NUTEC

MATERIAL SAFETY DATA SHEET
(U.S.A)

MSDS Number: 02-2/4

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SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material/Product Name(s): Supermag* Biosoluble Bulk, Blankets, Board and Modules
Chemical family: Alkaline earth silicate fiber
Synonyms: Synthetic vitreous fiber (SVF), man made vitreous fiber (MMVF), man made mineral fiber (MMMF), Calcium – magnesium - silicate fiber (CMS).

Manufacturer/Supplier:
Nutec Fibratec, S.A. de C.V.
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SECTION 2. INGREDIENTS/COMPOSITION

Ingredient name	CAS Number	%	Exposure Limits
Amorphous calcium - magnesium-silicate fiber	436083-99-7	100	OSHA "Particulate not otherwise regulated" Respirable Dust: 5 mg/m^3 Total Dust: 15 mg/m^3 ACGIH PNOC Respirable Dust: 3 mg/m^3 Total Dust: 10 mg/m^3 Nutec, recommends a TWA of 1 fiber/cm^3.

Typical Chemical Analysis of the fiber, Wt %

SiO_2	60 - 67
CaO	28 - 33
MgO	1 - 7

*The listed oxides do not exist as separate or crystalline compounds, but exist in an amorphous, glassy phase. Glasses are a class of materials made from silicon dioxide and other metal oxides that solidify from the molten state without crystallization.

SECTION 3. HAZARDS IDENTIFICATION

HMIS	HEALTH HAZARD	1- SLIGHT
	FLAMMABILITY HAZARD	0 - MINIMAL
	REACTIVITY HAZARD	0 - MINIMAL
	PERSONAL PROTECTION	TO BE DETERMINED BY USER

EMERGENCY OVERVIEW:

Exposure to glass fibers sometimes causes irritation to the skin and, less frequently, irritation to the eyes, nose, or throat. This is not an allergic reaction, but simply a mechanical irritation. Skin irritation typically is experienced by individuals who are newly exposed to fibrous glass and it usually diminishes after several days of exposure. Good personal and industrial hygiene practices minimize the amount of discomfort.

Eye contact: Fiber may cause moderate irritation to the eye.

Skin contact: Contact with bare skin can cause moderate skin irritation by the abrasive action.

Inhalation: Inhalation of airborne particulate can irritate the upper respiratory system as well as throat.

Ingestion: An unlikely route of exposure. If ingested in sufficient quantity, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, and abdominal pain.

Medical conditions which may be aggravated by contact: Inhalation of fiber/dust may aggravate existing chronic lung conditions such as, but not limited to, bronchitis, emphysema, and asthma.

SECTION 4. FIRST AID MEASURES

Eye contact: Flush eyes, including under the eyelids, with large amounts of water. If irritation persists, seek medical attention.

Skin contact: Wash affected areas with mild soap and water, using a skin cream or lotion after washing may be helpful.

Inhalation: Remove victim from adverse environment to fresh air.

Ingestion: Ingestion is an unlikely route of exposure. If ingested in sufficient quantity and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting to qualified medical personnel, since particles may be aspirated into the lungs. Seek immediate medical attention.

SECTION 5. FIRE FIGHTING MEASURES

NFPA codes: **Flammability:** 0, **Health:** 1, **Reactivity:** 0, **Special**: 0.

NFPA Unusual Hazards: None.

Flammable Properties: None.

Hazardous Decomposition Products: None.

Fire and Explosion: Product is not combustible.

Extinguishing Media: Use extinguishing media appropriate to combustibles in area of fire.

Firefighting instructions: Firefighters should wear NIOSH-approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Spill procedures: Carefully, cleanup and place material into a suitable covered container, being careful to avoid creating any airborne dust. If dusty conditions exist, use HEPA filtered vacuum equipment if available, if not, use a dust suppressant with sweeping; do not use compressed air. Clean-up personnel should wear approved respiratory protection, gloves, and goggles to prevent irritation from contact and/or inhalation.

SECTION 7. HANDLING AND STORAGE

Storage: This product is stable under all conditions of storage. Store in original containers. Keep container closed when not in use.

Handling: Handle fiber carefully. Limit use of power tools on less in conjunction with local exhaust. Used hand tools whenever possible.
Frequently clean the work area with HEPA filtered vacuum or wet sweeping to minimize the accumulation of debris.

Empty Containers: Do not reuse.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

OSHA PEL	Not Established
OSHA PNOR	Total dust 15mg/m^3; Respirable dust 5mg/m^3
ACGIH TLV	None established
ACGIH PNOC	Inhalable particulate 10mg/m^3 Respirable dust 3mg/m^3

Manufacturer's Recommendation: It is prudent to reduce exposure to respirable dusts to the lowest possible level through the use of engineering controls such as ventilation and dust collection devices. Industrial hygiene standards and occupational exposure limits may vary between countries and local jurisdictions. Contact your employer to determine which exposure levels apply to your facility. If no regulatory dust or other standards apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection. In the absence of other guidance, the supplier has found that it is generally feasible to control occupational fiber exposure to 1 f/cc or less.

