

CATEMOL[®] 220-B

(INCI: Behenamidopropyl Dimethylamine Behenate)

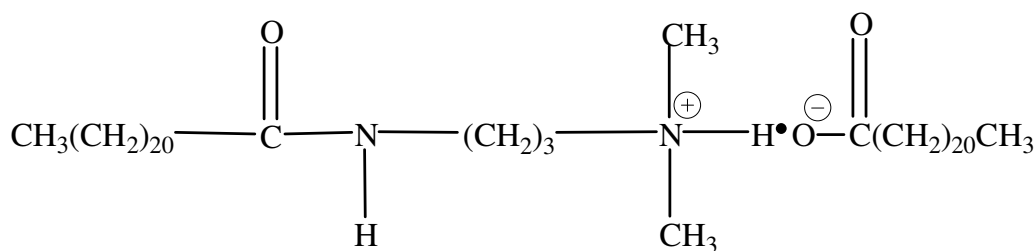
CATEMOL[®] 220-B is the behenic acid salt of behenamidopropyl dimethylamine and can be classified as a cationic organic salt, with a small amount of free behenic Acid.

CATEMOL[®] 220-B disperses readily in water (5% w/w at 80°C) and can be stabilized to form a lotion. At elevated temperatures (70° C) and at concentrations of 5% w/w **CATEMOL[®] 220-B** is soluble in a variety of oils (mineral oil, castor oil, etc.) and on cooling forms a gel with a significant reduction in oiliness. The addition of a small amount of water with moderate agitation results in a rich, creamy, w/o white emulsion. **CATEMOL[®] 220-B** at 5% w/w will dissolve in warm cyclomethicone forming an opaque gel that melts at body temperature leaving the skin with a smooth emollient feel.

CATEMOL[®] 220-B acts as an effective dispersing agent for inorganic pigments (such as microfine TiO₂) in w/o emulsions. In addition, **CATEMOL[®] 220-B** significantly improves skin feel during product application by reducing the oily feel typical of w/o systems. It also helps to reduce the undesirable shiny, oily appearance on the skin after application.

CATEMOL[®] 220-B is an effective conditioning agent for use in shampoos and conditioners. It mitigates static-flyaway as well as improving wet and dry manageability.

CATEMOL[®] 220-B can be characterized by the following structure:



Trade Name	CATEMOL[®] 220-B
INCI	Behenamidopropyl Dimethylamine Behenate
CAS #	125804-04-8

APPLICATIONS

CATEMOL® 220-B is suitable for use in:

- Hair Conditioners (Leave on and Rinse off)
- Conditioning Shampoos
- Creams and Lotions
- A/P Systems
- Lip Care Products

TYPICAL PROPERTIES (not to be taken as specifications)

Appearance @ 25°C	Waxy, Beige to Tan, Flake
Color, Gardner	12
Acid Value, mg KOH/gram	75

SOLUBILITY

WATER	d(h)
PROPYLENE GLYCOL	s(h)
ETHANOL 200 Proof	s(h)
MINERAL OIL	d(h)
ISODODECANE	i(h)
ISOPROPYL MYRISTATE	m(h)
CASTOR OIL	s(h)
CYCLOMETHICONE	s(h)
DIMETHICONE	i(h)
ISONONYL ISONONANOATE	s(h)
PENTAERYTHRITYL TETRAETHYLHEXANOATE	s(h)

m = miscible (soluble in all proportions)
d = dispersible s = soluble @5%
h = hot

SAFETY*

*Primary Eye Irritant	Non-Primary Irritant
*Primary Skin Irritant	Non-Primary Irritant and Sensitizer
*Comedogenicity	Non-Comedogenic
**Mutagenicity	Non-Mutagenic
*Acute Oral Toxicity	Not Orally Toxic

CATEMOL can be considered for use in Hypoallergenic products

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

** Studies conducted by NAmSA ., 2261 Tracy Rd Northwood OH 43619 and
Litron Laboratories, 1351 Mt. Hope Ave Ste 207, Rochester NY 14620

WATER-IN-OIL LIQUID FOUNDATION WITH SUNSCREEN

This w/o liquid foundation features **CATEMOL® 220-B** to help reduce the oily feel and the shiny appearance typical of this type of emulsion. Broad spectrum UVA/UVB protection is provided by Eusolex® T-2000 from Rona. The estimated SPF is 15.

