

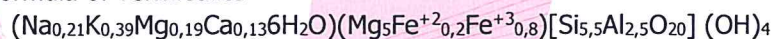
### Description

Vermiculite is a mineral belonging to the group of phyllosilicates, which are layered silicates. Exfoliation is a process of thermal expansion in which crystalline water varies between the layers of vapor, which multiplies this space several times and separates the individual layers. The particles of vermiculite increase their volume by warming up to obtain their wormy appearance and characteristic advantages (excellent insulating properties, hygroscopicity).

Although Vermiculite is often associated with asbestos mining, Vermiculite does not contain asbestos, which is regularly tested. Vermiculite does not contain any fibrous carcinogenic particles.

### Chemical analysis

General chemical formula of vermiculite



### Content of major elements

SiO <sub>2</sub>	35,0 – 41,0 %
Al <sub>2</sub> O <sub>3</sub>	6,5 – 10,0 %
Fe <sub>2</sub> O <sub>3</sub>	6,0 – 9,5 %
MgO	20,0 – 24,0 %
K <sub>2</sub> O	4,0 – 7,0 %

### Content of minor elements

CaO	2,0 – 6,0 %
CO <sub>2</sub>	0,6 – 2,5 %
TiO <sub>2</sub>	0,6 – 1,4 %
F	0,2 – 0,8 %
Cr <sub>2</sub> O <sub>3</sub>	0,01 – 0,10 %
P <sub>2</sub> O <sub>5</sub>	0,2 – 2,0 %
Cl	0,0 – 0,5 %

### Characteristics

Trade mark	Exfoliated Vermiculite					
		Micron	Superfine	Fine	Medium	Large
Fraction of vermiculite						
Bulk density	kg/m <sup>3</sup>	120-140	110-130	95-115	90-110	85-105
Particle size by network analysis (at least 80% by weight)	mm	0,250 – 0,710	0,355 – 1,000	0,710 – 2,000	1,400 – 4,000	2,800 – 8,000
Dust fraction (particles less than 0.250mm)	%	15	10	8	5	3
Thermal conductivity acc BS874 – temp. 10 °C	W/mK	0,0666	0,0696	0,0634	0,0561	0,0647
Thermal cond acc ISO 8302 Sample temp. 150 °C	W/mK	0,083				0,089
450 °C		0,147	-	-	-	0,195
650 °C		0,203				0,302
850 °C		0,276				0,463
Residual moisture	%	max. 5				
Max. free chloride content	ppm	150				
Packing*		Paper bag 80 l PE-LD bag 80-100 l Hobby packing – PP bucket 10 l or PE bag 3 l (only Medium)				

\* Packaging can be customized (bulk, BigBag etc.).

### Application - examples

#### Industrial production and construction

- manufacture of fire resistant and insulation products for construction purposes and protection of building structures (see Grenamat A, AL, B, C)
- manufacture of insulating materials for the production of fireplaces, stoves, boilers, chimneys and other heat sources (see Grenamat AS)
- production of materials for high temperature insulation of metallurgical and foundry equipment and molds (see Grenamat HTI)
- an additive for lightweight and insulating concrete, special plasters and low density bulk floor or roof screeds
- bulk thermal insulation of cavities of building structures
- manufacture of automotive friction lining
- insulation of metallurgical and foundry melts during transport and handling

#### Agriculture and breeding

- admixture of garden substrates for moisture retention
- growth medium for germinating seeds and growing ingredients
- support for hydroponics
- revitalization of agricultural land (relieving and increasing hygroscopicity)
- carrier medium for fertilizers and biological pests
- litter for livestock breeding
- reptiles for hatching
- drug carrier medium when added to feed mixtures

#### Other uses

- absorbent of petroleum and other liquid substances
- Packaging material
- carrier medium for perfumes

### REACH

Manufacturer Grena, a.s., Veselí nad Lužnicí declares that the above mentioned product does not contain substances on the list of dangerous substances, SVHC (Substances of Very High Concern), published by the European Chemicals Agency (ECHA) on its website.

### DECLARATION OF HEALTH

Manufacturer Grena a.s., Veselí nad Lužnicí declares that the above product does not contain asbestos, no mineral fibers or organic components. Exfoliated vermiculite is a heat-treated mineral freely present in nature without chemical treatment and according to Annex 7, point 7 of the current version of Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) As amended by Commission Regulation (EC) No 987/2008 and Commission Regulation (EU) No 453/2010, is exempted from the obligation to register and hence the obligation to issue safety data sheets.

Our technical consultants are always ready to answer you specific questions and advise you with the product application according to your needs. The information in this sheet is based on practical experience, as well as on tests and reflects our current state of knowledge. It is informative and does not contain any assurance of product properties or their suitability for specific applications. Try for yourself whether our product is suitable for your purposes.

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