Engineering controls: Technologies to control respirable dust such as local exhaust ventilation, point of generation dust collection, downdraft workstations, emission controlling tool designs and materials handling equipment are generally effective for minimizing exposures to respirable dust.

Personal Protective Equipment:
Skin Protection: Wear long-sleeved, loose-fitting clothing, gloves and eye protection with side shields to prevent skin irritation. If soiled work clothing must be taken home, employers should ensure employees are trained on the best practices to minimize or avoid non work dust exposure.
Eye Protection: Wear goggles or safety glasses with side shields to prevent eye contact in compliance with appropriate OSHA standards to prevent eye irritation.
Respiratory Protection: When effective engineering and/or administrative controls are insufficient, the use of appropriate respiratory protection, in accordance with the requirements of OSHA 29 CFR 1910.134 and 29 CFR 1926.103, is recommended. For dust concentrations below the applicable exposure limit value, PPE is not required. The evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed on a case by case basis, by a qualified industrial hygienist.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: A blue/white fibrous material. Available in loose, bulk, blanket, and module forms; odorless. Blanket may contain aluminum foil/fiber scrim composite facing.

Chemical gamily:	Calcium-Magnesium-Silicate Mixtures.	**Vapor pressure:**	Not applicable.
Boiling Point:	Not applicable	**Specific Gravity(g/cc):**	2.5 – 3.1
Melting Point:	1275 °C (2320 °F)	**Bulk Weight (lbs/ft^3):**	4-8
Water Solubility:	Slight	**Volatile by volume:**	0
pH:	Not applicable	**Evaporation rate:**	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable under conditions of normal use.
Conditions to avoid: None.
Hazardous Polymerization: Product is stable; polymerization will not occur
Chemical Incompatibilities: Strong mineral acids
Hazardous Decomposition Products: None

SECTION 11. TOXICOLOGICAL INFORMATION

Epidemiology: This product has not been the subject of a long-term epidemiological study. Epidemiology studies related to other fiber chemistries of similar solubility have not identified a statistically significant incidence of exposure-related respiratory disease.

Toxicology: CMS wools have been tested for their biopersistence using methods devised by the European Union. The results from these studies exonerate CMS wools from carcinogen classification under the criteria listed in Nota Q of European Commission Directive 97/69/EU.

In a lifetime carcinogenicity test, rats were exposed by inhalation for two years (5 days a week; 6 hours a day) to CMS fibers at 200 WHO fibers/ml. There was neither fibrosis nor carcinogenic response; only reversible cellular

changes were seen. Further, subchronic inhalation studies on rats with CMS fibers at concentrations of 150 fibers (>20 µm long) per ml for 90 days with follow up to 1 year showed neither inflammation nor cell proliferation. All parameters studied returned rapidly to baseline levels on cessation of exposure.

After-service, CMS wools may contain crystalline phases including some forms of silica. (See Section 16) However,
CMS fibers heated to 1000°C for 2 weeks were not cytotoxic to macrophage-like cells at concentrations up to 320 µg/cm^2. In the same test, samples of pure crystalline quartz were significantly active at 20 µg/cm^2.

NOTE
Nutec Fibratec Supermag* products are members of a family of materials whose properties are distinct in several ways from other manmade mineral fibers. In October 2001 IARC re-reviewed Man-Made Vitreous Fibers and "elected not to make an overall evaluation of the newly developed fibers" [such as CMS wool] but recognized that "those that have been tested appear to have low carcinogenic potential in experimental animals."

While CMS wool is an inert material that does not react with the skin, exposures may cause temporary mild mechanical irritation to the eyes, skin, nose and/or throat (for First Aid Measurers, see Section 4). Proper handling practices and the use of protective clothing (see Section 8) can minimize irritation.

SECTION 12. ECOLOGICAL INFORMATION

No data available on any adverse ecological effects from this material.

SECTION 13. DISPOSAL INFORMATION

Waste Management/Disposal: This product does not exhibit any characteristics of a hazardous waste. It is recommended that the product should be contained in bags or suitable closed containers to prevent creating any airborne dust during disposal. The product is suitable for landfill disposal. However, debris generated during installation, maintenance or tear-out procedures may be contaminated with other hazardous materials.

Therefore, appropriate waste analysis may be necessary to determine proper disposal. Waste characterization and disposal/treatment methods should be determined by a qualified environmental professional in accordance with applicable federal, state and local regulations.

Supermag* fiber, as manufactured, is not classified as a hazardous waist according to federal regulations (40 CFR 261). Any processing, use, alteration or chemical additions to the product, as purchaser, may alter the disposal requirements. Under Federal Regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a hazardous waste. Check local, regional, state or provisional regulations to identify all applicable disposal requirements.

SECTION 14. TRANSPORT INFORMATION

US Department of Transportation: Not regulated by DOT as a hazardous material. No hazard class, no label or placard required any UN or NA number assigned.

