Distributed in the Interest
of Product Development

VANDERBILT Report

VEEGUM® in Color Cosmetics

R.T. Vanderbilt Company, Inc.
30 Winfield Street, P.O. Box 5150, Norwalk, CT 06856-5150
Telephone: (203) 853-1400
Fax: (203) 853-1452, Web Site: www.rtvanderbilt.com

VEEGUM® in Color Cosmetics

VEEGUM Magnesium Aluminum Silicate was first used in a liquid makeup formulation more than 40 years ago, and today is found in almost every liquid makeup on the market. **VEEGUM** provides an elegant silken feeling and easy spreadability in a uniform film over the face. It is **VEEGUM** that suspends the color pigments and stabilizes the oil-in-water emulsion. The newest grades, **VEEGUM PLUS** and **VEEGUM *Ultra***, as well as the classic grades of **VEEGUM**, enable the production of both elegant liquid foundations and light sport tints for today's demanding customers. **VEEGUM** is also used to a limited degree in mascaras, eyeliners and pressed-powder eye shadow.

These products are described in monographs in the **CTFA International Cosmetic Ingredient Dictionary** as Magnesium Aluminum Silicate except for **VEEGUM PLUS**, which has the INCI name Magnesium Aluminum Silicate (and) Cellulose Gum

PROPERTIES OF VEEGUM

VEEGUM is R.T. Vanderbilt Company's trade name for its purified natural smectite clay suspending and thickening agent. When mixed with water, it forms an opaque, colloidal dispersion. Its colloidal structure provides suspension stability, enhances emulsion stability and thickens the formulation.

Yield value, another property that **VEEGUM** brings to a formulation, is a measure of the strength of the colloidal structure. A certain minimum force must be applied to disrupt that structure. Appreciable quantities of fine particles and dispersed phase droplets can be suspended even in relatively low viscosity systems. The greater the yield value, the better the stability of the cosmetic formulation. **VEEGUM** also provides pseudoplasticity, a property that allows the fluid to flow freely when shaken, permitting pourability. This also allows the fluid to be spread easily and uniformly on the skin.

As a stabilizing agent and rheology modifier, **VEEGUM** is effective over a wide range of pH and temperature. Whether combined with organic gums or used alone, **VEEGUM** provides superior stability, pour characteristics and after-feel on the skin.

RECOMMENDED GRADES for Skin Care Products

VEEGUM -	The original grade, widely used in all types of cosmetics and personal care products.
VEEGUM F -	A finely ground product most useful for pressed-powder eye shadow.
VEEGUM HV -	A higher viscosity grade used in mascaras, eye shadow creams and other personal care products.
VEEGUM PLUS -	A grade with very high thickening efficiency and yield value. It is easy to hydrate, white and bright, and ideal for liquid makeups and other suspension/emulsion compositions.
VEEGUM *Ultra* -	A designer product, white and bright, slightly acidic (pH 4.7) for cosmetic applications; the easiest of all the grades to hydrate.

HYDRATION OF VEEGUM PRODUCTS - the most essential step...

VEEGUM products must be properly dispersed in water to achieve the desired house-of-cards colloidal structure. No other materials, especially preservatives, should be present in the water, because they can interfere with proper colloidal structure formation. Dry VEEGUM, visible to the eye as granules, is actually multiple layers of individual platelets separated by a single, oriented monomolecular layer of water. The faces of these platelets carry a negative charge, while the edges have a slightly positive charge.

When **VEEGUM** is dispersed in water, the platelets are separated and their weakly positive edges are attracted to the negative faces of other platelets. The structure that forms can be visualized as parallel platelets connected by perpendicular cross-linking platelets, the "house-of-cards" structure.

The extent to which these granules separate into individual clay platelets is referred to as the degree of hydration. The greater the degree of hydration, the stronger the house-of-cards structure and the greater the viscosity and yield value.

