

TYPICAL PHYSICAL PROPERTIES OF EXFOLIATED VERMICULITE



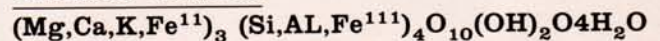
Color:	Light to dark brown
Shape:	Accordion-shaped granule
Bulk density(a):	64-160 kg/cu m 4-10 lb/cu ft
Moisture loss @110°C (230°F):	4-10%
pH (in water):	6-9
Combustibility:	Non-combustible
Sintering temperature:	1150-1250°C 2100-2280°F
Fusion point:	1200-1320°C 2200-2400°F
Cation exchange capacity (b):	50-150 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 (a):	200-325% by wt 20-50% by vol

TYPICAL CHEMICAL ANALYSIS



<u>Element</u>	<u>Percent by Weight</u>
SiO ₂	38-46%
AL ₂ O ₃	10-16
MgO	16-35
CaO	1-5
K ₂ O	1-6
Fe ₂ O ₃	6-13
TiO ₂	1-3
H ₂ O	8-16
Other	0.2-1.2%

Chemical Formula



Thermal conductivity at different bulk densities

<u>Bulk densities</u>		<u>Thermal conductivity values</u>	
Kg/cu m	lb/cu ft	Lambda (λ)W/mK	Btu in/sq ft h°F
56-64	3.5-4.0	0.058	0.40
80-96	5.0-6.0	0.064	0.44
160-192	10-12	0.071	0.49

Notes:

- Bulk density and water holding capacity vary with particle size.
- Exchangeable ions are Mg⁺² and Ca⁺², sodium acetate saturation/ammonium acetate substitution method.

MAILING ADDRESS:
P.O. BOX 3099
ANDOVER, MA 01810
TEL: 978/681-8833



PLANT & OFFICE:
30 GLENN STREET
LAWRENCE, MA 01843
FAX: 978/682-3413

WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite

Grade: A-4

Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.

Density: 4-7 lbs per cubic foot (loose)

PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus 4	Plus 8	Pan
50-75	75-95	0-15

Market Applications: Industrial (Packaging, Absorbent), Construction (Insulation), Horticultural (Lt. Wt. Soil Amendment)

Handling: Respiratory protection, additional information available upon request.

The physical properties of Whittemore Vermiculite products represent typical values obtained from accepted test procedures and are subject to manufacturing variations. Technical data supplied as a technical service and subject to change without notice.

Amended 3/20/12

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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite

Grade: A-3

Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.

Density: 4-7 lbs per cubic foot (loose)

PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus 6	Plus 16	Pan
15-40	75-95	0-15

Market Applications: Industrial (Packaging, Absorbent), Construction (Insulation), Horticultural (Lt. Wt. Soil Amendment)

Handling: Respiratory protection, additional information available upon request.

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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite

Grade: A-2

Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.

Density: 4-8 lbs per cubic foot (loose)

PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus 8	Plus 20	Pan
0-10	75-95	0-15

Market Applications: Industrial (Packaging, Absorbent), Construction (Insulation, Concrete Aggregate), Horticultural (Lt. Wt. Soil Amendment, Seed Topping)

Handling: Respiratory protection, additional information available upon request.

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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite

Grade: A-1

Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.

Density: 4-7 lbs per cubic foot (loose)

PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus 8	Plus 20	Plus 50	Pan
0-5	65-85	85-100	0-10

Market Applications: Industrial (Packaging, Absorbent), Construction (Insulation, Concrete Aggregate), Horticultural (Lt. Wt. Soil Amendment, Seed Topping)

Handling: Respiratory protection, additional information available upon request.

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Amended 2/20/12

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LAWRENCE, MA 01843
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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite
Grade: D-3
Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.
Density: 6-8 lbs per cubic foot (loose)
PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus	-8	Pan
8	20	
0-10	90-100	0-10

Market Applications: Industrial (Packaging, Absorbent), Construction (Insulation, Construction Aggregate), Horticultural (Lt. Wt. Soil Amendment, Seed Topping)

Handling: Respiratory protection, additional information available upon request.

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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite

Grade: D-4

Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.

Density: 6-8 lbs per cubic foot (loose)

PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus	-16	-50	Pan
16	50	100	
0-5	60-98	90-100	0-10

Marketing Applications: Industrial (Packaging, Absorbent), Construction (Insulation, Concrete Aggregate)

Handling: Respiratory protection, additional information available upon request.

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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite

Grade: Masonry Fill Insulation

Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.

Density: 4-8 lbs.

PH Range: 6-9 (in water)

Sieve Analysis (% retained)

Plus 4	Plus 6	Plus 16	Pan
0-15	15-40	75-95	0-25

Market Applications: Construction (Insulation, Concrete Block Fill)

- Complies with **ASTM C 516-02**, Type I Classification, as Standard Specification for Vermiculite Loose Fill Thermal Insulation.
- **Masonry Fill Insulation**-Product Application and Marketing Brochure is available from Whittemore Company, upon request.

Handling: Respiratory protection, additional information available upon request.

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Established 3/20/12

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WHITTEMORE TECHNICAL DATA SHEET

Product: Whittemore Vermiculite
Grade: Concrete Aggregate
Composition: Hydrated laminar magnesium-aluminum-iron silicate, which resembles mica in appearance.
Density: 5.5-10 lbs per cubic foot (loose)
PH Range: 6-9 (in water)

Sieve Analysis: **Weight Percent Passing Sieves**

3/8in	No. 4	No. 8	No. 16	No.30	No.50	No.100
100	98-100	60-100	30-85	2-45	1-20	0-10

Market Applications: Construction (Concrete Aggregate)

- Manufactured to comply with the Requirements of **ASTM C 332-82** (Group I-Coarse Aggregate) as Standard Specification for Lightweight Aggregates for Insulating Concrete.

Handling: Respiratory protection, additional information available upon request.

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[Type text]

PERLITE ■ VERMICULITE ■ CUSTOM BLENDING ■ CONTRACT PACKAGING