust impervious protective suit.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : For personal protection see section 8.

Environmental precautions : No special environmental precautions required.

Methods for cleaning 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 return spills in original containers for re-use.
Spilled product should be disposed of in accordance with all applicable government regulations.

SECTION 7. HANDLING AND STORAGE**Handling**

Handling : Handle and open container with care.
Avoid dust formation.
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 & Safe Practices for Handling Zeolite Molecular Sieve Adsorbents in Process Units", can be obtained from your UOP representative at no cost.

Storage

Requirements for storage areas and containers : Store in original container.
Keep in a dry place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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- Protective measures : Handle in accordance with good industrial hygiene and safety practice.
- Engineering measures : Ensure adequate ventilation, especially in confined areas.
- Eye protection : Safety glasses
Safety 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).

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Silicon oxide (synthetic)	7631-86-9	REL : Recomm ended exposure limit (REL):	6 mg/m3	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Silicon oxide (synthetic)	7631-86-9	TWA : time weighted average	6 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

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Silicon oxide (synthetic)	7631-86-9	TWA : time weighted average	0.8 mg/m ³ The exposure limit is calculated from the equation, 80/(%SiO ₂), using a value of 100% SiO ₂ . Lower values of % SiO ₂ will give higher exposure limits.	2000	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
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Aluminum oxide (non-fibrous)	1344-28-1	TWA : time weighted average	1 mg/m ³	2009	ACGIH:US. ACGIH Threshold Limit Values
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Further information	:	Form of exposure : Respirable fraction.			
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Aluminum oxide (non-fibrous)	1344-28-1	PEL : Permissible exposure limit	15 mg/m ³	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
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Further information	:	Form of exposure : Total dust.			
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Aluminum oxide (non-fibrous)	1344-28-1	PEL : Permissible exposure limit	5 mg/m ³	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
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Further information	:	Form of exposure : Respirable fraction.			
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Aluminum oxide (non-fibrous)	1344-28-1	TWA : time weighted average	10 mg/m ³	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
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Further information	:	Form of exposure : Total dust.
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Aluminum oxide (non-fibrous)	1344-28-1	TWA : time weighted average	5 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
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Further information	:	Form of exposure : Respirable fraction.
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Magnesium oxide	1309-48-4	TWA : time weighted average	10 mg/m3	2008	ACGIH:US. ACGIH Threshold Limit Values
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Further information	:	Form of exposure : Inhalable fraction.
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Magnesium oxide	1309-48-4	PEL : Permissible exposure limit	15 mg/m3	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
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Further information	:	Form of exposure : Total particulate.
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Magnesium oxide	1309-48-4	TWA : time weighted average	10 mg/m3	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
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Further information	:	Form of exposure : Total particulate.
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Quartz (SiO2)	14808-60-7	TWA : time weighted average	0.025 mg/m3	2008	ACGIH:US. ACGIH Threshold Limit Values
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Further information	:	Form of exposure : Respirable fraction.
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Quartz (SiO ₂)	14808-60-7	REL : Recomm ended exposure limit (REL):	0.05 mg/m ³	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
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Further information	:	Form of exposure : Respirable dust.
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Quartz (SiO ₂)	14808-60-7	TWA : time weighted average	0.1 mg/m ³	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
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Further information	:	Form of exposure : Respirable dust.
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Quartz (SiO ₂)	14808-60-7	TWA : time weighted average	0.3 mg/m ³ The exposure limit is calculated from the equation, 30/(%SiO ₂ +2), using a value of 100% SiO ₂ . Lower values of % SiO ₂ will give higher exposure limits.	2000	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
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Further information	:	Form of exposure : Total dust.
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Quartz (SiO ₂)	14808-60-7	TWA : time weighted average	0.1 mg/m ³ The exposure limit is calculated from the equation, 10/(%SiO ₂ +2), using a value of 100% SiO ₂ . Lower percentages of SiO ₂ will yield higher exposure limits.	2000	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
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Further information	:	Form of exposure : Respirable.
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Quartz (SiO ₂)	14808-60-7	TWA : time weighted average	2.4 millions of particles per cubic foot of air The exposure limit is calculated from the equation, 250/(%SiO ₂ +5) , using a value of 100% SiO ₂ . Lower percentages of SiO ₂ will yield higher exposure limits.	2000	Z3:US. OSHA Table Z-3 (29 CFR 1910.1000)
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Further information	:	Form of exposure : Respirable.
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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : beads or pellets

