

SMECTITE CLAY SUSPENDING AGENTS/ EMULSION STABILIZERS/THICKENERS

VANATURAL® Bentonite Clay, **VEEGUM**® Magnesium Aluminum Silicate and **VAN GEL**® Mineral Thickener are natural water-washed smectite clays. These clays are used as emulsion stabilizers, suspending agents and viscosity modifiers. They are supplied as insoluble fine granules or powder that form a colloidal dispersion in water.

PHARMACEUTICAL & COSMETIC GRADES

VEEGUM	General purpose grade; for all types of personal care, pharmaceutical, veterinary and industrial products.
VEEGUM F	Micronized powder; for tablets and pressed powders.
VEEGUM HV	Higher viscosity grade; functionality similar to VEEGUM.
VEEGUM K	High acid and electrolyte compatibility; widely used in oral pharmaceutical suspensions.
VEEGUM HS	Highest electrolyte stability, minimum acid demand.

COSMETIC GRADES

VANATURAL	Fast hydrating bentonite; emulsion and suspension stabilizer for natural and organic formulations.
VEEGUM Ultra	Quickest hydration, uniquely white, acidic dispersions; for skin-pH topicals.
VEEGUM Pure	Specially processed for organic and natural personal products.
VEEGUM D	Fast hydration; dentifrice binder, emulsion and suspension stabilizer.

INDUSTRIAL GRADES

VAN GEL B	General purpose grade; for most household, institutional and agricultural applications.
VAN GEL C	High alkali stability; for oven cleaners and other alkaline systems.
VAN GEL ES	Highest electrolyte stability; for cleaners and cleansers.
VAN GEL O	Stable in hypochlorite-containing formulas; for bleach cleaners.
VEEGUM T	High thickening efficiency and alkali stability; for oven cleaners and other alkaline systems.
VEEGUM CER	Highest suspending and thickening efficiency.

APPLICATION GUIDE	VANATURAL	VEEGUM Ultra	VEEGUM	VEEGUM Pure	VEEGUM HV	VEEGUM K	VEEGUM HS	VEEGUM F	VEEGUM D
Pharmaceutical & Personal Care									
Acne Treatments			√	√	√				
AHA, BHA Creams		√							
Antacid, Anti-diarrheal Suspensions					√	√			
Anti-dandruff, Treatment Shampoos		√	√	√					
Antiperspirants, Deodorants – Roll-on					√				
Brush-on Hair Color	√	√							
Burn/Bite Creams	√	√	√						
Conditioning 2-in-1 Shampoos							√		
Creams and Lotions	√	√	√	√	√	√	√		√
Dentifrices	√		√	√					√
Eye shadow, Mascara, Eyeliner	√		√	√				√	
Facial Masks	√	√					√	√	
Hair Straightener/Permanent Wave							√		
Insect Repellent	√	√	√	√					
Makeup, Cake								√	
Makeup, Liquid	√	√	√	√					
Pearlescent Shampoos		√					√		
Pharmaceutical Creams and Lotions			√		√				
Pharmaceutical Ointment Bases			√					√	
Pharmaceutical Oral Suspensions					√	√			
Poison Ivy/Calamine Lotions	√	√	√	√					
Sunscreens	√	√	√	√					
Tablets								√	
Veterinary Oral Suspension					√	√			
Veterinary Topical Creams and Lotions	√	√	√	√					
Household & Industrial									
Abrasive Suspensions			√					√	√
Acid Bowl Cleaners			√		√		√		
Auto Polishes			√				√		
Agricultural Flowable Suspensions			√				√		
Alkaline Cleaners				√				√	
Bleach/Mildew Cleaners						√			
Ceramics								√	√
Furniture Polish			√				√		
Hard Surface Cleaners and Cleansers			√		√		√		
LADD – Liquid Automatic Dishwashing Detergents					√	√			
Oven and Grill Cleaners				√				√	
Paint Strippers			√					√	
Rust Removers			√		√				
Waterless Hand Cleaners			√				√		

