

Material Safety Data Sheet

Molecular Sieve, Type 4A, 8-12 Mesh Beads



1. Product and company identification

Product name : Molecular Sieve, Type 4A, 8-12 Mesh Beads
Product code : MX1583L
Supplier : EMD Chemicals Inc.
480 S. Democrat Rd.
Gibbstown, NJ 08027
856-423-6300 Technical Service
Monday-Friday: 8:00 -5:00 PM
Synonym : Molecular Sieve Type 4A, Molecular Sieve
Material uses : Other non-specified industry: Analytical reagent.
Validation date : 7/13/2009.
In case of emergency : 800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

2. Hazards identification

Emergency overview : WARNING!
HARMFUL IF INHALED.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
MUCOUS MEMBRANES, SKIN, EYE, LENS OR CORNEA.
SUSPECT CANCER HAZARD - CONTAINS MATERIAL WHICH MAY CAUSE
CANCER.
MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
CONTAINS MATERIAL WHICH MAY CAUSE DAMAGE TO THE FOLLOWING
ORGANS: LUNGS, RESPIRATORY TRACT.
CONTACT WITH WATER GENERATES HEAT.

WARNING: This product contains a chemical known to the State of California to cause
cancer.
Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep
container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Physical state : Solid.
OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard
(29 CFR 1910.1200).
Routes of entry : Inhalation. Ingestion.
Potential acute health effects
Inhalation : Toxic by inhalation. May cause respiratory irritation.
Ingestion : Ingestion may cause gastrointestinal irritation and diarrhea.
Skin : May cause skin irritation.
Eyes : May cause eye irritation.
Potential chronic health effects
Carcinogenicity : Contains material which may cause cancer. Risk of cancer depends on duration and
level of exposure.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.
Target organs : Contains material which causes damage to the following organs: mucous membranes,
skin, eye, lens or cornea.
Contains material which may cause damage to the following organs: lungs, upper
respiratory tract.

2. Hazards identification

Medical conditions aggravated by over-exposure : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>% by weight</u>
Silica Gel	7631-86-9	<50
Aluminum Oxide	1344-28-1	<30
Sodium Oxide	1313-59-3	<30
Magnesium Oxide	1309-48-4	<5
Sand (Quartz)	14808-60-7	<3

4. First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5. Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.
- Extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
metal oxide/oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6. Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

6 . Accidental release measures

- Spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

- Handling** : Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container, protected from direct sunlight. Keep container tightly closed and sealed until ready for use.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Silica Gel	NIOSH REL (United States, 6/2008). TWA: 6 mg/m ³ 10 hour(s).
Aluminum Oxide	OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m ³ 8 hour(s). Form: Dust TWA: 5 mg/m ³ 8 hour(s). Form: Respirable fraction NIOSH REL (United States, 6/2008). TWA: 5 mg/m ³ , (as Al) 10 hour(s). Form: PYRO POWDERS AND WELDING FUMES OSHA PEL (United States, 11/2006). TWA: 15 mg/m ³ 8 hour(s). Form: Total dust TWA: 5 mg/m ³ 8 hour(s). Form: Respirable fraction
Magnesium Oxide	ACGIH TLV (United States, 1/2006). Notes: Refers to Appendix A -- Carcinogens. Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM-TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract. ACGIH 2003 Adoption TWA: 10 mg/m ³ 8 hour(s). Form: Fume ACGIH TLV (United States, 1/2008). TWA: 10 mg/m ³ 8 hour(s). Form: Fume OSHA PEL 1989 (United States, 3/1989). TWA: 10 mg/m ³ 8 hour(s). Form: Total particulates OSHA PEL (United States, 11/2006). TWA: 15 mg/m ³ 8 hour(s). Form: Total particulates
Sand (Quartz)	OSHA PEL Z3 (United States, 9/2005). TWA: 250 mppcf 8 hour(s). Form: Respirable TWA: 10 mg/m ³ 8 hour(s). Form: Respirable TWA: 30 mg/m ³ 8 hour(s). Form: Total dust. OSHA PEL 1989 (United States, 3/1989). TWA: 0.1 mg/m ³ , (as quartz) 8 hour(s). Form: Respirable dust ACGIH TLV (United States, 1/2008). TWA: 0.025 mg/m ³ 8 hour(s). Form: Respirable fraction NIOSH REL (United States, 6/2008). TWA: 0.05 mg/m ³ 10 hour(s). Form: respirable dust

Consult local authorities for acceptable exposure limits.

