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VANDERBILT

Formulary



Baby Care
Formulary No. 929

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BABY CARE FORMULARY

VANATURAL® Bentonite Clay

VEEGUM® Magnesium Aluminum Silicate

VANZAN® Xanthan Gum

VANATURAL Bentonite Clay (INCI Name: Bentonite) and **VEEGUM** Magnesium Aluminum Silicate (INCI Name: Magnesium Aluminum Silicate) are natural water-washed smectite clays that reliably stabilize personal care and pharmaceutical emulsions and suspensions. **VANATURAL** bentonite complies with the rules established by the USDA National Organic Program (NOP). The NOP provides regulations and guidance for raw materials used in products claimed as organic or as containing organic ingredients (7 CFR 205.600 through 205.607), and lists bentonite as an allowed ingredient. **VANATURAL** bentonite is recommended for use in organic personal care products.

VANZAN (INCI Name: Xanthan Gum) is a natural high molecular weight, exocellular polysaccharide derived from *Xanthomonas campestris*. Because of its protective function in nature, it is more resistant than are most gums to shear, heat, bacterial, enzyme, and UV degradation. **VANZAN** products are efficient thickeners as well as emulsion and suspension stabilizers. They also provide useful synergism with **VANATURAL** and **VEEGUM** clays.

USING VANATURAL AND VEEGUM CLAYS

VANATURAL and **VEEGUM** products must be properly dispersed in water to provide their best performance. No other materials should be present in the water, because they can interfere with proper clay hydration and colloidal structure formation. The degree of clay hydration is directly proportional to the amount of energy used to disperse the product. The degree of hydration therefore increases as mixing time, mixing intensity or water temperature increases. One grade, **VEEGUM Ultra**, is relatively unaffected by changes in these mixing factors; adequate hydration can be achieved quickly, using room temperature water and a simple, slow speed propeller mixer.

The following table provides guidelines for the minimum amounts of time suggested for the hydration of **VANATURAL** and **VEEGUM** products. Actual hydration times, in the laboratory or in production, will depend on the particular combination of batch size, mixer shear and water temperature used. Whichever mixing conditions are used, it is very important that they be carefully controlled to achieve reproducible results in the final formulation.

Water Temp.	Mixer Type	Mixer Speed, rpm	Minimum Suggested Mixing Time		
			VEEGUM	VANATURAL VEEGUM HS	VEEGUM <i>Ultra</i>
25°C	Propeller	800	120 min.	30 min.	15 min.
75°C	Propeller	800	45 min.	20 min.	10 min.
25°C	Homogenizer	3000	30 min.	20 min.	10 min.
75°C	Homogenizer	3000	15 min.	10 min.	10 min.

USING VANZAN XANTHAN GUM

VANZAN products are soluble in both cold and warm water. To dissolve quickly and completely, they must first be properly dispersed so that individual gum particles are surrounded by the aqueous medium. The individual particles then hydrate and dissolve. Good dispersion is promoted by high shear mixing, blending the gum particles into a water-miscible non-solvent such as glycol or alcohol before addition to the aqueous phase, or dry blending with other formula ingredients such as co-thickeners, salts, acids, abrasives or pigments before addition to the aqueous phase.

RECOMMENDED GRADES FOR BABY CARE FORMULATIONS

Smectite Clays:

- VANATURAL** Rapidly hydrating high purity bentonite clay for most personal care applications.
- VEEGUM Ultra** A unique acidic smectite clay that is especially easy to hydrate.
- VEEGUM** The standard grade for a wide range of applications.
- VEEGUM HS** A fast hydrating grade with maximum electrolyte stability

Xanthan Gum:

- VANZAN NF** The standard grade for most personal care and pharmaceutical applications.
- VANZAN NF-C** Produces clear solutions; used when product clarity is essential.

BABY CLEANSING

Baby Washing Cream No. 505

		Wt. %
A	VEEGUM[®] Ultra Magnesium Aluminum Silicate	2.0
	Water	63.0
B	Sodium Cocoyl Isothionate (Tauranol [®] I-78 ¹)	25.0
	Cocamidopropyl Hydroxysultaine (Mirataine [®] CBS ²)	10.0
C	Preservative	q.s.

