
Technical Information

November 2002

Surfactants

Jordapon® Grades

® = Registered trademark
of BASF Aktiengesellschaft

For the Personal Care Industry

**Mild, anionic surfactants for the production of Syndet Bars,
Combo Bars, Liquid Soaps and Shampoos.**

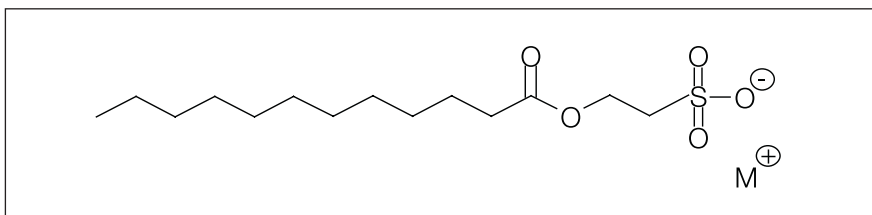
Product range

Product	INCI Name	Physical Form
Jordapon® CI Prill	Sodium Cocoyl Isethionate	Granular
Jordapon® CI P	Sodium Cocoyl Isethionate	Powder
Jordapon® CI 50	Sodium Cocoyl Isethionate (and) Stearic Acid	Flake
Jordapon® CI 65	Sodium Cocoyl Isethionate (and) Stearic Acid	Flake
Jordapon® SB-II	Sodium Cocoyl Isethionate (and) Stearic Acid (and) Sodium Stearate (and) Coconut Acid (and) Water (and) Sodium Lauroyl Sarcosinate (and) Paraffin (and) Sodium Isethionate	Flake
Jordapon® ACI-30G	Ammonium Cocoyl Isethionate	Liquid, 30 % in water

Jordapon® CI Prill and Jordapon® CI P offer the highest available level of actives. Jordapon® CI Prill is a low-dusting granular form, and Jordapon® CI P is a fine particle-size, flowable powder. Jordapon® CI 50 and CI 65 are blends of Sodium Cocoyl Isethionate with Stearic Acid. They are nondusting, small, flowable flakes which are easily handled. Jordapon® SB-II is a fully formulated syndet base which can be processed on standard soap finishing equipment to produce syndet bar of exceptional quality. Jordapon® ACI 30G Ammonium Cocoyl Isethionate is a clear aqueous form which offers much higher water solubility.

Structural formula

CocoylIsethionate



M⁺ = Na⁺ (Jordapon CI, SB II)
 = NH⁴⁺ (Jordapon ACI 30 CG)

where "Cocoyl" is a mixture of alkyl chain lengths with the following typical distribution:

C8/10	13 %
C12	50
C18	18
C16	8
>C18	11

All the Jordapon® surfactant products are environmentally responsible compounds which are based on purified fatty acids derived from natural coconut oil. The Flake forms contain vegetable-based stearic acid. Our manufacturing process produces no hazardous or environmentally threatening by-products, and Jordapon® surfactants themselves are completely biodegradable.

Performance properties

Foam Height (Ross-Miles, 0.2 % solution, 50 °C)

Product		Water hardness		
		0 ppm	150 ppm	300 ppm
Sodium Cl	Initial	220 mm	240	238
	5 min.	220 mm	240	238
Ammonium Cl	Initial	235	258	245
	5 min.	235	258	245

Both Sodium and Ammonium Cocoyl Isethionate deliver high, stable foam, even in hard water.

Surface Tension, Dynes/cm, 25 °C

	0.01 %	0.1 %
Sodium Cl	33	27
Ammonium Cl	32	32

Both are highly surface active and effective wetting agents.

Critical Micelle Concentration, 25 °C

Sodium Cl 0.01 %
Ammonium Cl 0.008 %

The low cmc indicates that both are effective at low concentrations.

Features

All Jordapon® Cocoyl Isethionates:

- are mild to skin and eyes
- are excellent foamers in hard or soft water
- impart a soft afterfeel to skin
- have a mild odor
- are based upon fatty acids from natural, renewable coconut oil
- are completely biodegradable.

Sodium Cocoyl Isethionate:

- has limited water solubility
- is available in high-active powder, high-active granular, or flake forms.

Ammonium Cocoyl Isethionate:

- is highly water-soluble
- is sold as a 30 % liquid in water.

