CROMOLLIENT SCE

DS-154R-3

October 15, 2002

CROMOLLIENT SCE

INCI Name: Di-PPG-2 Myreth-10 Adipate

CROMOLLIENT SCE* is an 100% active alkoxylated di-ester of Myristyl Alcohol and Adipic Acid and represents novel chemistry as one of an entirely new class of emollients from Croda. As an emollient, **CROMOLLIENT SCE** offers unique benefits in that it is both *'hydroactive'* and surfactant-friendly, as well as mild, making it ideal for products like body washes, liquid soaps, facial cleansers and shampoos, particularly baby shampoos.

Benefits

- Water Dispersible
- Surfactant Soluble
- Silky Emollience
- Detangler/Slip Enhancer
- Improved Wet Combing
- Suitable for Clear Systems
- Solubilizes Benzophenone-3
- Approved for Use in Europe

CROMOLLIENT SCE acquires its unique properties from its bulk and stereochemistry as an alkoxylated di-ester of ethoxylated propoxylated Myristyl Alcohol and Adipic Acid.



***CROMOLLIENT SCE** is covered under U.S. Patent US #5,302,377 and it use in Personal Care is covered under US Patent #5,455,025.

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% w/w

Personal Care

Performance Data

Skin Care:

In a blind performance test, panelists were asked to evaluate a body wash (see *formula below*) for product feel during lathering and for afterfeel on drying. The overwhelming preference in both wet and dry feel was the body wash containing **CROMOLLIENT SCE** which was preferred by nearly 75% of panel members, compared to a prototype using a comparable emollient.



Body Wash Formula (BP-53)

	-	
Ingredients	<u>X</u>	<u>Y</u>
PART A		
Deionized Water	54.00	54.00
SLES, 3 mole	20.00	20.00
CROSULTAINE C-50 (Cocodimonium Hydroxysultaine)	12.00	12.00
Disodium EDTA	0.10	0.10
PART B		
INCROMIDE CA (Cocamide DEA)	3.00	3.00
GLYCEROX 767 (PEG -6 Capric/Caprylic Glycerides)	3.00	
CROMOLLIENT SCE (Di-PPG-2 Myreth-10 Adipate)	_	3.00
CROTHIX LIQUID (PEG-150 Pentaerythrityl Tetrastearate (and)		
PEG-6 Caprylic/Capric Triglyceride (and) Water)	3.00	3.00
PARTC		
CROTEIN C-50 (Hvdrolvzed Collagen)	1.00	1.00
INCROMECTANT LAMEA (Acetamide MEA (and) Lactamide MEA)	1.00	1.00
CITRIC ACID	1.00	1.00
GERMABEN 11 (Methyl Paraben (and) Butyl Paraben (and)		
Ethyl Parab en (and) Propyl Paraben)	1.00	1.00
PROCEDURE: Combine Part A ingredients and mix until clear. C	omhine P	art R inaredi

PROCEDURE: Combine Part A ingredients and mix until clear. Combine Part B ingredients and heat to 50°C, mixing until clear. Slowly add Part B to Part A, mixing well. Add Part C ingredients individually and mix until uniform.

pH = 4.58; Viscosity=1,100 cps (RVT Spindle #4 @ 10rpm, RT)



Hair Care:

In a separate study **CROMOLLIENT SCE** was found superior in reducing the wet combing forces of virgin hair tresses, as shown by the graph below. The combing work and peak force of tesses treated with a shampoo containing **CROMOLLIENT SCE** were evaluated against those treated with a shampoo containing Polyquaternium-10. Values given are percent reductions as compared to a control. The improvements in wet coming for **CROMOLLIENT SCE** tresses are dramatic, as seen by the 50+% decrease in peak combing force. Given this, **CROMOLLIENT SCE** can be of immense benefit in the formulation of baby shampoos, as it gives formulators an ideal means of keeping baby's fine hair more snarl-free.

Reduction in Wet Combing Forces CROMOLLIENT SCE vs. Polyquaternium-10



Control represented by the baseline

CROMOLLIENT SCE provides a substantial improvement in the wet combing properties of virgin hair.

Applications

- Body Washes
- Liquids Soaps
- Facial Cleansers
- Baby Shampoos
- 2-in-1 and Conventional Shampoos

- Bath Oils
- After Shave Products
- Low VOC Products
- Pre-Solubilizer for Benzophenone-3 and for hair dye actives

CROMOLLIENT SCE is suitable for a wide range of products and confers a silky emollience that is distinct and immediately perceptible. Our applications work indicates that the di-ester works especially well in clear surfactant systems *(i.e., body washes)* and appears to have little effect on foaming when used at up to 3% active. Additional testing has shown **CROMOLLIENT SCE** is an excellent wax solvent for lipsticks or lip balms (see formula SC-305, page 5). **CROMOLLIENT SCE** also possesses extremely effective solubilizing properties—so much so, that even very difficult materials like the sunscreen Benzophenone-3 can be presolubilized at



concentration levels up to as high as 20-25. The di-ester can also be used as a presolubilizer for hair dyes or as a pigment wetting agent for Mica or TiO2. Use level: 1-5% for surfactant-based systems; 1-25% for other applications.