¹Innospec Active Chemicals, Edison, NJ²Rhodia Inc., Cranbury, NJ

Procedure: While heating the water to 60-65°C, slowly add the **VEEGUM Ultra** while agitating at maximum available shear. Continue mixing until fully hydrated. Maintaining temperature, slowly add Part B ingredients in the order shown, mixing after each addition until smooth and uniform. Cool with mixing to < 45°C and then add Part C. Adjust as necessary to pH 5.5 ± 0.5.

Baby Wash No. 553

		Wt. %
A	VANZAN[®] NF Xanthan Gum	1.0
	Water	76.2
B	C12-15 Alkyl Benzoate (Finsolv [®] TN ¹)	5.0
	PEG-14 dimethicone (Dow Corning [®] 193 ²)	1.2
C	Cocamidopropyl Betaine (Amphosol [®] CA ³)	10.0
	Decyl Glucoside (Plantaren [®] 2000N ⁴)	6.6
D	Preservative	q.s.

¹Innospec Active Chemicals, Edison, NJ²Dow Corning Corporation, Midland, MI³Stepan Company, Northfield, IL⁴Cognis Corporation, Ambler, PA

Procedure: Sift the **VANZAN NF** into the water agitated at maximum available shear. Mix until completely dissolved. Blend Part B ingredients, then add to Part A and mix thoroughly. Add Part C ingredients separately and mix thoroughly after each addition. Avoid air entrapment. Add the preservative and mix until uniform.

Baby Wash No. 504

		Wt. %
A	VEEGUM[®] HS (Magnesium Aluminum Silicate)	4.0
	Water	75.0
B	Disodium POE Lauryl Sulfosuccinate (Beaulight [™] LSS ¹)	10.0
C	Cocamide DEA (Monamid [®] 705 ²)	4.0
	Lauryl Betaine (Lebon [™] LD-36 ¹)	7.0
	Preservative	qs

¹Sanyo Chemical Industries, Ltd., Tokyo, Japan²Uniqema, New Castle, DE

Procedure: Slowly add the **VEEGUM HS** to the water agitated at maximum available shear. Mix until fully hydrated. Heat Part B to 60-65°C and add slowly to Part A with gentle mixing. Add the Part C ingredients in the order shown, mixing until uniform.

BABY SKIN CARE

Organic Baby Lotion No. 594

		Wt.%	
A	VANATURAL[®] Bentonite Clay	2.50	
	VANZAN[®] NF Xanthan Gum	0.50	
B	Water	56.0	
	Aloe Vera Gel, from Aloe Vera Whole Leaf	20.0	
C	Powder Organic Spray Dried 100X ¹ (1% powder/99% water)		
	Cetearyl Wheat Straw Glycosides (and) Cetearyl Alcohol (Xylance ^{™2})	5.0	
	Butyrospermum Parkii (Shea) Butter (Shea Butter-Ultra Refined [™] Certified Organic ³)	3.5	
	Theobroma cacao (cocoa) seed butter (Cocoa Butter-Ultra Natural [™] Certified Organic ³)	3.5	
	Persea Gratissima (Avocado) Oil (Avocado Oil Certified Organic ³)	6.0	
	Simmondsia Chinensis (Jojoba) Seed Oil (Jojoba Oil- Natural Golden- Certified Organic ³)	3.0	
	D	Preservative	q.s.

¹Terry Laboratories, Inc., Melbourne, FL²Actives International, Allendale, NJ³BioChemica Int'l, Inc., Melbourne, FL

Procedure: While heating the water to 75°C, slowly add the **VANATURAL** and **VANZAN NF** (sequentially or as a dry blend) while mixing at maximum available shear. Mix until fully hydrated. Prepare Part B by dissolving aloe vera powder in water then add slowly to Part A. Maintain the water phase temperature at 75°C. Combine Part C ingredients and heat to 75°C. Add Part C oil phase to Part A/B water phase and mix thoroughly. Cool with mixing; add Part D when the emulsion is <30°C.