International:

- Canadian TDG Hazard Class & PIN: Not regulated
- Not classified as dangerous goods under ADR (Road), RID (Train), IATA (air) or IMDG (ship).

SECTION 15. REGULATORY INFORMATION

United States Regulations:

SARA TITLE III: This product does not contain any substances reportable under SARA Sections 302, 304, and 313, (40 CFR 372). Sections 311 and 312 (40 CFR 370) apply (delayed hazard).

OSHA: Comply with Hazard Communication Standard 29 CFR 1910.1200 and 29 CFR 1926.59. Also, Respiratory Protection Standard 29 CFR 1910.134 and 29 CFR 1926.103.

TSCA: All substances in this product are listed in the chemical substance inventory.

CERCLA: Calcium-magnesium-silicate fibers with an average fiber diameter greater than one micron and thus is not considered a CERCLA hazardous waste.

CAA: Calcium-magnesium-silicate fibers with an average fiber diameter greater than one micron and thus is not considered a hazardous air pollutant.

STATES: Calcium-magnesium-silicate fibers are not known to be regulated by the States. If in doubt, contact your local regulatory agency.

International Regulations

Canada WHMIS: No Canadian Workplace Hazardous Materials Information System categories apply to this product.

Canada CEPA: All substances in this product are listed on the Domestic Substances List (DSL).

European Union: This fiber chemistry is exonerated from any carcinogenic classification in the countries of the European Union under the provisions of Nota Q of the European Commission Directive 97/69/EC.

SECTION 16. OTHER INFORMATION

After-Service Supermag* Removal: Amorphous calcium-magnesium-silicate fibers may devitrify and form cristobalite (a form of crystalline silica) when used at temperatures above 1000 °C for sustained periods. Chronic exposure to respirable crystalline silica may lead to lung disease. IARC has concluded that “Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).” {IARC Monograph 68, June 1997, p. 210-211}. The Occupational Safety and Health Administration (OSHA) has adopted a permissible exposure limit (PEL) for respirable Cristobalite at 0.05 mg/m3 , When needed, the use of proper exposure controls and respiratory protection is recommended to reduce potential health risks and to ensure compliance with OSHA requirements. The evaluation of workplace hazards and the identification of appropriate respiratory protection are best performed, on a case by case basis, by a qualified Industrial Hygienist.

ACRONYMS AND REFERENCES USED IN PREPARATION OF MSDS:

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS#:	CAS Registration Number is an assigned number to identify a material. CAS stands for Chemical Abstracts Service.
CERCLA:	Comprehensive Environmental Response, Compensation & Liability Act
EPCRA:	Emergency Planning and Community Right-to-Know Act of 1986 f/cc: Fibers per cubic centimeter
HMIS □:	Hazardous Materials Identification System (National Paint & Coatings Association)
IARC:	International Agency for Research on Cancer mg/m 3: Milligrams per cubic meter
NIOSH:	National Institute for Occupational Safety and Health
NFPA:	National Fire Protection Association
NTP:	National Toxicology Program
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limit (OSHA)
PNOC:	Particulate Not Otherwise Classified
PNOR:	Particulate Not Otherwise Regulated
PSP:	Product Stewardship Program
RCFC:	Refractory Ceramic Fiber Coalition
REL:	Recommended Exposure Limit (NIOSH)
SARA:	Superfund Amendments and Reauthorization Act
TITLE III:	Emergency Planning and Community Right To Know Act
Section 302:	Extremely Hazardous Substances
Section 304:	Emergency Release
Section 311:	*Community Right-to-Kno*w, MSDSs or List of Chemicals
Section 312:	*Community Right-to-Kno*w, Inventories & Locations, (Tier I/II)
Section 313:	Toxic Chemicals, Toxic Chemical Release Reporting, Form R
TLV:	Threshold Limit Values (ACGIH)
TWA:	Time Weighted Average
29CFR1910.134:	OSHA Respiratory Protection Standard

REFERENCES:

- Sax, N. Irving: Dangerous Properties of Industrial Materials, Ninth Edition, Van Nostrand Reinhold Co., Inc., 1996.
- Kirk, R. and Othmer, D., Encyclopedia of Chemical Technology, Third Edition, Wiley- Interscience, New York, NY 1982.
- Clansky, K.B., Suspect Chemicals Sourcebook, 1992-2 Edition, Roytech Publications, Bethesda, Maryland. Sax, N.Irving and Lewis, RJ Hawley's Condensed Chemical Dictionary, Eleventh Ed., Van Nostrand Reinhold Co., Inc., NY
- Manufacturers/Suppliers, Material Safety Data Sheets on Raw Materials Used

WEBSITES:

For more information connect to:

Refractory Ceramic Fiber Coalition (www.rcfc.net)

Or the ECFIA's website: (http://www.ecfia.org/)

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*** This product is manufactures in Mexico by Nutec under patent license (US Patent Nos. 5332699, 5714421, 599247, 6180546, 7259118 and equivalent patent elsewhere).**