

Molsiv Adsorbents 3A 1/8**8935301**

Version 1.0

Revision Date 10/30/2012

Print Date 07/18/2014

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Molsiv Adsorbents 3A 1/8
NRP Desiccant MS30

MSDS Number : 8935301

Product Use Description : Adsorbents

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

Distributor:
National Refrigeration Products
985 Wheeler Way
Langhorne, PA 19047 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 : tan

Odor : none

Hazard Summary : 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 and aluminosilicate (ceramic) fiber from occupational sources may cause cancer. Repeated or prolonged exposure may irritate eyes, skin and respiratory system.

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 and aluminosilicate (ceramic) fiber 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:	Refractory ceramic fibers	142844-00-6
	Reasonably Anticipated to be a Human Carcinogen.	
	Quartz (SiO ₂)	14808-60-7
	Known carcinogen.	
IARC:	Quartz (SiO ₂)	14808-60-7
	1: Human carcinogen.	
	Refractory ceramic fibers	142844-00-6
	Group 2B: Possibly carcinogenic to humans	
ACGIH:	Quartz (SiO ₂)	14808-60-7
	A2: Suspected human carcinogen	
	Refractory ceramic fibers	142844-00-6
	A2: Suspected human carcinogen	

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical Name	CAS-No.	Concentration
Silicon oxide (synthetic)	7631-86-9	<65.00 %
Aluminum oxide (non-fibrous)	1344-28-1	<40.00 %
Sodium oxide	1313-59-3	<30.00 %
Potassium oxide	12136-45-7	<15.00 %
Quartz (SiO ₂)	14808-60-7	<5.00 %
Refractory ceramic fibers	142844-00-6	<2.00 %

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

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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.
- 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

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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

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 : Recommended exposure limit (REL):	6 mg/m ³	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Silicon oxide (synthetic)	7631-86-9	TWA : time weighted average	6 mg/m ³	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/m3 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/m3	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/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 dust.			
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Aluminum oxide (non-fibrous)	1344-28-1	PEL : Permissible exposure limit	5 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 : Respirable fraction.			
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Aluminum oxide (non-fibrous)	1344-28-1	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 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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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 (SiO2)	14808-60-7	REL : Recomm ended exposure limit (REL):	0.05 mg/m3	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 (SiO2)	14808-60-7	TWA : time weighted average	0.1 mg/m3	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)
Further information	:	Form of exposure : Total dust.			

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)
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)
Further information	:	Form of exposure : Respirable.			

Refractory ceramic fibers	142844-00-6	TWA : time weighted average	0.2 fibers/cm ³ F: Respirable fibers: length > 5 micrometers; aspect ratio >= 3:1, as determined by the membrane filter method at 400-450X magnification (4-mm objective), using phase-contrast illumination.	2009	ACGIH:US. ACGIH Threshold Limit Values
Further information	:	Form of exposure : Fiber.			

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : beads or pellets

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Color	: tan
Odor	: none
pH	: Note: not applicable
Melting point/freezing point	: > 400 °C
Boiling point/boiling range	: Note: not applicable
Flash point	: Note: not applicable
Flammability	: not applicable
Lower explosion limit	: Note: not applicable
Upper explosion limit	: Note: not applicable
Vapor pressure	: Note: not applicable
Vapor density	: Note: not applicable
Density	: > 2.0 g/cm ³
Water solubility	: Note: insoluble
Solubility in other solvents	: Note: no data available
Partition coefficient: n-octanol/water	: Note: no data available
Ignition temperature	: Note: not applicable
Viscosity, kinematic	: Note: not applicable

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Bulk density : Note: not determined

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.
It is reasonable to expect that decomposition products will come from these retained materials of use.**SECTION 11. TOXICOLOGICAL INFORMATION**Acute oral toxicity : LD50: > 32,000 mg/kg
Species: rat

Acute inhalation toxicity : Note: no data available

Acute dermal toxicity : Note: no data available

Skin irritation : Species: rabbit
Classification: Not classified as a skin irritant in animal testing.Eye irritation : Species: rabbit
Classification: Not classified as an eye irritant in animal testing.

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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

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

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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**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 : not determined

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of : On the inventory, or in compliance with the inventory

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Chemicals (NZIoC), as
published by ERMA New
Zealand

TSCA 12B : US. Toxic Substances Control Act (TSCA) Section 12(b) Export
Notification (40 CFR 707, Subpt D)

Refractory ceramic fibers 142844-00-6

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
(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 (SiO₂) 14808-60-7
Refractory ceramic fibers 142844-00-6

Massachusetts RTK : Quartz (SiO₂) 14808-60-7
: Aluminum oxide (non-fibrous) 1344-28-1
: Silicon oxide (synthetic) 7631-86-9

New Jersey RTK : Quartz (SiO₂) 14808-60-7
: Potassium oxide 12136-45-7
: Refractory ceramic fibers 142844-00-6
: Aluminum oxide (non-fibrous) 1344-28-1
: Silicon oxide (synthetic) 7631-86-9

Pennsylvania RTK : Quartz (SiO₂) 14808-60-7
: Aluminum oxide (non-fibrous) 1344-28-1
: Silicon oxide (synthetic) 7631-86-9

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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

* - 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.

Prepared by: Honeywell Performance Materials and Technologies Product Stewardship Group