Soothing Skin Cream with Jojoba Oil No. 571

		Wt. %
A	VANATURAL[®] Bentonite Clay	2.0
	Water	73.0
	Butylene Glycol	5.0
B	Bis-PEG/PPG-16/16 PEG/PPG-16/16 dimethicone; Caprylic/capric triglyceride (Abil [®] Care 85 ¹)	1.5
	Cetyl Alcohol (and) Glyceryl Stearate (and) PEG-75 stearate (and) Ceteth-20 (and) Steareth-20 (Emulium [®] Delta ²)	4.5
	Cetyl Rinoleate (Tegosoft [®] CR ¹)	2.0
	Simmondsia Chinensis (Jojoba) Seed Oil (Jojoba Oil Golden ³)	6.0
	Cyclomethicone (Dow Corning 345 Fluid ⁴)	6.0
C	Preservative	qs

¹Evonik Goldschmidt Chemical Corporation, Hopewell, VA²Gatefosse Corporation, Paramus, NJ³Desert Whale Jojoba Co., Inc., Tuscon, AZ⁴Dow Corning Corporation, Midland, MI

Procedure: While heating the water to 75°C, slowly add the **VANATURAL** while mixing at maximum available shear. Mix until fully hydrated. Add the butylene glycol, mixing until uniform. Maintain the water phase at 75°C. Blend the Part B oil phase ingredients and heat to 75-80°C. Add the oil phase to the water phase with good agitation; mix until uniform. Cool with mixing; add Part C when the emulsion is <30°C.

Oatmeal Lotion No. 586

		Wt. %
A	VANATURAL [®] Bentonite Clay	2.50
	Water	73.25
	Avena Sativa (Oat) Kernel Flour (Tech-O [®] #11-070 Oat Flour ¹)	1.00
	VANZAN [®] NF Xanthan Gum	0.50
B	Sucrose Stearate (Surfhope [®] SE Cosme C-1811 ²)	1.75
	Sodium PCA (Ajidew [®] NL-50 ³)	3.00
	Glycerin, 96%	5.00
C	Glyceryl Stearate (and) PEG-100 Stearate (Arlacel [®] 165 VEG ⁴)	2.00
	Hydrogenated Polyisobutylene (Parleam [®] 5)	4.00
	Mineral Oil (and) Lanolin Alcohol (Vilvanolin [™] L-101 ⁶)	3.00
	Cetyl Alcohol	2.00
	Isopropyl Myristate	2.00
D	Preservative	q.s.
	Citric Acid, 20%	q.s.

¹Beacon CMP Corporation., Kenilworth, NJ²Arch Personal Care Products L.P., South Plainfield, NJ³Ajinimoto USA, Inc, Fort Lee, NJ⁴Uniqema, New Castle, DE⁵Rosow Cosmetics-USA, Highlands, NJ⁶Lubrizol Advanced Materials, Inc., Cleveland, OH

Procedure: While heating the water to 50-55°C, sift the VANATURAL into the water agitated at maximum available shear. Once dispersed, slowly sift in the oat flour. Mix until the VANATURAL is fully hydrated and the oat flour is well dispersed. Add the VANZAN NF and mix until dissolved. Add the sucrose stearate and mix until uniform. Add Part B ingredients and mix thoroughly. Maintain the water phase at 50-55°C. Blend the Part C oil phase ingredients and heat to 50-55°C. Add the oil phase to the water phase with good agitation; mix until uniform. Avoid incorporating air. Cool with mixing; add the preservative when the emulsion is <35°C. Adjust pH to 5.5 ± 0.5 with citric acid.