VEEGUM's degree of hydration is directly proportional to the amount of energy used to disperse the product. Hydration therefore increases as any of the following energy factors increase:

1. Mixing Time
2. Mixing Intensity
3. Water Temperature

Increasing the mixing intensity or the temperature of the water reduces the amount of mixing time necessary to achieve proper hydration of these products.

VEEGUM *Ultra* and **VEEGUM PLUS** are 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 **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.

Water Temp.	Mixer Type	Mixer Speed	Minimum Suggested Mixing Time		
			VEEGUM VEEGUM F & VEEGUM HV	**VEEGUM PLUS**	**VEEGUM *Ultra***
25°C	Homogenizer	3000 rpm	30 min.	20 min.	10 min.
25°C	Propeller	800 rpm	120 min.	30 min.	15 min.
75°C	Propeller	800 rpm	45 min.	20 min.	10 min.

Note - It is very important that the selected mixing conditions be carefully controlled to achieve reproducible viscosity and yield value in the final formulation.

PROTOTYPE FORMULATIONS

A number of prototype formulations have been developed in Vanderbilt's R&D laboratory, and these are presented below to demonstrate how the various grades of **VEEGUM** are used. Other companies' formulations are also included and identified. R.T. Vanderbilt Company is pleased that these companies have chosen VEEGUM for their color cosmetic formulations.

1. Liquid Makeup

Silky Smooth Emollient Liquid Makeup No. 460

VEEGUM PLUS thickens and stabilizes this suspension/emulsion and provides smooth, silky application properties, uniform coverage and a dry, non-tacky after-feel.

	Ingredients	wt.%
A	**VEEGUM PLUS**[1] Magnesium Aluminum Silicate (and) Cellulose Gum	1.00
	Deionized Water	53.50
	Glycereth-26 (Liponic EG-1[2])	10.50
	Triethanolamine, 99%	0.75
B	Iron Oxides	1.29
	Talc	1.00
	Titanium Dioxide	3.00
C	Isopropyl Isostearate	9.06
	Mineral Oil (and) Lanolin Alcohol (Vilvanolin® L-[3])	6.50
	Isopropyl Palmitate	4.00
	Isopropyl Myristate	2.50
	Hydrogenated Soy Glyceride (Myverol® 18-06 [4])	2.10
	Stearic Acid XXX	1.60
	Dioctyl Adipate(and)Octyl Stearate(and)Octyl (1.1% by wt. Wickenol® 161 + 1.0% by wt. Wickenol 163)[5]	2.10
	Cocoyl Sarcosine	1.00
	Lithium Stearate	0.10
D	Preservative	q.s.
		100.00

Procedure: Heat the water to 70 to 75°C. Add the **VEEGUM PLUS** and mix at 1800 rpm for 20 minutes. Slowly mix in the remaining part A ingredients. Mix the Part B ingredients thoroughly into Part A until uniform. Maintain temperature at 70 to 75°C. Heat Part C to 70 to 75°C and as Parts A+B. Mix while cooling. At 40°C, add Part D and mix until uniform.

Water-in-Oil Luxurious Makeup No. 332

This formula is a cold process water-in-oil emulsion stabilized by **VEEGUM**, which also controls the viscosity and insures uniform color throughout the product. This is a moisturizing makeup for dry skin.

	Ingredient	wt.%
A	**VEEGUM**[1] Magnesium Aluminum Silicate	1.20
	Deionized Water	37.90
	Magnesium Sulfate	0.40
B	Talc	5.50
	Kaolin Clay, cosmetic grade	1.50
	Titanium Dioxide	5.00
	Iron Oxides	3.00
C	Mineral Oil	15.00
	Hydrogenated Polyisobutylene	8.00
	Mineral Oil (and) Lanolin Alcohol (Ritachol® [7])	8.00
	Isopropyl Lanolate(and)Lecithin (Lanapene[8])	7.00
	Sorbitol, 70%	5.00
	Oleamide DEA (Ninol® 201 [9])	2.50
D	Preservative	q.s.
		100.00

Procedure: Slowly add the **VEEGUM** to the water, while agitating at maximum available shear. Continue mixing until smooth. Add the Magnesium Sulfate and mix until smooth. Grind Part B and add to Part A, mixing until uniform. Add Parts A+B to Part C. Mix until uniform and smooth. Add Part D and mix until uniform.

