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U.S. DEPARTMENT OF LABOR
DATE: July 19, 1977 Occupational Safety and Health Administration

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing
Shipbuilding, and Shipbreaking (29 CFR 1915. 1916, 1917)

SECTION I	
MANUFACTURER'S NAME W. R. Grace & Company	EMERGENCY TELEPHONE NO. 1-617-876-1400 X 457
ADDRESS (Number, Street, City, State, and ZIP Code) 62 Whittemore Avenue-Cambridge, MA 02140 Quality Assurance Manager	
CHEMICAL NAME AND SYNONYMS Expanded Libby, Montana Vermiculite	TRADE NAME AND SYNONYMS Industrial Vermiculite-Size #4
CHEMICAL FAMILY Magnesium Aluminosilicate Mineral	FORMULA (Mg,Ca,K)-(Al,Fe,Mg)-(Si,Al) ₄ (OH) ₂ H ₂ O

SECTION II - HAZARDOUS INGREDIENTS
Contains less than 0.5% by weight of a naturally occurring contaminant tremolite. OSHA Regulation 1910.1001 defines tremolite as asbestos. Some forms of tremolite are platy. Other forms can be fibrillated by physical handling to release airborne "asbestos fibers". Regulation 1910.1001 places a limit of 2 "asbestos fibers"/cc; 8 hour time weighted average and a maximum of 10 "asbestos fibers"/cc at any one time for airborne fiber exposure.
The physical handling given to expanded vermiculite can release both airborne fibers and nuisance dust. Refer to OSHA Regulation 1910.1001 for approved control procedures.

SECTION III - PHYSICAL DATA			
BOILING POINT (°F.)	NA	SPECIFIC GRAVITY (H ₂ O=1)	NA
VAPOR PRESSURE (mm Hg.)	NA	PERCENT. VOLATILE BY VOLUME (%)	NA
VAPOR DENSITY (AIR=1)	NA	EVAPORATION RATE (_____=1)	NA
SOLUBILITY IN WATER	slight, if any	Bulk Density lbs./c.f.	5-7
APPEARANCE AND ODOR Free flowing dark brown to tan colored particles.			

SECTION IV - FIRE AND EXPLOSION HAZARD DATA NOT APPLICABLE			
FLASH POINT (Method used)	FLAMMABLE LIMITS	LeL	UeL
EXTINGUISHING MEDIA			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS			

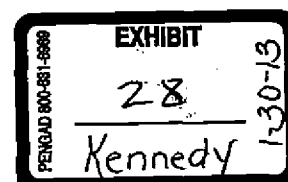
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Form OSHA-20
Rev. May 71

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SECTION V - HEALTH HAZARD DATA	
THRESHOLD LIMIT VALUE	Dust respirable fraction 5 mgm/M ³ . Total dust 15 mgm/M ³ .
Airborne asbestos fiber 2E/cc T. W. A.-Ceiling 10f/cc at one time.	
EMERGENCY AND FIRST AID PROCEDURES	NA

SECTION VI - REACTIVITY DATA NOT APPLICABLE		
STABILITY	UNSTABLE	CONDITIONS TO AVOID
	STABLE	
INCOMPATIBILITY (Materials to avoid)		
HAZARDOUS DECOMPOSITION PRODUCTS		
HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID
	WILL NOT OCCUR	

SECTION VII - SPILL OR LEAK PROCEDURES	
STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	
Dampen slightly or use other techniques which control airborne fibers and dust within the limits of Section V above.	
WASTE DISPOSAL METHOD	Use disposal techniques which control airborne fibers and dust within the TLV limits of Section V above. See OSHA Standard 1910.1001, Paragraph (h) (2) Waste Disposal.

SECTION VIII - SPECIAL PROTECTION INFORMATION

See OSHA 1910.1001 - Controls such as isolation, enclosure, exhaust ventilation and dust collection shall be used if necessary to meet exposure limits. Also see OSHA Standard 1910.1001 Personal Protective Equipment for dealing with work environments in excess of exposure limits.

SECTION IX - SPECIAL PRECAUTIONS
PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE
OTHER PRECAUTIONS