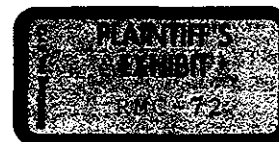


MATERIAL SAFETY DATA SHEET



SECTION I PRODUCT IDENTIFICATION	
Product Name: ASBESTOS	C.A.S. Numbers: 12172-73-5, 1309-38-2
Chemical Name: $\frac{1}{2}$ Amosite Asbestos	Formula/Composition: $(Mg, Fe)_7[(OH)Si_4O_{11}]_2$
Synonyms: Grunerite, brown asbestos	

SECTION II PHYSICAL DATA	
Sizes: Few micrometers to 6 cm. fiber lengths	Solubility in Water: Not soluble
Specific Gravity: ($H_2O=1$) 3.12 approximately	Melting Point: 2550 °F (fusion point)
Odor: None	Boiling Point: °F (°C) Not applicable
Appearance: Light gray-brown, rigid fibers	Vapor Pressure: Not applicable
Bulk Density: 15-45 lb/ft ³ , as packaged (depends on product form)	Percent Volatile: Structure $H_2O \sim 2-5\%$ by weight
Molecular Weight: Not applicable	Evaporation Rate: Not applicable

SECTION III HAZARDOUS INGREDIENTS		
Material or Component (CAS #)	Weight %	OSHA PEL Data (TWA Unless Noted), ACGIH, MSHA
Amosite Asbestos (12172-73-5)	>95%	0.2 fibers/cc longer than 5 μm (1) 0.5 fibers/cc longer than 5 μm (2) Excursion Limit (3)
Magnetite Fe_3O_4 (1309-38-2)	0.5-2	None established (1) (2)
H.M.I.S. Rating Numbers		
Health: • (Possible Chronic Effects)		
Flammability: 0		
Reactivity: 0		
References: (1) OSHA Regulation (2) ACGIH (3) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes. [1910.1001(c) revised by 53 FR. 35625, September 14, 1988]		

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SECTION IV HEALTH HAZARD DATA	
ACUTE EFFECTS OF OVEREXPOSURE	
Route of Exposure:	
Inhalation:	Any dust (including asbestos) which is inhaled in substantial amounts, may irritate the respiratory tract. Extreme exposures can overwhelm the normal respiratory defense mechanisms and result in temporary difficulty in breathing.
Skin Contact:	Asbestos splinters may penetrate the skin and cause asbestos "corns".
Skin Absorption:	Not applicable
Eye Contact:	May cause irritation and abrasions.
Ingestion:	No known effects.
CHRONIC EFFECTS OF OVEREXPOSURE	
Route of Exposure:	
Inhalation:	Overexposure to Asbestos has caused damage to lungs (asbestosis), lung cancer and mesothelioma of the pleura and peritoneum. Symptoms, which are usually not manifested until 15-20 years after exposure, include labored breathing, chest pains, weakness, and chest tightness. Pleural thickening, plaques and effusion are non disabling conditions, seen separately or together, that have been associated with prolonged asbestos exposure. The risk of lung cancer is greatly increased for those who smoke cigarettes regularly in addition to having asbestos exposures.
Skin Contact:	Not applicable
Skin Absorption:	Not applicable
Eye Contact:	Same as acute effects. Usually reversible on removal from exposure.
Ingestion:	Some studies indicate that asbestos overexposure is implicated as a cause of gastro-intestinal and laryngeal cancers, but the evidence is conflicting; no documented human effects.
EMERGENCY AND FIRST AID PROCEDURES	
Route of Exposure:	
Inhalation:	No acute toxicity: Remove to fresh air. If breathing is difficult, oxygen may be administered. If breathing has stopped, administer artificial respiration. Call a physician.
Skin Contact:	Remove asbestos splinters promptly. If "asbestos corn" develops, surgical removal may be required.
Eye Contact:	Irrigate gently with water for 15 minutes. Refer to ophthalmologist to rule out possibility of damage to cornea or eyeball by fibers.
Ingestion:	None indicated.
NOTES TO PHYSICIAN	
A medical surveillance program must be established for asbestos-exposed persons in accordance with the requirements of the Occupational Safety and Health Administration's standard for Asbestos (29 CFR Part 1910.1001).	