Color : white to tan

Odor : none

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pH : Note: not applicable

Melting point/freezing point : > 400 °C

Boiling point/boiling range : Note: not applicable

Flash point : Note: not applicable

Density : > 2.0 g/cm³

Water solubility : Note: insoluble

Solubility in other solvents : Note: insoluble

Bulk density : Note: For further information, refer to the product technical data sheet.

SECTION 10. STABILITY AND REACTIVITY

Chemical stability : Stable

Incompatible 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.

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.

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It is reasonable to expect that decomposition products will come from these retained materials of use.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: LD50 Oral: > 32,000 mg/kg Species: rat
Acute inhalation toxicity	: Note: no data available
Acute dermal toxicity	: LD50 Dermal: > 2,000 mg/kg Species: rabbit
Skin irritation	: Species: rabbit Classification: Not classified as a skin irritant in animal testing.
Eye irritation	: Species: rabbit Result: Mild eye irritation
Further information	: Note: The toxicological data has been taken from products of similar composition.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish	: Note: no data available
Toxicity to daphnia and other aquatic invertebrates	: Note: no data available

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Toxicity to algae : Note: no data available

Elimination information (persistence and degradability)

Bioaccumulation : Note: no data available

Mobility : Note: no data available

Biodegradability : Note: no data available

Further information on ecology

Additional ecological information : No information on ecology is available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods : This product (in its fresh unused state) is not listed by generic name or trademark name in the U.S. EPA's RCRA regulations and does not possess any of the four identifying characteristics of hazardous waste (ignitability, corrosivity, reactivity or toxicity).
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.

SECTION 14. TRANSPORT INFORMATION**DOT** Not dangerous goods**TDG** Not dangerous goods**IATA** Not dangerous goods**IMDG** Not dangerous goods

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SECTION 15. REGULATORY INFORMATION**Inventories**

- US. Toxic Substances Control Act : On TSCA Inventory
- Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory
- Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL list.
- Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory
- Korea. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory
- Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory
- China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory
- New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

- SARA 302 Components** : SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
- SARA 313 Components** : SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold

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(De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards	:	Chronic Health Hazard	
California Prop. 65	:	WARNING! This product contains a chemical known to the State of California to cause cancer.	
		Quartz (SiO ₂)	14808-60-7
Massachusetts RTK	:	Magnesium oxide	1309-48-4
	:	Quartz (SiO ₂)	14808-60-7
	:	Aluminum oxide (non-fibrous)	1344-28-1
	:	Silicon oxide (synthetic)	7631-86-9
New Jersey RTK	:	Magnesium oxide	1309-48-4
	:	Quartz (SiO ₂)	14808-60-7
	:	Aluminum oxide (non-fibrous)	1344-28-1
	:	Silicon oxide (synthetic)	7631-86-9
Pennsylvania RTK	:	Magnesium oxide	1309-48-4
	:	Quartz (SiO ₂)	14808-60-7
	:	Aluminum oxide (non-fibrous)	1344-28-1
	:	Silicon oxide (synthetic)	7631-86-9
WHMIS Classification	:	D2A: Very Toxic Material Causing Other Toxic Effects This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.	

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 1*	1
Flammability	: 0	0
Physical Hazard	: 1	
Instability	:	1

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* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Prepared by: Honeywell Performance Materials and Technologies Product Stewardship Group