Nonionic Liquid Makeup No. 349

VEEGUM provides a liquid makeup with uniform, sheer coverage. **VEEGUM** stabilizes the emulsion while inhibiting pigment settling. The 5:1 **VEEGUM**/xanthan gum ratio provides optimum viscosity and flowability. The blend of oil phase ingredients is designed to give emollience without an oily or greasy feel. A nonionic emulsifying system gives maximum stability to the formula at pH 5.5-6. This formula is designed specifically for oily skin.

	Ingredients	wt.%
A	**VEEGUM**[1] Magnesium Aluminum Silicate	0.75
	VANZAN NF[1] Xanthan Gum	0.15
	Deionized Water	67.10
	Glycerin	4.00
	Citric Acid	0.30
B	Talc	5.00
	Titanium Dioxide	5.00
	Iron Oxides	3.70
C	Mineral Oil (and) Lanolin Alcohol (Ritachol® [7])	5.00
	Myristyl Myristate (Crodamol MM[10])	2.50
	Hydrogenated Polyisobutylene (Polysynlane® [6])	2.00
	Oleyl Alcohol	2.00
	Stearyl Alcohol(and)Ceteareth-20 (Cosmowax K[10])	2.00
	Polysorbate 85 (Tween® 85[11])	0.50
D	Preservative	q.s.
		100.00

Procedure: Blend **VEEGUM** and **VANZAN NF**. Slowly add to the water, while agitating at maximum available shear. Continue mixing untilthe VEEGUM is fully hydrated and the VANZAN NF is dissolved. Add the glycerin and citric acid. Mix until smooth. Mix Part B (grind if necessary) until homogenous. Add Part B to Part A and mix until uniform. Heat Parts A+B to 60 to 65°C. Heat Part C to 60-65°C. Add Part C to Parts A+B and mix while cooling. At 40°C add Part D and mix until uniform.

Cream Matte Makeup No. 154

VEEGUM stabilizes the emulsion and provides uniform pigment suspension. This nonionic makeup spreads smoothly and evenly with a light greaseless feel. It can be applied with a wet sponge if desired. With slight modifications, this formula can be used as a cream eye shadow.

	Ingredients	wt.%
A	**VEEGUM**[1] Magnesium Aluminum Silicate	2.60
	Cellulose Gum (CMC 7LF[12])	0.40
	Deionized Water	42.70
B	Propylene Glycol	5.00
	Deionized Water	12.30
C	Talc	18.50
	Kaolin Clay, cosmetic grade	1.30
	Titanium Dioxide	3.70
	Iron Oxides	1.50
D	Isopropyl Myristate	5.00
	Sorbitan Laurate (Arlacel®20[11])	0.75
	Polysorbate 20 (Tween® 20 [11])	2.25
	Stearyl Alcohol	2.00
	Mineral Oil (and) Lanolin Alcohol (Vilvanolin L-101[3])	2.00
E	Preservative	q.s.
		100.00

Procedure: Dry blend the **VEEGUM** and CMC. Slowly add the mixture to the water, while agitating at maximum available shear until the **VEEGUM** is fully hydrated and the CMC is dissolved. Micropulverize and blend Part C. Add Part C to Part B and grind to a smooth paste. Add Parts B+C to Part A and heat to 65°C. Heat Part D to 70°C and add to Parts A+B+C. Mix until cool. Add Part E and mix until uniform.

Water-Resistant Sport Tint No. 453

VEEGUM *Ultra* and **VANZAN NF** provide emulsion stabilization, viscosity enhancement and pigment suspension in this luxurious, water-resistant, cold processed, liquid makeup. A dual sunscreen system (octyl methoxycinnamate and titanium dioxide) provides protection from UV radiation for the active sportswoman.