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<u>SECTION V</u> <u>FIRE AND EXPLOSION DATA</u>	
Combustibility: Not combustible	Flammable Limits: Not applicable
Flash Point (Test Method): Not applicable	Autoignition Temperature: Not applicable
Explosion Tendency: Not applicable	
Extinguishing Media: Use media appropriate for surrounding material in fire situation.	
Special Fire-Fighting Procedures: Avoid media and procedures that cause airborne dust. Personnel involved in fire-fighting should use NIOSH/MSHA-approved self-contained breathing apparatus and full protection clothing.	
Unusual Fire and Explosive Hazard: See Below	

<u>SECTION VI</u> <u>REACTIVITY DATA</u>	
Stability: Stable (Temperature in excess of 1112 °F [600 °C] cause loss of bound water).	
Conditions to Avoid: None	
Hazardous Decomposition Products: None	
Material to Avoid: None	

<u>SECTION VII</u> <u>SPILL, LEAK, AND DISPOSAL INFORMATION</u>	
Steps to be Taken if Material is Spilled or Released: Avoid breathing dust. Notify Safety personnel of spill. Permit only trained clean-up personnel in the spill area. Use wet methods or approved vacuum cleaning system to pick up spilled materials. Use water or other dust suppressants where sweeping is unavoidable. Do not stir up dust. Clean-up personnel should wear approved respirators and protective clothing. Waste and contaminated protective clothing must be placed in dust-tight containers and be properly labeled for disposal.	
Neutralizing Agents: Not applicable	
Water Disposal Method: Bags, friable asbestos, waste and scrap material should be disposed of in a manner which will avoid airborne concentrations of asbestos, such as the use of dust-tight trash bags or containers. Such containers should be labeled in accordance with 40 CFR 61.20. Asbestos is also classified as a hazardous material under CWA 307(a) and has a reportable quantity of one pound. Deposit waste containers in a secured landfill in accordance with Federal, State, and local regulations.	

<u>SECTION VIII</u> <u>SPECIAL PROTECTION INFORMATION</u>	
Ventilation: Provide adequate exhaust ventilation and capture filtration to remove asbestos particulate from the workplace and minimize its dispersion into the environment. Isolate work areas and post signs where asbestos contamination may exceed PEL. Hand- or power-operated tools which may release asbestos in excess of the PEL must be equipped with local exhaust systems.	

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SECTION VIII SPECIAL PROTECTION INFORMATION (Continued)Personal Protective Equipment:

Respirators: Where asbestos exposure in excess of the PEL is anticipated, wear a NIOSH/MSHA-approved respirator, as follows: up to 10 times the PEL - half-mask air-purifying respirator with high-efficiency filters; up to 50 times the PEL - full facepiece air-purifying respirator with high-efficiency filters; up to 100 times the PEL - powered air-purifying respirator with high-efficiency filters or supplied-air respirator operated in continuous flow mode.

Eye Protection: Goggles are recommended. Follow Safety Rules.

Gloves/Clothing: Gloves are recommended during handling.

Other: For concentrations in excess of the OSHA PEL, special clothing, such as coveralls, whole-body clothing, hood coverings, gloves, and foot coverings, are required under CFR 1910.1001.

SECTION IX SPECIAL PRECAUTIONSPrecautionary Statements:WARNINGCANCER HAZARD

Breathing asbestos dust can cause lung damage and cancer. The risk of lung cancer is greatly increased for smokers.

Do not create or breathe dust.

Do not dry-sweep or use air hose for cleaning.

Do not take protective equipment or clothing home.

Do follow recommended work practices.

Do wear approved respiratory protection and protective clothing as required by applicable regulation.

Do use vacuum or wet cleaning methods.

Do dispose of dust, friable waste materials and contaminated protective equipment in dust-tight containers.

FOR INDUSTRIAL USE ONLY

Precautions for Handling and Storage: Store asbestos in closed containers (dust-tight) in a clean, dry, secure area. Protect containers from damage. Do not open containers in a manner that can release dust without providing proper enclosure or control measures. Use dust suppression control measures at all stages of asbestos handling, use and disposal. Follow good housekeeping practices to prevent accumulation of asbestos-containing dusts. Avoid inhalation of asbestos.

Other Information:Material Listed as Carcinogen in:

- National Toxicology Program Annual Report (NTP): Known carcinogen.
- International Agency for Research on Cancer (IARC): Group I - Carcinogenic to humans.