

MATERIAL SAFETY DATA SHEET (MSDS)---VERMICULITE

-----I. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION-----

TRADE NAME (as labeled) **COMMERCIAL VERMICULITE CONCENTRATE (PURIFIED AND SIZED)**
MANUFACTURERS NAME **VERMICULITE CANADA CORPORATON**
Address (complete mailing address): **44 VICTORIA STEET, SUITE 400, TORONTO, ONTARIO M4W 3B8**
Phone number: **(416) 924-4337**
Date Prepared or Revised: **OCTOBER 15, 2002 REVISED OCTOBER 5, 2004**

Trade Names and Synonyms: Grade 2, Grade 3, Grade 4, Grade 5

Chemical Names and Family: Vermiculite Concentrates produced from mines located in Cavendish County, Ontario, Canada; Magnesium-Aluminosilicate Mineral Product

Vermiculite is the mineralogical name given to a mineral formed by the alteration of biotite and phlogopite micas and is often visually indistinguishable from the unaltered mica mineral. The chemical composition of vermiculite varies significantly but is generally described as a phyllosilicate mineral containing hydrated magnesium and calcium exchangeable ions. A generalized formula for vermiculite is $(Ca, Mg, K, nH_2O)(Mg, Fe^{+2}, Fe^{+3})_3(Si_3AlO_{10})(OH)_2$.

When subjected to heat, crude vermiculite has the unusual property of exfoliating into concertina shaped or worm-like particles (the name vermiculite is derived from the Latin *vermiculare*, meaning "to breed worms".)

Use: Various Industrial and Horticultural Uses

Formula: $(Mg, Ca, K, Fe^{11})_3(Si, Al, Fe^{III})_4O_{10}(OH)_2 \cdot 4(H_2O)$

CAS# (Chemical Abstract Service): 01318-00-9

-----II. HAZARDOUS INGREDIENTS AND MAJOR COMPONENT INFORMATION-----

Vermiculite is considered a nuisance dust (also called "Particulates Not Otherwise Classified (PNOC) by ACGIH).

Chemical Names	Exposure Limits in Air (TWA)				
	Max % by Wt.	OSHA	ACGIH TLV (total)	ACGIH TLV (respirable)	OTHER
Respirable Dust CAS# na	0.0%	5 mg / m ³	10 mg/M ³	3 mg/M ³	30 mppcf
Total Dust CAS# na	0.0%	15 mg / m ³	10 mg/M ³	10 mg/M ³	None Established

α -Cristobalite and/or Tridymite: Less than 0.1%

α -Quartz: Less than 1% and only as macroscopic particles

EXPOSURE GUIDELINES - CANADA Employers should check with provincial regulatory agencies for exposure guidelines, which may vary locally.

-----III. HAZARDS IDENTIFICATION-----

Emergency Overview:

Warning Statements: CAUTION! MAY CAUSE SLIGHT IRRITATION.

... Product contains Vermiculite CAS# 1318-00-9 and other associated minerals, including Quartz CAS# 14808-60-7. (See information in Work/Hygienic Practices section of MSDS for additional information.)

... Eye contact may cause minor irritation.

... Inhalation of dust may cause upper respiratory irritation with coughing and sneezing.

... Read and understand all Health and Safety information on the product Label and Material Safety Data Sheet before use.

----- VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION -----

Ventilation: Local

Exhaust: Not generally required, but should be used where available.

Mechanical: Not generally required, but should be used where available.

Special: None

Other: None

Respiratory Protection: An approved dust/mist respirator may be desirable if dust is created in handling and is required at or above the Permissible Exposure Limit (PEL) for nuisance particulates. Consult MSDS Section II for exposure limits.

Skin Protection: Not generally required.

Eye Protection: Goggles recommended.

Other Protective Clothing or Equipment: Normal work clothes.