	Ingredients	wt.%
A	**VEEGUM *Ultra*** [1] Magnesium Aluminum Silicate	1.60
	VANZAN NF [1] Xanthan Gum	0.40
	Deionized Water	70.40
	Propylene Glycol	5.00
B	Iron Oxides	0.67
	Manganese Violet	0.10
	Talc	4.27
	Titanium Dioxide	6.96
C	Isocetyl Alcohol	3.00
	Octyl Methoxycinnamate	3.00
	Mineral Oil (and) Lanolin Alcohol (Ritachol® [7])	2.00
	DEA-Oleth-3 Phosphate (Crodafos N-3 Neutral [10])	2.20
D	PVP (PVP K-90 [13])	0.40
	Preservative	q.s.
		100.00

Procedure: Dry blend **VEEGUM *Ultra*** and **VANZAN NF** and add to the water while mixing with a high speed disperser at ~1700 rpm for 25 minutes. Adjust mixer to 850 rpm and add propylene glycol. Blend B ingredients thoroughly and grind if necessary. Slowly add B to A until all is added, mixing until smooth and uniform. Mix together C ingredients with a propeller stirrer. Add C to (A and B) and mix until homogeneous. Add Part D ingredients in order, mixing until smooth and uniform.

Makeup Foundation

(Source: Penreco Division of Pennzoil Products Co.)

	Ingredients	wt.%
A	Deionized Water	46.50
B	**VEEGUM** [1] Magnesium Aluminum Silicate	0.80
	VANZAN NF [1] Xanthan Gum	0.30
C	Nylon 12 (Orgasol® 2002 D Extra Natural Cos [2])	1.20
	Sodium PCA (Ajidew® N-50 [14])	1.00
D	Deionized Water	10.00
	Propylene Glycol	7.00
	Iron Oxides(and)Talc	2.55
	Titanium Dioxide	5.60
E	Glyceryl Stearate (Cerasynt GMS [13])	2.00
	Stearic Acid	2.00
	DEA-Cetyl Phosphate (Crodafos CDP [10])	2.00
	Methylparaben(and)Butylparaben(and)Ethylparaben (and)Propylparaben	0.25
	Isostearyl Neopentanoate	3.00
	Mineral Oil(and)Hydrogenated Butylene/Ethylene/ Styrene Copolymer(and)Hydrogenated Ethylene/ Propylene/Styrene Copolymer (Geahlene [15])	15.00
	Phenoxyethanol	0.70
	Tocopherol Acetate	0.10
		100.00

Procedure: Dry blend the Part B ingredients and add them to Part A while mixing with a homogenizer at 5000 rpm for 20 minutes. Add the Part C ingredients in order and mix each for 3 minutes. In a separate container, homogenize the Part D ingredients until smooth. Add Part D to Parts A+B+C and mix for 10 minutes while heating to 80°C. Heat the Part E ingredients to 80°C and mix until the solids are dissolved. Add Part E to the main batch and mix for 30 minutes. Continue mixing at slow speed while cooling to 35°C.

Light Coverage Foundation

(Source: Sun Chemical Corporation)

	Ingredients	wt.%
A	Deionized Water	59.55
	VEEGUM [1] Magnesium Aluminum Silicate	1.20
	Cellulose Gum (CMC 7LF [12])	0.60
B	Butylene Glycol	6.00
	Triethanolamine, 99%	2.00
	Methylparaben	0.30
	Diazolidinyl Urea (Germall® II [13])	0.20
C	Glyceryl Stearate	1.00
	Isostearic Acid	2.00
	Stearic Acid XXX	2.00
	Isopropyl Lanolate	5.00
	Propylene Glycol Diester	5.00
	Propylparaben	0.15
D	Titanium Dioxide	5.62
	Iron Oxides	1.38
	Talc	8.00
		100.00

Procedure: Dry blend the **VEEGUM** and Cellulose Gum and add them to the water while mixing with a homogenizer for 20 minutes at 5000 rpm. Add the Part B ingredients in the order shown, mixing each for 3 minutes. Add the Part D ingredients and mix for 10 minutes. Begin heating to 75°C. Heat the Part C ingredients to 75°C. Add Part C to Parts A+B+D and mix 10 minutes. Continue mixing slowly while cooling to room temperature.