PHASE A-1	
INCI Name	% w/w
Dicapryl Ether C25EH	5.00
PELEMOL® HL (Hexyl Laurate)* P-810	4.00
Octyldodecanol	3.00
Dow Corning 345 Fluid	5.00
Dow Corning 200 Fluid (10 cst)	3.00
PEG-30 Dipolyhydroxystearate P-1263	2.00
Laurylmethicone Copolyol (Dow Corning formulation Aid 5200)	2.00
CATEMOL® 220-B (Behenamidopropyldimethylamine Behenate)*	0.80
PHASE A-2	
Extender W/Rona	5.00
Eusolex® T-2000 (Rona)	4.00
Iron Oxide C33-107/Sun Chemical	0.50
Iron Oxide C33-115/Sun Chemical	0.40
Iron Oxide C33-8073/Sun Chemical	0.40
Iron Oxide C33-5198/Sun Chemical	0.10
PHASE B	
Deionized Water	61.50qs
Butylene Glycol	2.00
Sodium Chloride	0.50
PHASE C	
Preservative: Paragon II (M°Intyre)	0.80
	100.00

* Phoenix Chemical, Inc.

PROCEDURE

1. Combine **A-1**, stir and heat to 55-60°C until all solid are dissolved.
2. Disperse **A-2** in **A-1** by propeller agitation (Pigments can be milled in an oil phase component prior to addition to **A-1**).
3. Combine **B**; stir and heat to 50-55°C.
4. Slowly add **B** to **A** while stirring vigorously.
5. Add **C** to **A/B**; gently homogenize until mixture is uniform.
6. Stir with anchor mixer allowing mixture to cool at room temperature. Viscosity: 18,400 cps (Brookfield RV #5, 10 rpm @ 23°C). Package immediately.

WATER-IN-OIL SUNSCREEN LOTION

This high performance sunscreen lotion features **CATEMOL® 220-B** to help diminish the shiny appearance on the skin after rub-in. **CATEMOL® 220-B** also helps enhance aesthetics by reducing the oily skin feel associated with w/o emulsions. Broad spectrum UVA/UVB protection is provided by Eusolex® sunscreens by Rona. Estimated SPF is 45.

Phase A-1	% w/w
Eusolex® 2292 (Rona- Octinoxate)	7.50
Eusolex® OS (Rona- Octisalate)	5.00
PELEMOL® OS* (Ethylhexyl Stearate)	2.00
PELEMOL C25EH* (C12-15 Alkyl Ethylhexanoate)	3.00
PELEMOL D5R-1*(Ethylhexyl Isononanoate (and) Cetyl Dimethicone)	4.00
Dow Corning 200 Fluid 100 cst	2.00
PELEMOL P-1263* (Polyglyceryl-10 Hexaoleate & Polyglyceryl-6 Polyricinoleate)	1.30
PECOSIL AS-16* (Cetyl Dimethicone)	2.30
CATEMOL® 220-B* (Behenamidopropyldimethylamine Behenate)	0.50
PHASE A-2	
Eusolex® T-2000 (Rona-Titanium Dioxide&Aluminum Oxide&Simethicone)	8.00
PHASE B	
Deionized Water	60.60
Propylene Glycol	2.00
Sodium Chloride	0.80
PHASE C	
Microkill COS (Arch- Phenoxyethanol&Caprylyl Glycol&Chlorphenesin)	1.00
	100.00

* Phoenix Chemical, Inc.

PROCEDURE

1. Combine **A-1**; stir and heat to 55-60°C until all solids are dissolved.
2. Disperse **A-2** in **A-1** by propeller agitation.
3. Combine **B**; stir and heat to 50-55°C.
4. Slowly add **B** to **A** while stirring vigorously.
5. Cool to 40 C with mixing. Then add **C** to **A/B**; gently homogenize until mixture is uniform.
6. Stir with anchor mixer allowing mixture to cool to room temperature.
Appearance: Milky Emulsion/Lotion.
Viscosity, cps. =5000-12000 (Brookfield LVT-#4/ 6 rpm)

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6/26/07
01/30/03