

# ZONOLITE® VERMICULITE

## Absorption Properties

Zonolite Vermiculite, expanded vermiculite, readily absorbs many liquids. It is distinguished from most common chemical carriers (such as clay) because of its low bulk density and high surface area. (See Table I)

Zonolite Vermiculite's low bulk density makes it an ideal bulking agent and helps dispersion by increasing volume. It is useful for evenly distributing relatively small concentrations of chemicals throughout a large volume batch mixer.

The high surface area of Zonolite Vermiculite allows it to carry a greater amount of material. Furthermore, its absorption capacity is not limited by its surface area. Zonolite Vermiculite has a unique structure which enables absorption interstitially, or between the layers of the vermiculite particle.

## Carrier Applications

Zonolite Vermiculite is used extensively to make dry blends of hard-to-handle, high viscosity liquids. This highly absorbent material is often used as a carrier for liquid and solid fertilizers and chemicals. And, it is used for industrial waste clean-up and packaging for hazardous chemicals.

Zonolite Vermiculite is manufactured by a thermal expansion process at 1400°F, making it essentially sterile, and therefore, valuable as a carrier for animal feed nutrients and some pharmaceutical applications.

## Absorption Analysis

The values shown in Table II illustrate the absorption capabilities of Zonolite Vermiculite. The saturation test method was used following Military Specification MIL-S-28600A (yd), which measures the amount of liquid absorbed at the wet saturation point. The Hilgard Method is also reported for water with and without vacuum applied.

**TABLE I**

Property	Zonolite Vermiculite Grade			
	#1	#2	#3	#4
Bulk Density				
lbs./ft <sup>3</sup>	4.8	5.0	5.7	7.0
Kg/m <sup>3</sup>	76.9	80.1	93.3	112.1
Surface Area* (m <sup>2</sup> /g)	5	7**	8	14

\* Nitrogen Absorption Method

\*\* Value Interpolated from other measurements

**TABLE II**

Zonolite Vermiculite Grade	Weight (%) Retained (Dry Base)			Volume Retained (Gal./ft <sup>2</sup> )		
	#2	#3	#4	#2	#3	#4
Water	382	360	429	2.8	3.0	4.1
Water*	493	497	516	3.6	4.1	5.0
Water**	639	608	615	4.6	5.1	5.9
Kerosene	335	301	342	3.1	3.3	4.2
SAE40 Motor Oil	363	463	470	2.9	4.4	5.1
Tellus 29 Light Oil	344	394	414	2.9	3.8	4.6
Light Paraffin Oil	278	382	437	2.4	3.8	4.9
Graphited Lubricant	353	759	518	3.4	6.9	5.3
Asphaltic Emulsion	286	274	376	2.0	2.3	2.5
Diazinon 1, 1% Solution	267	308	363	1.9	2.6	3.4
Sevin 2, 1% Solution	338	393	473	2.3	3.2	4.4
Sevin 2 Powder, solid	24	39	71	-	-	-

1 Ciba-Giegy

2 Union Carbide

\* Hilgard Absorption Method

\*\* Hilgard Absorption Method with vacuum

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