Liquid Makeup

(Source: Presperse, Inc.)

	Ingredients	wt.%
A	Deionized Water	48.83
B	**VEEGUM** [1] Magnesium Aluminum Silicate	0.50
	Cellulose Gum (CMC 7LF [12])	0.15
C	Propylene Glycol	5.00
	Lecithin	1.00
	Methylparaben	0.20
D	Titanium Dioxide	9.00
	Mica(and)Silicone Dioxide (Cashmir K-11 [16])	2.00
	Talc (Micro Ace P-2 [16])	2.00
	Iron Oxides	1.40
	Silica (Spheron® P-1500 microspheres [16])	0.50
E	Cetyl Alcohol	1.00
	Glyceryl Stearate (Lipo® GMS 450 [2])	0.80
	Isopropyl Palmitate (Lipo IPP [2])	4.00
	Stearic Acid	0.80
	Caprylic/Capric Triglyceride (Liponate®GC-K [2])	6.00
	Isoeicosane (Permethyl® 102A [16])	12.50
	Isostearic Acid (Emersol® 871 [17])	2.40
F	Triethanolamine, 99%	1.62
	Propylparaben	0.10
	Imidazolidinyl Urea (Germall 115 [13])	0.20
		100.00

Procedure: Dry blend the Part B ingredients. Add Part B to Part A while mixing with a homogenizer at 5000 rpm for 20 minutes. Begin heating to 75°C. Add the Part C and Part D ingredients in the order shown mixing each for 3 minutes. Check to make sure the pigments are uniformly dispersed. In a separate vessel, mix and heat the Part E ingredients to 75°C. When both phases are at 75°C, add Part E to Parts A+B+C+D. Mix for 15-20 minutes. Begin cooling with slow speed mixing. At 50°C, add the Part F ingredients in the order shown. Continue cooling to room temperature while mixing at slow speed.

2. Eyeliner, Mascara and Eyeshadow

Eyeliner No. 107

VEEGUM provides thickening and pigment suspension in this formula while ensuring smooth application properties. This product can be applied to the eyelid with a brush.

	Ingredients	wt.%
A	**VEEGUM**[1] Magnesium Aluminum Silicate	2.50
	Deionized Water	75.50
B	PVP (PVP K-30[13])	2.00
	Deionized Water	10.00
C	Iron Oxides	10.00
D	Preservative	q.s.
		100.00

Procedure: Slowly add **VEEGUM** to the water while agitating at maximum available shear. Continue mixing untilfully hydrated. Dissolve the PVP in water using a little heat. Add Part B to Part A and mix until uniform. Add Part C and mix until smooth and uniform. Add Part D and mix until uniform.

Water-in-Oil Mascara No. 376

VEEGUM is used to stabilize the water-in-oil emulsion and increase viscosity. PVP contributes the film-forming properties of the mascara. Crotein SPA is a conditioner for lashes. The oil phase waxes are balanced to prevent cracking. Drakesol 165AT promotes fast drying. Witcamide 511C is a water-in-oil emulsifier.

	Ingredients	wt.%
	VEEGUM[1] Magnesium Aluminum Silicate	1.50
	Deionized Water	31.28
A	PVP (PVP K-30[13])	0.22
	Hydrolyzed Collagen (Crotein SPA[10])	1.00
	Propylene Glycol	5.00
	Petrolatum	3.00
	Petroleum Distillate (Drakesol® 165AT[15])	32.00
	Carnauba Wax	5.00
B	Synthetic Beeswax	5.00
	Candelilla Wax	3.00
	Paraffin	2.50
	Oleamide DEA (Witcamide® 511C [9])	5.00
C	Iron Oxide, Cosmetic Black	5.50
D	Preservative	q.s.
		100.00

Procedure: Slowly add **VEEGUM** to the water while agitating at maximum available shear. Continue mixing untilfully hydrated. Add additional Part A ingredients in order slowly. Mix until uniform. Heat Part A to 75°C. Heat Part B to 75°C until clear. Add Part A to Part B and mix until emulsion is smooth and uniform. Add Part C slowly, mixing until uniform. Begin cooling to room temperature while mixing slowly. At 40°C, add Part D.

