



## Vermiculite Data

### Exfoliated vermiculite particle sizes

Size mm	in		Density		Equivalent names/designations	
			kg/m <sup>3</sup>	lb/ft <sup>3</sup>	System A	System B
16	5/8	down	56 to 72	3.5 to 4.5	NA	Premium (6)
8	5/16	down	64 to 85	4 to 5	1	Large (4)
4	5/32	down	72 to 90	4.5 to 5.5	2	Medium (3)
2	0.08	down	75 to 112	4.7 to 7	3	Fine (2)
1	0.04	down	80 to 144	5 to 9	4	Superfine (1)
0.5	0.02	down	90 to 160	5.6 to 10	5	Micron (0)

### Typical chemical analysis of vermiculite

#### Element Percent by Weight

SiO <sub>2</sub>	38 to 46
Al <sub>2</sub> O <sub>3</sub>	10 to 16
MgO	16 to 35
CaO	1 to 5
K <sub>2</sub> O	1 to 6
Fe <sub>2</sub> O <sub>3</sub>	6 to 13
TiO <sub>2</sub>	1 to 3
H <sub>2</sub> O	8 to 16
Other	0.2 to 1.2

### Thermal conductivity of exfoliated vermiculite at different bulk densities

Bulk density		Thermal conductivity, λ	
kg/m <sup>3</sup>	lb/ft <sup>3</sup>	W/mK	Btu in/ft <sup>2</sup> h °F
56 - 64	3.5 - 4	0.058	0.40
80 - 96	5 - 6	0.064	0.44
160 - 192	10 - 12	0.071	0.49

### Typical physical properties of exfoliated vermiculite

Colour	Light to dark brown
Shape	Accordion-shaped granule
Bulk density <sup>a</sup>	64 -160 kg/m <sup>3</sup> , 4-10 lb/ft <sup>3</sup>
Moisture loss at 110C(230F)	4 to 10%
pH (in water)	6 to 9
Combustibility	Non-combustible
MOH Hardness	1 to 2
Sintering temperature	1150 - 1250C, 2100 - 2280F
Fusion point	1200 - 1320C, 2200 - 2400F
Cation exchange capacity <sup>b</sup>	50 - 100 me/100g
Specific heat:	0.84 - 1.08 kJ/kgK 0.20 - 0.26 kcal/kgK 0.20 - 0.26 Btu/lb F
Waterholding capacity <sup>a</sup>	220 - 325% by weight 20 - 50% by volume
Notes:	<sup>a</sup> Bulk density and water holding capacity vary with article size. <sup>b</sup> Exchangeable ions are Mg <sup>+2</sup> and Ca <sup>+2</sup> sodium acetate saturation / ammonium acetate substitution method

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