



Palaboraeurope

SAFETY DATA SHEET

In compliance with REACH Regulation (EC)
N° 1907/2006
Title IV / Annex II, and ISO 11014 format.

PALABORA CRUDE VERMICULITE

Version: 03
Revision date: 08/01/2009

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

1.1. Identification of the substance or preparation

Name: Naturally occurring vermiculite
REACH Registration N°: Exempted according to Article 2 § (7)
Trade Names: Palabora crude vermiculite
Chemical name: Vermiculite
Synonym: Jefferisite or Vaalite

1.2. Use of the substance or preparation

Crude vermiculite is normally heat expanded prior to use.

- 1.2.1. In the crude state vermiculite is used as a functional filler in fire-resistant plasterboard formulations.
- 1.2.2. In the heat expanded or exfoliated form it is widely used in the construction and refractory industries as an insulation material and as a lightweight aggregate.
- 1.2.3. Vermiculite is also incorporated into factory made insulation and fire resistant boards and panels and high temperature refractory shapes and mouldings.
- 1.2.4. Vermiculite is also used as a filler in automotive friction linings.
- 1.2.5. Vermiculite is also widely used as an additive in growing media and as a soil improver.

1.3. Company/undertaking identification

Name: Palabora Europe Ltd
Address: 3000 Cathedral Hill, Guildford, Surrey, GU2 7YB, United Kingdom
Phone N°: +44 (0) 1483 246636
Fax N°: + 44 (0) 1483 245230

E-mail of responsible person for SDS in EU: Mike.Darling@riotinto.com
Mike Darling - Global Industry Support Manager. Direct dial: +44 (0) 1483 246551.

1.4. Emergency telephone

Emergency telephone number: +44 (0) 1483 246551.

Available outside office hours?

Yes, but number still to be nominated



2. HAZARDS IDENTIFICATION

Vermiculite does not meet the criteria for classification as dangerous as defined in Directive 67/548 EEC and its amendments.

Symptoms of overexposure for each potential route of exposure:

- Inhalation: Coughing. Excessive inhalation over long period may cause irritation; use mask suitable for nuisance dust.
- Contact with skin or eyes: Possible eye irritation from dust particles; wear eye protection
- Absorbed through skin: N/A
- Swallowed: N/A
- Not acute health effects or risks from exposure
- No chronic health effect

3. COMPOSITION / INFORMATION ON INGREDIENTS

Vermiculite is the mineralogical name given to hydrated laminar magnesium-aluminum-iron silicates which resemble mica in appearance. When subject 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.)

Chemical Class: PHYLLOSILICATES

Components

Name	Chemical formula	Amount	CAS No	EINECS N°	EU Classification
Vermiculite	$(\text{Mg,Fe}^{2+}, \text{Al})_3 (\text{Al,Si})\text{O}_{10} (\text{OH})_2 \cdot 4\text{H}_2\text{O}$	85 -95%	1318-00-09	310-127-6	No Classification
Apatite	$\text{Ca}_5(\text{F,Cl}) (\text{PO}_4)_3$	<5%	---	N-A	---
Mica phlogopite	$\text{K}_2(\text{Mg,Fe}^{2+})_6 (\text{Si}_6\text{Al}_2)\text{O}_{20} (\text{OH}, \text{F})_4$	<5%	12001-26-2	310-127-6	---
Diopside	$\text{Ca}(\text{Mg, Fe}^{2+})\text{Si}_2\text{O}_6$	<5%	14483-19-3	N-A	---
Alpha cristobalite & Tridymite	SiO_2	<0.1%	14464-46-1	238-455-4	EHS Hazard XN:R48/20 If respirable
Alpha Quartz	SiO_2	0.01 – 0.05%	14808-60-7	238-878-4	EHS Hazard XN:R48/20 If respirable



4. FIRST AID MEASURES

Inhaled: Induce coughing.

Contact with skin: Harmless & non-irritant.

Contact with eyes: Flush with plenty of running water for 10 minutes. See medical doctor if particles are still lodged in 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

7.1. Safe Handling Advice

Ventilation and engineering controls: maintain dust level below TLV.

Respiratory protection (type): wear masks suitable for nuisance dust (FFP2).

Eye protection (type): wear protective goggles or similar.

7.2. Storage

Maintain good housekeeping to avoid transient dust.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Exposure limit values

Respect regulatory provisions for dust (total and respirable).

ACGIH TLV for vermiculite (TD): 10 mg/m³ - (RD): 3 mg/m³, Other - 30 mppcf



8.2. Exposure controls

8.2.1. Occupational Exposure Controls

Provide appropriate exhaust ventilation, engineering controls and filtering at the places where dust can be generated.

Respiratory protection: In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation such as respirator or mask in compliance with EN149FFP2S

Eye protection (type): wear protective goggles or similar.

Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.

8.2.2. Environmental Exposure Controls

No special requirement.

9. PHYSICAL AND CHEMICAL PROPERTIES

Golden brown flakes – pH 8.5 to 9.5.

Insoluble in water.

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 (Water = 1).

10. STABILITY AND REACTIVITY

Stable.

11. TOXICOLOGICAL INFORMATION

11.1. Acute effects

Inhalation: No acute toxic effect.

Ingestion: No adverse effect.

Skin irritation data: Not irritant to skin.

Eye irritation data: Mild irritant to eyes from dust particles.

11.2. Chronic effects

Not mutagenic, not carcinogenic, not toxic to the reproductive system.

- 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.



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12. ECOLOGICAL INFORMATION

Evaluated at 50 g/l extract:

- Daphnia pulex lethality: 48 h LC0 > 50 mg/l, 48 h LC50 > 50 mg/l.
- Algal (*Selenastrum capricornutum*) growth inhibition: 72 h EC0 > 50 mg/l, EC50 > 50 mg/l.
- Bacterial (*Pseudomonas putida*) growth inhibition: 6 h EC0 > 50 mg/l, 6 h EC50 > 50 mg/l.
- Frog (*Xenopus laevis*) embryo lethality: 48 h EC0 > 50 mg/l, 48 h EC50 > 50 mg/l.

Not persistent, not bio-accumulative.

13. DISPOSAL CONSIDERATIONS

Dispose in bulk or containers according to local dump requirements. No special treatment required. Dispose of all wastes in accordance with national and local regulations.

14. TRANSPORT INFORMATION

Not regulated.

Hazard Symbols: none required.

15. REGULATORY INFORMATION

National legislation: not classified as hazardous under CHIP Regulations.

Material classified as non-hazardous.

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 Europe

Liability

Such information is the best of Palabora Europe Ltd's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy itself as to the suitability and completeness of such information for their own particular uses.