vermiculite
Exfoliated

Detail view of exfoliated vermiculite granules

Micron

Superfine

Vermiculite is a member of the phyllosilicate or the sheet silicate group. It is a complex of magnesium, aluminium and iron silicate. The name "vermiculite" is derived from the Latin word "vermicularis" (worm-like) due to the long, crooked and twisted columns which are created when the larger crystals are suddenly heated to high temperatures which liberate the crystalline water.

Exfoliation (peeling of, flaking), i. e. multiple expansion during heating, is a process of thermal expansion by which the crystalline water in the inter-laminar space turns into the steam which enlarges this space several times and separates the laminar layers from each other.

Vermiculite chemical formula: The below general formula represents a typical formula, which has been calculated on the basis of 65 vermiculite analyses.
(Na0.21,K0.39,Mg,0.19,Ca0.136H2O)
(Mg5Fe+20.2Fe+30.8) [Si5.5,Al2.5,O20] (OH)4,
where the elements in the first set of parenthesis represent the ion-exchangeable layer, the elements in the second set of parenthesis contain the cations of the octahedral layer, and the elements within the brackets contain the tetrahedral layer.

In 2004 the GRENA, a. s. company introduced the first vermiculite exfoliation technology as the first industrial company in the Czech Republic and the Slovak Republic. The line capacity - 2 metric tons per hour. Possible delivery and exfoliation of all the vermiculite types (fractions).

Vermiculite mine

Mine bottom:
230 metres under sea level

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Grena, a. s.: Exfoliation Line

Exfoliated vermiculite - granule sizes

Fine

Medium

Large

Vermiculite application:

-very processing of the vermiculite into the non-combustible and fire-resistant boards

-metallurgical industry - isothermal packing materials of melted metals

-car industry - brake and clutch lining manufacturing

-building industry - lightweight concretes, heat-insulating concretes for swimming pool constructions, thermal-insulating plasters, ceiling and floor backfills

-refractory concrete manufacturing,

-stoneware industry

-agriculture - as an additive of the fertiliser mixtures

-horticulture - seeding

-Reptile egg incubation medium

Technical data:	Fineness (mm)	Density (kg/m^3)
Micron	0,250 - 0,710	110 - 130
Superfine	0,355 - 1,000	95 - 120
Fine	0,710 - 2,000	80 - 95
Medium	1,400 - 4,000	75 - 85
Large	2,800 - 8,000	65 - 75