Lash Conditioning Mascara

(Source: Maybrook, Inc.)

	Ingredients	wt.%
A	**VEEGUM**[1] Magnesium Aluminum Silicate	1.50
B	Deionized Water	30.78
	PVP (PVP K-30[13])	0.22
C	Hydrolyzed Keratin (Crotein K[10])	1.00
	Keratin Amino Acids (Crotein HKP/SF[10])	0.50
	Propylene Glycol	5.00
	Petrolatum	3.00
	Petroleum Distillates	32.00
	Carnauba Wax	5.00
D	Synthetic Beeswax	5.00
	Candelilla Wax	3.00
	Paraffin	2.50
	Oleamide DEA	5.00
E	Iron Oxide, Cosmetic Black	5.50
F	Preservative	q.s.
		100.00

Procedure: Add Part A to Part B and mix with a homogenizer for 20 minutes at 5000 rpm. Add Part C ingredients in the order shown, mixing each for 3 minutes before adding the next ingredient. Heat Parts A+B+C to 75°C. Mix and heat Part D ingredients to 80°C. Add Part D to Parts A+B+C and mix 10 minutes. Add Part E and mix 10 minutes. Begin cooling while mixing slowly. At 40°C, add Part F. Continue mixing and cooling to room temperature.

Mascara

(Source: Sun Chemical Corporation)

	Ingredients	wt.%
	Deionized Water	56.10
	VEEGUM[1] Magnesium Aluminum Silicate	1.20
	Butylene Glycol	10.00
A	Cellulose Gum (CMC 7MF[12])	0.60
	Methylparaben	0.20
	Diazolidinyl Urea (Germall ®II [13])	0.20
	Triethanolamine, 99%	1.50
	Candelilla Wax	10.00
	Stearic Acid	7.00
B	Isostearic Acid	1.00
	Mineral Oil	2.00
	Propylparaben	0.20
C	Iron Oxide, Cosmetic Black	10.00
		100.00

Procedure: Add all Part B ingredients into a side kettle; heat to 79°C and mix until uniform. In the main kettle, fitted with a homogenizer type disperser, slowly add the **VEEGUM** to the water and mix at high shear until the **VEEGUM** is thoroughly hydrated. Mix in the butylene glycol followed by the CMC. When the CMC is completely dissolved add the remaining Part A ingredients. Dust in the Part C ingredient with high shear and raise the temperature to 76°C. Add Part B to the main kettle with high shear for 15 minutes. Sweep slowly to eliminate the air and allow mix to cool to room temperature.

Cream Eye Shadow
(Source: Aqualon Company)

	Ingredients	wt.%
A	Talc	18.00
	Kaolin Clay, cosmetic grade	2.00
	Iron Oxides	4.50
	Titanium Dioxide	5.50
B	Stearic Acid	0.80
	Glyceryl Stearate	2.00
	Lanolin	4.00
	Sesame Oil	2.00
	Olive Oil	1.00
	Isopropyl Myristate	3.00
C	Cellulose Gum (CMC 7LF[12])	0.10
	Distilled Water	33.75
D	**VEEGUM**[1] Magnesium Aluminum Silicate	1.75
	Distilled Water	9.90
E	Propylene Glycol	5.00
	Triethanolamine, 99%	0.40
	DARVAN® **1**[1] Sodium Polynaphthalene Sulfonate	0.30
	Distilled Water	6.00
F	Preservative, Fragrance	q.s.
		100.00

Procedure: Micropulverize ingredients in Part A. Heat Part B to 70°C. Prepare Cellulose Gum solution using Part C ingredients. Prepare a **VEEGUM** dispersion using Part D ingredients. Combine Parts C+D. Add the combined Part E ingredients to Parts C+D. Add Part A pigments to water phase and homogenize. Heat to 60°C and maintain temperature for 10 minutes. Add oil phase to water phase and mix until temperature cools to 45°C. Add F when cool.