All Natural Lotion No. 589

		Wt. %
A	VANATURAL [®] Bentonite Clay	2.5
	VANZAN [®] NF Xanthan Gum	0.5
	Water	78.0
B	Cetearyl Wheat Straw Glycosides (and) Cetearyl Alcohol (Xyliance ^{™1})	5.0
	Orbignya Oleifera Seed Oil (Cropure [®] Babassu ²)	5.0
	Simmondsia chinensis (jojoba) seed oil (Jojoba Oil Golden ³)	5.0
	Butyrospermum Parkii (Shea) Butter (Tomasa Shea Butter ⁴)	2.0
	Theobroma cacao (cocoa) seed butter (Cocoa Butter NF ⁵)	2.0
C	Preservative	qs

¹Actives International, Allendale, NJ²Croda, Inc., Edison, NJ³Desert Whale Jojoba Co., Tucson, AZ⁴Tri-K Industries, Inc., Northvale, NJ⁵RITA Corp., Crystal Lake, IL

Procedure: While heating the water to 70-75°C, slowly add the VANATURAL and VANZAN NF sequentially or as a dry blend to the water agitated at maximum available shear. Mix until fully hydrated. Maintain the water phase at 70-75°C. Blend the Part B oil phase ingredients and heat to 70-75°C. Add the oil phase to the water phase with good agitation; mix until uniform. Cool with mixing; add the Part C ingredients when the emulsion is <30°C.

Aloe & Oatmeal Soothing Poultice No. 598

		Wt.%
A	VEEGUM [®] HS Magnesium Aluminum Silicate	5.0
	Kaolin USP	89.0
	Aloe Barbadosensis Leaf Juice (and) Maltodextrin (Terra-Spray [™] Spray Dried Aloe Vera Powder 100X ¹)	1.0
	Avena Sativa (Oat) Kernel Flour (Tech-O [®] #11-070 Oat Flour ²)	5.0

¹Terry Laboratories, Melbourne, FL²Beacon CMP Corporation, Kenilworth, NJ**Procedure:** Dry blend all ingredients.**Use:** By volume, mix about 1 part water into 4 parts of poultice powder and mix to form a smooth paste.**Skin Protectant Barrier Cream No. 490**

		Wt. %
A	VEEGUM [®] Ultra Magnesium Aluminum Silicate	0.80
	Carbomer (Carbopol [®] 934 ¹)	0.30
	Water	79.00
B	Glycerin	2.00
	Butylene Glycol	2.00
C	Cetyl Alcohol	0.50
	Glyceryl Monostearate SE (Dermalcare [®] GMS SE ²)	2.00
	Caprylic/Capric Triglyceride (Neobee [®] M-5 ³)	2.00
	C ₁₂₋₁₅ Octanoate (Finester [™] EH-25 ⁴)	2.00
	Castor Oil Polyurethane (Polyderm [™] PPI CO ⁵)	1.00
	Phenyl Dimethicone (DC 556 Fluid ⁶)	3.00
	Dimethicone (DC 200 Fluid, 350 cSt ⁶)	1.00
	Bois Oil	0.50
D	Stearth-2 (Brij [®] 72 ⁷)	0.95
	Stearth-21 (Brij [®] 721 ⁷)	0.95
	Panthenol	1.00
E	Vitamin E Acetate	0.50
	Vitamin A Palmitate	0.50
E	Preservative	q.s.

¹Lubrizol Advanced Materials, Inc., Cleveland, OH²Rhodia Inc., Cranbury, NJ³Stepan Company, Northfield, IL⁴Innospec Active Chemicals, Edison, NJ⁵Alzo International Inc., Sayreville, NJ⁶Dow Corning Corporation, Midland, MI⁷Uniqema, New Castle, DE

Procedure: While heating the water to 80°C, slowly add the VEEGUM Ultra and carbomer sequentially or as a dry blend to the water agitated at maximum available shear. Mix until fully hydrated. Add the remaining water phase ingredients from Part B, mixing until uniform. Maintain the water phase at 80°C. Blend the Part C oil phase ingredients and heat to 80°C. Add the oil phase to the water phase with good agitation; mix until uniform. Cool with mixing; add the Part D and Part E ingredients when the emulsion is < 35°C. Adjust as necessary to pH 5.8±0.3.

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