Solubilities

Mineral Oil	Soluble
Almond Oil	Soluble
Alcohol SD40	Soluble
CRODAMOL PMP (PPG-Myristyl Ether Propionate)	Soluble
INCRODET TD-7 C (Trideceth-7 Carboxylic Acid)	Soluble
ALS	Soluble
TEALS	Soluble
SLES (3 mol)	Soluble
Water:Alcohol: 75:25 50:50 25:75	Insoluble Soluble Soluble
Deionized Water (pH 9.0)	Dispersible
Glycerin	Insoluble
Propylene Glycol	Dispersible

Typical Analysis

APPEARANCE	Clear liquid
COLOR (APHA)	< 20
ODOR	Mild, characteristic
ACID VALUE	< 1.0
SAPONIFICATION VALUE	70
рН	6.0



CROMOLLIENT SCE Lip Balm with Benzophenone-3	SC-305
This lip balm formula highlights CROMOLLIENT SCE and demonstrate ester's use as a wax solvent and its compatibility with common lipstick in The use of CROMOLLIENT SCE here results in a hard, stable stick that h crystal structure and no observable syneresis. CROMOLLIENT SCE also solubilize the sunscreen Benzophenone-3.	es the di- gredients. nas a fine o helps to
Ingredients	<u>%</u>
PART ASYNCROWAX HGL-C (C18-36 Acid Triglyceride)SYNCROWAX ERL-C (C18-36 Acid Glycol Ester)PetrolatumSUPER STEROL ESTER (C10-30 Cholesterol/Lanosterol Esters)	12.0 3.0 61.7 3.0
PART B CROMOLLIENT SCE (Di-PPG-2 Myreth-10 Adipate) Benzophenone-3 Ethylhexyl Dimethyl PABA (1)	10.0 5.0 5.0
<u>PART C</u> Methyl Paraben Propyl Paraben	0.1 0.2

PROCEDURE

Combine ingredients of Part A and heat to 80-85°C, mixing until homogenous. Cool to 75°C. Combine ingredients of Part B with mixing and heat to 75°C. Add Part B to Part A with mixing. Then add Part C ingredients individually, mixing well. Cool mixture to 70°C and pour into molds.

1) Escalol 507 (ISP/Van Dyke)

September 13, 2000



After-Shave Lotion: High Alcoholic Type	BP-54
This after shave lotion contains a high alcohol content and c excellent solubilizing properties of CROMOLLIENT SCE .	demonstrates the
Ingredients	<u>%</u>
PART A Deionized Water PHYTOTAL AI (Glycerin (and) Butylene Glycol (and) Euphrasia Officin Extract (and) Magnolia Biondii Flower Extract (and) Melissa Officinali (Balm Mint) Loaf Extract (and) Logithin)	13.80 nalis s
KAVA KAVA (PEG-8 (and) Water (and) Piper Methysticum Extract (and) PEG-8/SMDI Copolymer) Butylene Glycol	2.00 1.00
PART B SD Alcohol 40 CROMOLLIENT SCE (Di-PPG-2 Myreth-10 Adipate) Fragrance	75.00 5.00 0.20

pH=7.3 ±0.5

PROCEDURE:

Combine ingredients of Part A with mixing. Combine ingredients of Part B, mixing well, and add to Part A. Mix thoroughly before filling.

September 13, 2000



Soothing After-Shave Lotion BP-55

This after-shave lotion confers a lubricious skin feel due to the use of **CROMOLLIENT SCE** as an emollient in the formula. KAVA KAVA and PHYTOTAL AI provide soothing effects that help alleviate the stinging sensation often felt after shaving.

Ingredients	<u>%</u>
PART A Deionized Water Carbomer 934 (1) Xanthan Gum Disodium EDTA	82.70 0.20 0.10 0.05
PART B CROMOLLIENT SCE (Di-PPG-2 Myreth-10 Adipate) CRODACOL CS-50 (Cetearyl Alcohol) POLAWAX (Emulsifying Wax NF) DISTRESSINE (Petrolatum (and) Butyrospermum Parkii (and) Pisces (and) Laureth-3 (and) Tocopheryl Acetate (and) Zea Mays	3.00 1.25 2.00 0.25
PART C CROMOLLIENT SCE (Di-PPG-2 Myreth-10 Adipate) Dimethicone (2)	0.25 0.50
PART D Deionized Water Triethanolamine KAVA KAVA (PEG-8 (and) Water (and) Piper Methysticum Extract (and) PEG-8/SMDI Copolymer)	2.00 0.20 2.00
PHYTOTAL AI (Glycerin (and) Butylene Glycol (and) Euphrasia Officinalis Extract (and) Magnolia Biondii Flower Extract (and) Melissa Officinalis (Balm Mint) Leaf Extract (and) Lecithin) Aloe Vera Gel (3) Pentylene Glycol (4)	2.00 1.50 2.00

PROCEDURE

Disperse carbomer of Part A in water with rapid agitation, then xanthan gum. Add remaining ingredient of Part A and heat to 70-75 °C. Combine ingredients of Part B and heat to 70-75 °C. Add Part B to Part A with mixing and begin cooling. Combine Part C ingredients and add to Part A/B mixture when temperature reaches 50 °C. Add Part D ingredients when mixture has cooled to 40°C.

- 1) Carbopol 934® (B.F. Goodrich) 3)
- 2) Silicone HL-88 (Barnet Products Corp.)
- 3) While Leaf Aloe Vera Gel (Coats Aloe International)
- 4) Hydrolite –5 (Dragoco)

September 13, 2000

CRODA

Low VOC Hair Spray	HP-213
The compatibility of CROMOLLIENT SCE in hydroalcoholic systems ideal emollient for this low VOC hairspray.	s makes it an
Ingredients	<u>%</u>
SD Alcohol 40 Isobutylene/Ethylmaleimide/Hydroxyethylmaleimide Copolymer (1) CROMOLLIENT SCE (Di-PPG-2 Myreth-10 Adipate) Deionized Water	53.80 6.00 3.00 37.20

PROCEDURE Disperse resin in alcohol, with mixing. When mixture is clear, add remaining two ingredients one at a time, mixing well after each.

1) Aquaflex FX-64 (ISP)

September 13, 2000

