

OHIO VALLEY SPECIALTY COMPANY

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Material Safety Data Sheet

** This document is meant to be a verbatim transcription, or is a scanned copy, of a vendor Material Safety Data Sheet (MSDS), undertaken solely to afford efficient use of the safety and health information (developed and provided by the vendor/manufacturer) via the computerized MSDS system. Any information that is added by OHIO VALLEY Specialty Company (For clarity or other purposes) is clearly identified by being bound by asterisks. Each recipient should study this MSDS and become aware of the product's hazards. Reference works or personnel who are experts in ventilation, toxicology and fire prevention may have to be consulted to adequately utilize the data contained in this MSDS.

GRACE - DAVISON CHEMICAL DIVISION
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Section 1. Identification

Product Name: Formed Molecular Sieves
Chemical Name & Family:
Synthetic Zeolite, A-TYPE Sieves, X-TYPE Sieves, Y-TYPE Sieves

Synonyms:

Sodium*, Calcium*, or Potassium* Aluminosilicate
*Depending on product grade.

Chemical Structure:

A-TYPE: Na_2O , CaO or $\text{K}_2\text{O}(\text{Al}_2\text{O}_3:2.0\text{SiO}_2:x\text{H}_2\text{O})$
X-TYPE: Na_2O , CaO or $\text{K}_2\text{O}(\text{Al}_2\text{O}_3:2.8\text{SiO}_2:x\text{H}_2\text{O})$
Y-TYPE: Na_2O , CaO or $\text{K}_2\text{O}(\text{Al}_2\text{O}_3:5.0\text{SiO}_2:x\text{H}_2\text{O})$
CLAY: 3 MgO: 1.5Al₂O₃: 8SiO₂:9H₂O

CAS No.: 1313-59-3 1305-78-8 12136-45-7 7631-86-9 1344-28-1
1332-58-7 60676-86-0 7732-18-5

Section 2. Composition/information on Ingredients

Ingredients	OSHA: PEL mg/m ³ total respirable	ACGIH: TLV mg/m ³ total, respirable
Na ₂ O * Sodium Oxide	n.1.	n.1.
CaO * Calcium Oxide	5	2
K ₂ O * Potassium Oxide	n.1.	n.1.
SiO ₂ ** Silica (Synthetic)	6	10
Al ₂ O ₃ Alumina	10 5	10
Clay	n.1.	n.1. 0.1
Quartz	30/%quartz+2 10/%quartz+2	n.1.
H ₂ O Water	n.1.	n.1.

Section 3. Physical Data

Appearance: White, gray, or tan, beads
pH in 5% Slurry: 10.3 - 10.5
Odor: Odorless
Solubility (in water): Insoluble
Specific Gravity: 2.1
Bulk Density: Beaded Grades 40-50 lbs/ft.³
Approximate Analysis: Weight %: Quartz: < 2 (typical) Maximum = 3.0
Stability: Stable
Reactivity: Reacts with HF and strong acids or alkali
Fire & Explosion Data: Non-flammable

Section 4. Health Hazard Data

PRECAUTIONS IN USE:

Avoid prolonged breathing of the dust or contact of dust with the skin. The drying action of this material can cause irritation of the mucous membranes of the nose and throat and irritation of the skin. If its use requires manual handling, wear long sleeves and close-weave cotton gloves with tight-fitting wristlets. If dusty conditions prevail, use of an approved NIOSH/MSHA dust mask is recommended.

When pouring into a container of flammable liquid, ground both containers electrically to prevent a static electric spark.

Will release heat when adsorbing water. If a large quantity of sieve quickly adsorbs the equilibrium amount of water, the sieves can become hot enough to cause thermal burns of the skin. Avoid contact under these conditions. See SPECIAL INFORMATION.

EMERGENCY AND FIRST AID PROCEDURES:

Swallowing: Material will pass through body normally.
Skin: Wash with soap and water.
Eyes: Immediately wash from eyes with large amounts of water, occasionally lifting upper and lower eye lids. If irritation occurs and persists, seek medical attention.
Inhalation: Remove to fresh air.

Section 5. Toxicology

ANIMAL TOXICOLOGY:

Tests for DOT Hazard Classification:

Test on Na₂O X-TYPE sieves gave the following results:
1-hour LC₅₀ (rat) > 2.8 mg/l
48-hour oral LD₅₀ (rat) est. >31,600 mg/kg
48-hour dermal LD₅₀ (rabbit) est. >2,000mg/kg
Not considered an ocular irritant

Tests for FDA approval for use in foods:
Not a food-grade product.

Human Toxicology:

Molecular Sieves are non-fibrous, synthetic aluminosilicates (zeolites) not to be confused with natural zeolites. All studies to date indicate that they do not cause significant health problems. When activated, molecular sieves act as a desiccant and can cause a drying irritation of the mucous membranes and skin in cases of severe exposure. The average concentration of quartz in the material is less 2.0% (maximum = 3.0%). Quartz has been classified by IARC as a Class 2A Carcinogen. Quartz can cause cancer, silicosis or other fibrotic lung disease with prolonged exposure. Davison knows of no medical conditions abnormally aggravated by exposure to this product. The primary route of entry is inhalation.

Section 6. Handling Information

Storage and Transportation: Keep containers tightly sealed to protect product quality.

Disposal: Landfill in accordance with local, state and federal regulations. Cover to avoid blowing of dust. See Special Information, following.

Spillage and Cleanup: Vacuum or sweep up or flush to sewer treated for suspended solids removal.

Containers: Bags and drum containers. Also available in other packaging as required, including bulk shipments by truck.

Section 7. Special Information

When transferring beaded molecular sieves with high pressure air, wear goggles. Malfunction of equipment can propel beads with enough velocity to penetrate the skin. Make sure that the transfer system and receiving vessels are properly grounded. Follow standard operating instructions.

Following contact with typical petrochemicals or gases, molecular sieves must be handled with special precautions. The combination of molecular sieves and retained material can be flammable and toxic. Care should be taken to avoid sources of ignition and to avoid personal contact. Use approved disposal methods suitable for toxic wastes.

Section 8. Environmental Data

Not known to have any adverse effect on the aquatic environment when properly disposed. Insoluble and nontoxic.

Section 9. Regulatory Information

OSHA: PEL: Molecular Sieve - not listed in 29 CFR 1910.1000.
NIOSH: Not included on the list of substances requiring toxicity studies.
EPA: This product contains no toxic chemicals in excess of the applicable de minimis concentration as specified under § 313 of Title III SARA.
ACGIH: TLV: Molecular Sieve - not listed in ACGIH - TLV's.
USDA: Not applicable.
FDA: Not applicable.
DOT: Not classified as a hazardous material.

****NOTE:**

THIS DATA IS OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE WHETHER THEY ARE APPROPRIATE.**

File Name: Molecular Sieve
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