



Safety Data Sheet

Vermiculite

SUPPLIER DETAILS

Supplier Name:	Palabora Copper (Pty) Ltd	Emergency Telephone Number:	+27 (0)15 780 2666
Address:	PO Box 65 1 Copper Road Phalaborwa 1390 South Africa	E-Mail Address:	palabora.msds@palabora.co.za
Person Responsible for Updating MSDS:	Manager: Environment & SHEQ MS	Telephone Number:	+27 (0)15 780 2281
		Fax Number:	+27 (0)15 780 2100
		URL / WebPages:	http://www.palabora.com/

1. PRODUCT IDENTIFICATION

Chemical Names and Synonyms: Vermiculite & Jefferisite or Vaalite

CAS Number: 1318-00-9

2. COMPOSITION

Vermiculite is the mineralogical name given to hydrated laminar magnesium-aluminum-iron silicates which resemble mica in appearance. When subjected to heat, crude vermiculite has the unusual property of exfoliating or expanding into worm-like particles (the name vermiculite is derived from the Latin 'vermiculare', meaning to breed worms.)

Main components:

Name	Chemical formula	Amount
Vermiculite	$(\text{Mg, Fe}^{2+}, \text{Al})_3 (\text{Al, Si})\text{O}_{10} (\text{OH})_2 4\text{H}_2\text{O}$	85 -95%
Apatite	$\text{Ca}_5 (\text{F, Cl}) (\text{PO}_4)_3$	<5%
Mica phlogopite	$\text{K}_2 (\text{Mg, Fe}^{2+})_6 (\text{Si}_6 \text{Al}_2) \text{O}_{20} (\text{OH, F})_4$	<5%
Diopside	$\text{Ca} (\text{Mg, Fe}^{2+}) \text{Si}_2 \text{O}_6$	<5%
Alpha cristobalite & Tridymite	SiO_2	<0.1%
Alpha Quartz	SiO_2	0.01– 0.0 5%



Vermiculite CAS No -1318-00-9

ACGIH TLV(T) -10 mg/m³ ACGIH TLV (R) - 3 mg/m³, Other - 30 mppcf

3. HAZARDOUS IDENTIFICATION

Symptoms of overexposure for each potential route of exposure:

Inhaled - Coughing
Contact with skin or eyes - Possible eye irritation from dust particles; wear eye protection
Absorbed through skin - N/A
Swallowed - N/A

Health effects or risks from exposure:

Acute - None
Chronic - Excessive inhalation over long period may cause harmful irritation; use mask suitable for nuisance dust.
Target Organ - None

4. FIRST AID MEASURES

Inhalation: Induced coughing
Skin contact: Harmless
Eye contact: Flush eyes with plenty of running water for 10 minutes.
See medical doctor if particles are still lodged in the eye.

5. FIRE FIGHTING MEASURES

Flash point: Vermiculite is an inorganic, fully oxidized, non-flammable and non-combustible material.

6. ACCIDENTAL RELEASE MEASURES

Use - Area should be well ventilated. Prevent flakes from entering the eyes. Do not inhale dust.

Personal protective equipment (minimum required) - Use eye protection to prevent particles from entering eye. If dust levels are high - use a dust mask (FFP2).

Spill response procedures - (include employee protection measures) - Vacuum clean or sweep material, use dust masks suitable for nuisance dust (FFP2) and eye protection.

7. HANDLING AND STORAGE

Handling:

Ventilation and engineering controls: maintain dust level below TLV.
Respiratory protection (type): masks suitable for nuisance dust (FFP2).
Eye protection (type): protective goggles or similar.

Storage:

Maintain good housekeeping to avoid transient dust.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation and engineering controls: maintain dust level below TLV.
Respiratory protection (type): masks suitable for nuisance dust.
Eye protection (type): protective goggles or similar where there is a risk of penetrative eye injuries.

9. PHYSICAL AND CHEMICAL PROPERTIES

Golden brown alkaline flakes.
Odourless
Insoluble in water. Insoluble in organic solvents. Soluble in strong mineral acids.
pH: 8.0 to 9.0. (40g/l water at 20°C)
Slightly-abrasive, non-irritant, reflecting & rot-proof.
Melting point: 1350°C (collapse and coalescence of the individual flakes begin at this temperature)



Specific gravity: 2.5 g/cm³

Decomposition temperature: Stable liquidus state is achieved at temperatures of circa 1570°C and sintering occurs at temperatures above 1600°C. The decomposition temperature has never been determined.

10. STABILITY AND REACTIVITY

Stable.

11. TOXICOLOGICAL INFORMATION

Additional toxicology :-

Salmonella typhimurium mutagenicity - Not mutagenic at extract concentrations below 2 000 g/l.

Frog (*Xenopus leavis*) embryo teratogenicity:- Not teratogenic at extract concentrations below 1 000 g/l.

12. ECOLOGICAL INFORMATION

No current data available

13. DISPOSAL CONSIDERATIONS

Dispose in bulk or containers according to local dump requirements. No special treatment required.

Note: dispose of all wastes in accordance with federal, state, and local regulations.

14. TRANSPORT INFORMATION

Not regulated.

15. REGULATORY INFORMATION

No specific requirements under CHIP Regulations.

16. OTHER INFORMATION

- 1) Compiles according to the CHIP Regulations 1994. (Directive 91/155/EEC).
- 2) N/A = not applicable. < = smaller or less than. CAS = Chemical Abstract Services.
- 3) Further H & S data is available from Palabora Copper Ltd.
- 4) Vermiculite has been tested and proven not to be radioactive

Indication of the changes made to the previous version of the SDS:

This revision 2.0 of the Palabora crude vermiculite SDS has been revised in accordance with the requirements of Palabora Copper Ltd.

Third party materials:

As far as materials not supplied by Palabora Copper Ltd are used in conjunction with, or instead of Palabora Copper Ltd material, it is the responsibility of the customer themselves to obtain, from the manufacturer or supplier, all technical data and other properties relating to these and other materials and to obtain all necessary information relating to them. No liability can be accepted in respect of the use of Palabora crude vermiculite in conjunction with materials from another supplier.

DISCLAIMER

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors or omissions or the consequences thereof. It is the user's obligation to determine the conditions of safe use of the material, all risks of use of the product are therefore assumed by the user and we expressly disclaim all warranties of every kind and nature, including warranties of merchantability and fitness for a particular purpose in respect to the use or suitability of the product.