

EaglePicher™ Filtration & Minerals, Inc.

MATERIAL SAFETY DATA SHEET

DATE ISSUED: January 1, 1993	DATE REVISED: July 1, 2004	REVISION NO: 9
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SECTION I: MATERIAL IDENTIFICATION AND USE

MATERIAL NAME: AXIS Fine, Regular, Coarse	<table border="1"> <tr> <td rowspan="2">NFPA</td> <td></td> <td>4-Extreme 3-High 2-Moderate 1-Slight 0-Insignificant</td> </tr> <tr> <td rowspan="3">HMIS</td> <td>* Health</td> </tr> <tr> <td>0 Flammability</td> </tr> <tr> <td>0 Reactivity</td> </tr> <tr> <td colspan="2">E Protective Equipment</td> </tr> <tr> <td colspan="3">* REFER TO DATA ON MSDS</td> </tr> </table>	NFPA		4-Extreme 3-High 2-Moderate 1-Slight 0-Insignificant	HMIS	* Health	0 Flammability	0 Reactivity	E Protective Equipment		* REFER TO DATA ON MSDS		
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		HMIS	* Health										
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MANUFACTURER'S NAME: EaglePicher Filtration & Minerals, Inc.													
STREET ADDRESS: 9785 Gateway Drive, Suite 1000													
CITY: Reno STATE: Nevada ZIP: 89521													
EMERGENCY TELEPHONE NO: (775) 824-7600	CHEMICAL FORMULA: SiO ₂												
CHEMICAL NAME: Diatomaceous Earth, Calcined	TRADE NAME: AXIS												
CHEMICAL FAMILY: Amorphous Silica	MATERIAL USE: Soil Amendment												

SECTION II: HAZARDOUS INGREDIENTS OF MATERIAL

INGREDIENT IDENTIFICATION	APPROXIMATE CONCENTRATION %	C.A.S. NUMBERS	OSHA PEL [ACGIH TLV]	LD50/ LC 50 SPECIES AND ROUTE
Diatomaceous Earth, Calcined	100%	91053-39-3	See below	Not available
Crystalline Silica (Cristobalite)	< 1%	14464-46-1	0.05 mg/m ³ [0.05 mg/m ³]	Not available
Crystalline Silica (Quartz)	< 1%	14808-60-7	0.10 mg/m ³ [0.10 mg/m ³]	Not Available

For sampling silica dusts refer to NIOSH Analytical Method 7500 or OSHA method ID 142

SECTION III: PROPERTIES

PHYSICAL STATE: Solid	ODOR AND APPEARANCE: Odorless, granular product, buff to off-white	SPECIFIC GRAVITY: 2.2	BOILING POINT: Not Applicable
VAPOR PRESSURE (MM): Not Applicable	VAPOR DENSITY: Not Applicable	pH: 7 (10% Slurry)	SOLUBILITY/WATER: < 2%
MELTING POINT: Not Determined	EVAPORATION RATE: Not Applicable		FREEZING POINT: Not Applicable

SECTION IV – FIRE AND EXPLOSION HAZARD OF MATERIAL

FLAMMABILITY: YES NO X IF YES, UNDER WHICH CONDITIONS	
MEANS OF EXTINCTION: Not Applicable	SPECIAL PROCEDURES: Not Applicable
FLASH POINT: Not Applicable	FLAMMABLE LIMITS: Not Applicable

SECTION V – HEALTH HAZARDS

SUMMARY: Calcined diatomaceous earth (Kieselguhr) contains crystalline silica which is a known cause of silicosis, a progressive, sometimes fatal lung disease. In a 1997 monograph (Volume 68, "Silica, Some Silicates, Coal Dust and Para-Aramid Fibrils"), the International Agency of Research on Cancer (IARC) has classified "inhaled crystalline silica from occupational sources" in Group 1 as a substance "carcinogenic to humans." In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Although the recent IARC determination was, in part, based on a 1992 study of diatomite workers, a 1996 follow up which was issued by the University of Washington and Tulane University was not available to the Working Group. The follow up study reported a Standardized Mortality Ratio (SMR) of 2.01 for non-malignant respiratory disease (NMRD) and a SMR of 1.29 for lung cancer when compared to national and regional populations. This is a reduction of the levels reported in the 1992 report (SMR=2.59 for NMRD and SMR=1.43 for lung cancer.)

