

PhenoMulse™ CE-2

(INCI: Polyhydroxystearic acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate (and) Perfluoroisohexane (and) Butylene Glycol)

PhenoMulse CE-2 is a volatile perfluoroalkane loaded micellar emulsion derived from **PhenoMulse™ 100**. Its function is to facilitate the rapid development of products which require the addition of volatile perfluoroalkanes.

The arrival of “Foam Burst Technology” to the industry is a direct response to **PhenoMulse CE-2**. “Foam Burst Technology” allows formulators to develop innovative products which are part of a completely new product category. This product category offers continuous and self foaming products contained in a non-pressurized traditional package and produced with traditional manufacturing equipment. These products and **PhenoMulse CE-2** are non-flammable and zero VOC.

PhenoMulse CE-2 is the vital ingredient for foam burst technology based formulations, and is an easy to use form of volatile perfluoroalkanes. In addition to foam burst technology applications, **PhenoMulse CE-2** can be used wherever volatile perfluoroalkanes addition is desired.

“FOAM BURST TECHNOLOGY”

The volatile perfluoroalkanes are stabilized in the hydrated micellar emulsion but released in the dehydrated state. During product usage micellar aggregates containing the perfluoroalkanes gather at the air water interface and become dehydrated releasing free volatile perfluoroalkanes. These perfluoroalkanes interact with the surfactants in the product base to produce a continuous self foaming effect. It is the combined contribution of this delayed release mechanism and the small particle size of the micellar emulsion which creates products with a luxurious and denser foam quality unobtainable before the development of **PhenoMulse CE-2**. Foam character can be adjusted with surfactant blend modifications. The length of time over which foam develops as well as foam volumes can be controlled by the use level of **PhenoMulse CE-2** in the formulation. The rate of foam production can be attenuated by varying the levels of humectants in the formulations.

PHOENOMULSE CE-2
GLOBAL ACCEPTANCE

Trade Name	PELEMOL® PHS-8	PELEMOL® 899	PHOENOTAINE® C-35	SODIUM CHLORIDE	WATER	PERFLUORO ALKANES
INCI	Polyhydroxystearic Acid	Isononyl Isononanoate/Ethylhexyl Isononanoate	Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate	Sodium Chloride	Water	Perfluoro-iso-hexane
CAS #	27924-99-8	59219-71-5, 71566-49-9	83682-78-4	7647-14-5	7732-18-5	355-04-4

SAFE HANDLING PROPERTIES

- NON-FLAMMABLE
- ZERO VOC
- NON-PRESSURIZED CONTAINER STORAGE
- EXCELLENT SAFETY PROFILE

TYPICAL PROPERTIES

(Not to be taken as specifications)

Appearance @ 25°C	Opaque White Liquid
Odor	Characteristic
pH @ 25°C	5.0
Viscosity * cps.	12.5
* Brookfield,LVT- Spindle 1/ 60 rpm @ 25°C	

APPLICATIONS

Simply add to formulations post shear at a temperature below 25°C with slow sweeping agitation; avoid aeration. Any use level is permissible. **PhenoMulse CE-2** is water dispersible and stable at all levels but a suspending agent is required for use levels under 75%.

The use of PhenoMulse CE-2 is found to be efficient in the pH range of 3 to 6. Avoid alkaline pH in all instances.

Applications for this high performance, innovative and multi-functional micellar emulsion include:

PHOENOMULSE CE-2

PRODUCT TYPE	USE LEVEL	FUNCTION
Shower gels (Fanatical Foam)	10-40%	Self Foaming Agent, Foam Modifier, Foam Booster, Conditioner
Facial Cleaners/Make-up Remover	5-10%	Self Foaming Agent, Foam Modifier, Foam Booster, Conditioner, Solvent
Sprayable Emulsions	2-90%	Delivery System
Lotions, Creams	2-40%	Self Foaming Agent, Spreading Agent, Tactile Modifier
Fragrance Sprays	2-90%	Delivery System, Drying Aid
Shaving Preparations	4-8%	Self Foaming
Shampoos	10-20%	Self Foaming Agent, Foam Modifier, Foam Booster, Conditioner
Hair Conditioners	5-10%	Self Foaming Agent, Conditioner, Spreading Agent
Hair Styling Gels, Sprays	5-10%	Self Foaming Agent, Conditioner, Spreading Agent, Drying Agent, Hair Thickener
Sun Screens	2-8%	Self Foaming Agent, Spreading Agent, Drying Agent
Self Tanning Lotions	2-8%	Self Foaming Agent, Spreading Agent, Drying Agent
Foundations	2-8%	Self Foaming Agent, Spreading Agent, Drying Agent
Mascara	0.5-1%	Lash Thickener

PRODUCT STABILITY

Passes Three Freeze Thaw Cycles. Passes Heat Stability @ 45° C over a period of Two Weeks. Very negligible creaming on top was observed with a slight thinning at the bottom. Very mild stirring brings the material to uniformity.