----- IX. PHYSICAL PROPERTIES -----

Vapor Density (air = 1)	N/A	Melting point or range. F°	>1550 for extended periods of time may cause collapse and sintering of individual flakes.
Specific Gravity	2.5-2.7	Boiling point or range. F°	N/A
Solubility in Water	<1%	Evaporation rate (butyl acetate = 1)	N/A
Vapor Pressure, mmHg at 20°C	N/A	PH (in water)	7.0
Appearance and odor:	Tan to brown flakes. No odor		
Bulk Density (lbs/cu ft)	40 - 65		

HOW TO DETECT THIS SUBSTANCE (warning properties of substance as a gas, vapor, dust or mist)

Visual only (dust), No gas, vapors, or mist emitted.

----- X. STABILITY AND REACTIVITY -----

Stable under normal conditions (yes or no): YES

Conditions or Materials to avoid (which may react or cause instability): None

Known Hazardous Decomposition or Byproducts: None

Known Hazardous Polymerization: Will not occur

Conditions to Avoid: None Known

----- XI. TOXICOLOGICAL INFORMATION -----

INGREDIENT	TOXICITY DATA LD50,LC50 etc.
(Chemical Name, CAS#, & Common Name)	(See Section II for Exposure Limits)

Respirable Dust*	Not Applicable
CAS# NA	

Total Dust*	Not Applicable
CAS# NA	

----- XII. ECOLOGICAL INFORMATION -----

Information provided in this document is believed to be accurate as of October 15, 2002 and as revised October 5, 2004 and may be subject to change without notice. The information is provided in good faith to comply with applicable federal and state laws. However, no warranty or representation with respect to such information is intended or given. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

None available at this time. Safe for landfill, sold as soil amendments, approved by the United Nations as a safe and effective packaging material for spill absorption.

----- **XIII. DISPOSAL CONSIDERATIONS** -----

Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. Dispose of waste in accordance with all applicable regulations.

According to US EPA (40 CFR § 261.3) waste of this product is not defined as hazardous.

----- **XIV. TRANSPORT INFORMATION** -----

PROPER SHIPPING: Not Applicable

NAME: per company requirements

HAZARD CLASS: Nonhazardous

IDENTIFICATION #: Not Applicable

LABEL(s) REQUIRED: Not Applicable Surface

Freight Classification: Crude Vermiculite Ore

----- **VX. REGULATORY INFORMATION** -----

(Not meant to be all inclusive – selected regulations represented)

SARA TITLE III REPORTING INFORMATION

Tier I & II HAZARD CATEGORIES: NOT APPLICABLE

Contains Extremely Hazardous-SARA III Section 302 Ingredient: NO

Comments:

Contains Toxic Chemical Release-SARA III Section 313 Ingredient: NO

Comments:

Other Government Reporting Requirements:

CHEMICAL INVENTORY CERTIFICATION:

For U.S. Products ONLY:

All ingredients contained in this product are included on the US EPA Toxic Substances Control Act (TSCA) inventory or exempt from listing on the TSCA inventory.

For Canadian Products ONLY:

All ingredients contained in this product comply with the requirements of the Canadian Environmental Protection Act (CEPA) and are listed on the Domestic Substance List (DSL) or Non-Domestic Substance List (NDSL).

For European Products ONLY:

All ingredients contained in this product comply with the requirements of the European Inventory of Existing Commercial Chemical Substances (EINECS).

CALIFORNIA PROPOSITION 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects and other reproductive harm.

WHMIS CLASS: D-2A This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR). This MSDS contains all the information required by the CPR.

Nonhazardous Ingredient Disclosure: Not Applicable

----- **VXI. OTHER INFORMATION** -----

The information contained in this Material Safety Data Sheet is applicable to the following products:

Grade 2, Grade 3, Grade 4, Grade 5 Commercial Vermiculite Concentrates

"THE DATA INCLUDED HEREIN ARE PRESENTED IN ACCORDANCE WITH VARIOUS ENVIRONMENT, HEALTH AND SAFETY REGULATIONS. IT IS THE RESPONSIBILITY OF A RECIPIENT OF THIS DATA TO REMAIN CURRENTLY INFORMED ON CHEMICAL HAZARD INFORMATION, TO DESIGN AND UPDATE ITS OWN PROGRAM AND TO COMPLY WITH ALL NATIONAL, FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS APPLICABLE TO SAFETY, OCCUPATIONAL HEALTH, RIGHT-TO-KNOW AND ENVIRONMENTAL PROTECTION."