As noted in the 1992 study, relatively intense exposures to crystalline silica that occurred before the 1950s were probably the most important contributors in the excesses in NMRD and lung cancer. The 1996 report continues to support the conclusion that recent improvements in dust control in the industry appear to have abated any excess risk in silicosis or lung cancer in today's work environment. In 1997 a radiographic study was published by Tulane University researchers that reported X-ray opacities of the post-1950 hires that were "...consistent with the prevalences observed in many unexposed populations." These findings appear to be consistent with, and supportive, of current occupational exposure limits for cristobalite. A more detailed report discussing the IARC classification and the diatomite worker studies is available upon request.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing diseases of the upper respiratory tract and lung such as bronchitis, emphysema, and asthma

PAGE 2	MATERIAL NAME / IDENTIFIER: AXIS Fine, Regular, Coarse		
SECTION V – HEALTH HAZARDS CONT'D			
ROUTE OF ENTRY: Inhalation (Chronic)		TARGET ORGANS: Lungs	
EFFECTS OF ACUTE EXPOSURE TO PRODUCT: Upper respiratory irritant – May cause coughing or throat irritation.			
EFFECTS OF CHRONIC EXPOSURE TO PRODUCT: Inhalation of crystalline silica dust in excess of the Threshold Limit Value (TLV) recommended by the American Conference of Governmental Industrial Hygienists (ACGIH) or in excess of the Permissible Exposure Limit (PEL) established by OSHA over an extended number of years may cause silicosis, a progressive sometimes fatal lung disease. Although silicosis is a non-cancerous lung disease, a 1992 study conducted by the University of Washington on certain diatomite workers, and a 1996 follow-up to this study indicates that exposure to high concentrations of crystalline silica for many years may increase the potential risk of developing lung cancer. The 1996 follow-up study continues to support the findings of the 1992 study in that for those workers hired since 1960, no increase in lung cancer mortality risk was found. Consequently, maintenance of crystalline silica dust concentrations at or below levels specified by occupational standards setting agencies will minimize, if not eliminate, any potential excess risk of NMRD or lung cancer.			
IARC - "Inhaled crystalline silica from occupational sources" – Group 1 – Carcinogenic to humans NTP - "Silica, crystalline (respirable)" – "known to be a human carcinogen" OSHA - Has not classified crystalline silica as a carcinogen			
MSHA PEL: 0.5*10/(% respirable crystalline silica +2)		NIOSH REL: Crystalline silica (respirable quartz and cristobalite) 0.05 mg/m ³	
SECTION VI – REACTIVITY DATA			
CHEMICAL STABILITY: YES X NO		INCOMPATIBILITY TO OTHER SUBSTANCES YES X NO IF YES, WHICH ONES? Hydrofluoric Acid Products containing Silica may react violently with Hydrofluoric Acid	
REACTIVITY AND UNDER WHAT CONDITIONS: Not Applicable		HAZARDOUS DECOMPOSITION PRODUCTS: Not Applicable	
SECTION VII – PRECAUTIONS FOR SAFE HANDLING AND USE			
PERSONAL PROTECTIVE EQUIPMENT: Respirators fitted with filters certified to standard 42CFR84 under series N95 should be worn when dust is present. If the dust concentration is less than ten (10) times the Permissible Exposure Limit (PEL) use a quarter or half-mask respirator with a N95 dust filter or a single use dust mask rated N95. If dust concentration is greater than ten (10) times and less than fifty (50) times the PEL, a full-face piece respirator fitted with replaceable N95 filters is recommended. If dust concentration is greater than fifty (50) and less than two hundred (200) times the PEL use a power air-purifying (positive pressure) respirator with a replaceable N95 filter. If dust concentration is greater than two hundred (200) times the PEL use a type C, supplied air respirator (continuous flow, positive pressure), with full face piece, hood or helmet.			
GLOVES: Not normally necessary		RESPIRATORY: Note Above	EYE: Goggles to protect from dust
FOOTWEAR: Not necessary		CLOTHING: Not normally necessary	
ENGINEERING CONTROLS (E.G. VENTILATION, ENCLOSED PROCESS): Local – Control within recommended TLV/PEL. Refer to ACGIH publication "Industrial Ventilation" or similar publications for design of ventilation systems.			
LEAK AND SPILL PROCEDURE: Vacuum clean spillage, wet sweep or wash away. Avoid creating dust.			
WASTE DISPOSAL: Non-Biodegradable. Use solid waste disposal common to landfill type operations or in slurry to sumps. Not considered a hazardous waste under RCRA (40CFR Part 261).			
HANDLING PROCEDURES: Avoid creating dust. Repair or properly dispose of broken bags.			
STORAGE REQUIREMENTS: Store in a dry place to maintain product quality.			
SPECIAL SHIPPING INSTRUCTIONS: None			
SECTION VIII – FIRST AID MEASURES			
SKIN: Not absorbed by the skin. May cause dryness. Use moisture renewing lotions if dryness occurs.			
EYE: May cause irritation or inflammation. Wash with generous quantities of water. Consult physician if irritation persists.			
INHALATION: Acute inhalation can cause dryness of the nasal passages and congestion of the upper respiratory tract. Remove to fresh air.			
INGESTION: Short-term exposure not considered harmful. Drink generous amounts of water to reduce bulk and drying effects.			
SECTION IX – PREPARATION DATE OF M.S.D.S.			
PREPARED BY: Peter Lenz		TITLE: Director, Research & Development	
PHONE NUMBER: (775) 824-7600		DATE: July 1, 2004	