Minimum Suggested Hydration Times	Normal Hydrating	Quick Hydrating	Ultra Hydrating
<i>Based on laboratory scale preparations under practical formulating conditions. Actual hydration times in the laboratory or in production will depend on the particular combination of batch size, mixer shear, and water temperature used.</i>	VEEGUM	VANATURAL	VEEGUM Ultra
	VEEGUM F	VEEGUM HS	
	VEEGUM K	VEEGUM D	
	VEEGUM HV	VAN GEL O	
	VEEGUM Pure	VAN GEL ES	
	VEEGUM T		
	VAN GEL B		
	VAN GEL C		
Propeller Mixer:			
800 rpm, 25°C water	120 Minutes	30 Minutes	15 Minutes
800 rpm, 75°C water	45 Minutes	20 Minutes	10 Minutes
Homogenizer:			
3000 rpm, 25°C water	30 Minutes	20 Minutes	10 Minutes
3000 rpm, 75°C water	15 Minutes	10 Minutes	10 Minutes

Suggested Starting Ratios		
Organic Thickener	W/W Ratio Range of Clay to Thickener	Mixing Procedure
Polyacrylates	5:1 to 1:1	A
Carbomers	10:1 to 1:1	A,B
Sodium Carboxymethylcellulose	10:1 to 1:1	C
Hydroxyethyl Cellulose	1:1	A,D
Hydroxypropyl Cellulose	1:1	A,D
Hydroxypropylmethylcellulose	1:1	A,D
Methylcellulose	1:1	A,D
Xanthan Gum	10:1 to 1:1	C
Sodium Carageenan	10:1 to 1:1	C
Sodium Alginate	2:1 to 1:1	C
Hydroxypropyl Guar	1:1	A
Gum Arabic (Acacia)	4:1 to 2:1	C
Gum Tragacanth	9:1 to 2:1	C

A Divide the available water and prepare the hydrated clay dispersion and the organic thickener solution separately. Slowly add the thickener solution to the clay dispersion with good agitation. Mix until uniform before adding other formula ingredients.

B Add the acid pH VEEGUM *Ultra* and carbomer simultaneously, or as a dry blend, to the available water. Hydrate thoroughly before adding other formula ingredients. The carbomer can be neutralized at any convenient point after hydration.

C Add the clay and organic thickener simultaneously, or as a dry blend, to the available water. Hydrate thoroughly before adding other formula ingredients.

D For nonionic cellulose that are insoluble in hot water: hydrate the clay in hot water. Add the gum to the hot clay dispersion with good agitation. Cool the dispersion with continued agitation until the gum is completely dissolved.

Before using, read, understand and comply with the information and precautions in the Material Safety Data Sheets, label and other product literature. The information presented herein, while not guaranteed, was prepared by technical personnel and, to the best of our knowledge and belief, is true and accurate as of the date hereof. No warranty, representation or guarantee, express or implied, is made regarding accuracy, performance, stability, reliability or use. This information is not intended to be all-inclusive, because the manner and conditions of use, handling, storage and other factors may involve other or additional safety or performance considerations. The user is responsible for determining the suitability of any material for a specific purpose and for adopting such safety precautions as may be required. R.T. Vanderbilt Company, Inc. does not warrant the results to be obtained in using any material, and disclaims all liability with respect to the use, handling or further processing of any such material. No suggestion for use is intended as, and nothing herein shall be construed as, a recommendation to infringe any existing patent, trademark or copyright or to violate any federal, state or local law or regulation.

VANATURAL, VEEGUM and VAN GEL products must be properly dispersed in water and hydrated to develop the desired rheological properties. They can be classified by their rate of hydration as a function of energy input. Energy for hydration is supplied by the mechanical shear of the mixer and the heat supplied by the hydration water. Higher mixer shear and higher water temperature accelerate hydration. Solubles present in the water when the clay is added can inhibit hydration.

VANATURAL, VEEGUM and VAN GEL products are often used synergistically with organic thickeners. These combinations allow the formulator to fine-tune rheological properties beyond what is possible with the clay or organic thickener alone.

Please contact us for further information on the products described in this brochure. Samples and Technical Data Sheets are available on request.

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