Cream Eye Shadow
(Source: The Dow Chemical Company)

	Ingredients	wt.%
A	Stearic Acid	3.00
	Glyceryl Stearate	2.00
	Cetearyl Alcohol and Ceteareth-20 (Promulgen® D[3])	1.00
	Candelilla Wax	1.00
	Myristyl Myristate	1.00
	Dimethicone (DC 200 Fluid, 350 cstk[18])	0.50
	Propylparaben	0.10
B	Deionized Water	34.30
	Ultramarines (Cosmetic Blue)	6.00
	Titanium Dioxide (Cosmetic White)	1.50
C	Mica(and)Titanium Dioxide (Timica® Pearl White [19])	5.00
D	Deionized Water	30.00
	PVP (PVP K-60[13])	4.00
E	Propylene Glycol	5.00
	Hydroxy Propyl Methylcellulose (Methocel® 40-202 [20])	0.20
	VEEGUM[1] Magnesium Aluminum Silicate	0.50
F	Deionized Water	2.00
	Triethanolamine, 99%	1.20
	Phenoxyethanol (Dowanol® EPh[20])	0.50
	EDTA (Versene 100[20])	0.10
	Simethicone (Antifoam AF Emulsion[18])	0.05
G	Deionized Water	1.00
	Quaternium-15 (Dowicil® 200 Antimicrobial agent[20])	0.05
		100.00

Procedure: Weigh the Part B and Part D water into a beaker. Add **VEEGUM** and mix for 20 minutes using a homogenizer at 5000 rpm. Disperse the Methocel in propylene glycol, add to the batch and mix for 10 minutes at 5000 rpm. Weigh and mix Part F, add to the batch and for mix 5 minutes. Add the remaining Part B and mix for 5 minutes. Add the PVP and mix 2 minutes. Heat the batch to 80°C, mix and heat Part A to 80°C. Add Part A to the batch and mix for 10 minutes at 5000 rpm. Transfer the batch to a propeller mixer and begin cooling. At 60°C add Part C and continue cooling and mixing slowly. At 45°C mix Part G ingredients and add to the batch. Continue mixing while cooling to room temperature.

Supplier

1. R.T. Vanderbilt Company, Inc., Norwalk, CT
2. Lipo Chemicals, Inc., Paterson, NJ
3. Chemron Corporation, Paso Robles, CA
4. Eastman Chemical Corporation, Kingsport, TN
5. Alzo International Inc., Sayreville, NJ
6. Engelhard Personal Care, Stony Brook, NY
7. RITA Corporation, Crystal Lake, IL
8. Lanaetex Products, Inc., Elizabeth, NJ
9. Stepan Company, Northfield, IL
10. Croda, Inc., Parsippany, NJ
11. Uniqema, New Castle, DE
12. Aqualon Company, Wilmington, DE
13. International Specialty Products, Wayne, NJ
14. Ajinomoto U.S.A., Inc., Teaneck, NJ
15. Penreco, Karns City, PA
16. Presperse, Inc., South Plainfield, NJ
17. Cognis North America, Cincinnati, OH
18. Dow Corning Corporation, Midland, MI
19. Engelhard Corporation, Iselin, NJ
20. The Dow Chemical Company, Midland, MI

Registered Trademarks

For additional information regarding our high quality minerals and chemicals, please visit our website:

www.rtvanderbilt.com

- Technical data sheets
- MSDS information
- Sample requests
- Specifications
- Product brochures
- Articles
- Presentations
- Reports