SAFETY

*RIPT Study (50 human subjects) conclusions follow:	
SKIN IRRITATION	NON-PRIMARY IRRITANT
SKIN SENSITIZATION	NON-PRIMARY SENSITIZER

* RIPT Studies conducted by AMA Labs., 216 Congers Rd. New City, NY 10956

PhenoMulse CE-2 can be considered for use in Hypoallergenic products.

* HET CAM studies with PhenoMulse CE-2 , at 100%, in vitro.	PRACTICALLY NO OCULAR IRRITATION POTENTIAL
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* Consumer Product Testing, 70 New Dutch Lane, Fairfield, NJ 07004-2514

Rev. 04/22/11

03/08/11

FANATICAL FOAM II

(ARL-18-48)

<u>PHASE A</u>	W/W
DEIONIZED WATER (Water)	41.10%
STEOL CS-130 ⁴ (Sodium Laureth Sulfate)	15.00%
STEPANOL WA-EXTRA ⁴ (Sodium Lauryl Sulfate)	5.00%
PECOSIL PS-112⁵ (Dimethicone PEG-7 Phosphate)	1.75%
<u>PHASE B</u>	
Farmal 2656 HFCS ¹ (Hydrolyzed Corn Starch)	8.00%
Gelcarin PC 379 ² Chondrus Crispus (Carrageenan)	0.70%
Keltrol CG-T ³ (Xanthan Gum)	0.35%
<u>PHASE C</u>	
EUXYL K-100 ⁶ (Benzyl Alcohol (and) Methylchlorisothiazolinone (and) Methylisothiazolinone)	0.10%
<u>PHASE D</u>	
PhenoMulse CE-2⁵ (Polyhydroxystearic acid (and) Isononyl Isononanoate (and) Ethylhexyl Isononanoate (and) Sodium Cocamidopropyl PG-Dimonium Chloride Phosphate (and) Perfluoroisohexane (and) Butylene Glycol	28.00%
<u>TOTAL</u>	100.00%

- | | |
|---------------------------------|-----------------------------------|
| 1. Corn Products | 2. Earth Supplied Products |
| 3. CP Kelco | 4. Stepan |
| 5. Phoenix Chemical Inc. | 6. Shulke |

FANATICAL FOAM II

INGREDIENT	FUNCTION
PHOENOMULSE™ CE-2	Foaming Agent, Foam Burst Technology
PECOSIL PS-112	Foam Stabilizer/Anti-Irritant

PROCEDURE

PHASE A : Charge all ingredients into the main container. Holding temperature at 25°C., mix at slow/medium speed with wide, single or double prop shaft making sure no foam is generated. Mix till uniform and start heating to 75-80°C.

PHASE B : Charge all of phase B ingredients into a separate container. At RT, prop mix phase B for as long as it takes to thoroughly wet the polymers. Add PHASE B to PHASE A slowly but steadily while holding the temperature at 75-80°C. Mix at medium/fast speed for 25-30 minutes or until uniform making sure the polymers are fully hydrated. Start cooling to 40-45°C. while mixing at slow/medium speed. The resulting gel (gum dispersion) should be sparkling clear!

PHASE C : Add the preservative to PHASE AB while slow/medium mixing at 40-45°C with a prop. Mix until uniform and switch to side-sweep blade. Cool batch to 15-25°C.

PHASE D : (Make sure Phoenomulse CE-2 has been stirred well to ensure homogeneity) While side-sweeping, add PHASE D to PHASE ABC while mixing slowly trying not to incorporate air into the product. Transfer batch into selected containers minimizing the head space as much as possible. Close containers immediately after the transfer. Store packages in cool area.

SPECIFICATIONS

VISCOSITY 15,000 – 30,000 cps
(LV#4, 6rpm, 1min, @25°C/24hr)

pH 5.0 – 6.0
(@25°C/24hr)

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