8 . Exposure controls/personal protection

- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: nitrile rubber
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: safety glasses with side-shields
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Recommended: lab coat
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

- Physical state** : Solid.
- Color** : White to tan solid
- Odor** : Odorless.
- pH** : Not available.
- Boiling/condensation point** : Not available.
- Melting/freezing point** : Not available.
- Relative density** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : Not available.
- Odor threshold** : Not available.
- Evaporation rate** : Not available.
- Solubility** : Insoluble in the following materials: water

10 . Stability and reactivity

- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials and acids.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Test Route	Species	Result
Sand (Quartz)	LDLo	Rat	250 mg/kg
	Intratracheal		
	LDLo	Rat	200 mg/kg
	Intratracheal		
	LDLo Intravenous	Rat	90 mg/kg
	TDLo	Rat	50 mg/kg
	Intratracheal		
	TDLo	Rat	30 mg/kg
	Intratracheal		
	TDLo	Rat	25 mg/kg
	Intratracheal		
	TDLo	Rat	15.69 mg/kg
	Intratracheal		
	TDLo	Rat	10 mg/kg
	Intratracheal		
	TDLo	Rat	5 mg/kg
	Intratracheal		
	TDLo	Rat	1.5 mg/kg
Intratracheal			
TDLo	Rat	1 mg/kg	
Intratracheal			
TDLo	Rat	1250 ug/kg	
Intratracheal			
TDLo	Rat	150 mg/kg	
Intratracheal			
TDLo	Rat	100 mg/kg	
Intratracheal			
TDLo Oral	Rat	120 g/kg	

Carcinogenicity

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Silica Gel	-	3	-	-	-	-
Aluminum Oxide	A4	-	-	-	-	-
Magnesium Oxide	A4	-	-	-	-	-
Sand (Quartz)	A2	1	-	+	Proven.	-

Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity

No known significant effects or critical hazards.

Teratogenicity

No known significant effects or critical hazards.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	-	CHEMICALS, N.O.S.	-	-		-

PG* : Packing group

15 . Regulatory information**United States**

HCS Classification : Toxic material
Irritating material
Carcinogen
Target organ effects

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Aluminum Oxide ; Magnesium Oxide ; Sand (Quartz); Sodium Oxide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification:
Aluminum Oxide : Immediate (acute) health hazard; Magnesium Oxide : Immediate (acute) health hazard; Sand (Quartz): Immediate (acute) health hazard, Delayed (chronic) health hazard; Sodium Oxide: Immediate (acute) health hazard
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
Form R - Reporting requirements	: Aluminum Oxide	1344-28-1	<30
Supplier notification	: Aluminum Oxide	1344-28-1	<30

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

Connecticut Carcinogen Reporting : None of the components are listed.

Connecticut Hazardous Material Survey : None of the components are listed.

Florida substances : None of the components are listed.

Illinois Chemical Safety Act : None of the components are listed.

Illinois Toxic Substances Disclosure to Employee Act : None of the components are listed.

Louisiana Spill : None of the components are listed.

Louisiana Reporting : None of the components are listed.

Massachusetts Spill : None of the components are listed.

15 . Regulatory information

- Massachusetts Substances** : The following components are listed: Silica Gel ; Aluminum Oxide ; Magnesium Oxide ; Sand (Quartz)
- Minnesota Hazardous Substances** : None of the components are listed.
- Michigan Critical Material** : None of the components are listed.
- New Jersey Toxic Catastrophe Prevention Act** : None of the components are listed.
- New Jersey Spill** : None of the components are listed.
- New Jersey Hazardous Substances** : The following components are listed: Silica Gel ; Aluminum Oxide ; Magnesium Oxide ; Sand (Quartz)
- New York Toxic Chemical Release Reporting** : None of the components are listed.
- New York Acutely Hazardous Substances** : None of the components are listed.
- Pennsylvania RTK Hazardous Substances** : The following components are listed: Silica Gel ; Aluminum Oxide ; Magnesium Oxide ; Sand (Quartz)
- Rhode Island Hazardous Substances** : None of the components are listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
Sand (Quartz)	Yes.	No.	No.	No.

Canada

- WHMIS (Canada)** : Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).
- Canadian lists** : **CEPA Toxic substances:** None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Aluminum oxide
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.
- CEPA DSL / CEPA NDSL** : All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

EU regulations

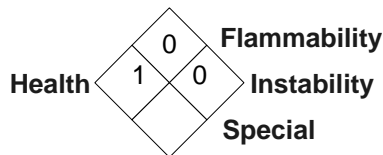
- Risk phrases** : This product is not classified according to EU legislation.

International regulations

- International lists** : **Australia inventory (AICS):** All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory (ENCS): All components are listed or exempted.
Japan inventory (ISHL): Not determined.
Korea inventory (KECI): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): All components are listed or exempted.

16 . Other information

National Fire Protection :
Association (U.S.A.)



Notice to reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.