Application

Sodium Cocoyl Isethionate has been used for decades in mild, high-foaming personal cleansing products, where it provides gentle cleansing and a soft skin afterfeel which consumer prefer. Its predominant commercial use has been in syndet bar formulations, but in recent years it has been used increasingly in other product forms as well, notably in combo bars, in foaming facial washes and body washes.

BASF offers several versions of Sodium Cocoyl Isethionate, each designed to answer specific market or customer needs.

Jordapon® CI P is very high purity powder form, with a large specific surface area, offering rapid dispersing/dissolution into formulations. Jordapon® CI Prill is the same high purity, in low-dusting granular form. Jordapon® CI P and CI Prill are recommended for systems where low levels of fatty acid are needed; for example, shampoos, bath and showers gels, and liquid soaps.

Jordapon® CI 50 and CI 65 are flakes consisting of Sodium Cocoyl Isethionate uniformly dispersed in Stearic Acid. This results in a low-dusting, easily handled form which is ideal for use in formulations which would include stearic acid, such as syndet bars, combo bars, facial cleansing products, and aerosol shave creams.

Jordapon® ACI-30G Ammonium Cocoyl Isethionate has many of the same performance properties as Sodium Cocoyl Isethionate, including the hallmarks of mildness, high foaming, lubricious lather, and soft skin afterfeel. The significant difference is that Jordapon® ACI-30G is highly water soluble, which means that clear liquid products can readily be formulated. Jordapon® ACI-30G is sold as an aqueous solution of 30 % solids. Jordapon® SB-II is a fully formulated synthetic detergent base supplied as a low odor, low dusting flake. The base contains a mixture of ingredients, which produce grit free syndet bars with large volumes of rich, creamy lather and excellent bar hardness and low smear. Unlike typical syndet bar production or hot pour syndet bar production process using Sodium Cocoyl Isethionate or Sodium Cocoyl Isethionate/Stearic Acid blends which requires additional technology. Jordapon® SB-II can be used to produce syndet bars on standard soap finishing equipment. No additional ingredients are required to produce a high quality fragrance and pigment free syndet bar. Alternatively, fragrances can be added as well as TiO₂ to enhance bar whiteness and depth.

Stability and storage

The shelf life of all Jordapon grades is 1 year when stored in original, unopened containers.

Formulary

Liquid soap

08/00590

Properties:

Lubricious lather and soft skin after-feel.

	%	Ingredient	Supplier	INCI name
A	74.4	Deionized Water		Aqua
	3.0	Jordapon® CI Prill	(1)	Sodium Cocoyl Isethionate
	13.0	Ammonium Lauryl Sulfate	(2)	Ammonium Lauryl Sulfate
	0.5	Glycol Stearate	(3)	Glycol Stearate
	0.1	Edeta® BD	(1)	EDTA
	q.s.	Preservative		
B	6.0	Mafo® CAB	(1)	Cocamidopropyl Betaine
	2.5	Mazamide® 80 CG	(1)	Cocamide DEA
C	q.s.	Fragrance		
	0.1	Citric acid	(4)	Citric acid

pH: 6.0-6.5

Viscosity: 2500-3500 cPs (with 0.6-0.9 % NaCl)

Appearance

Clear liquid

Procedure

Mix and heat Part A ingredients to 65 °C. When uniform, add Part B. Cool the batch to 40 °C, add fragrance and adjust pH. Adjust viscosity with sodium chloride. The Glycol Stearate can be omitted if a clear product is desired.

Properties:

Clear formula offers excellent flash foam, and provides silky feeling lather and a soft skin afterfeel. Inherent mildness is enhanced by Avanel® S 150 CG counter irritant surfactant. Anti-microbial actives can be added for home or commercial hand wash products.

	%	Ingredient	Supplier	INCI name
A	55.5	Deionized Water		Aqua
	0.1	Polyquaterium-10	(5)	Polyquaterium-10
B	0.2	Edeta® BD	(1)	EDTA
	q.s.	Preservative		
	4.3	Avanel® S 150 CG	(1)	Sodium C12-C15-Pareth-15 Sulfonate
	12.8	Mafo® CAB	(1)	Cocamidopropyl Betaine
	23.3	Jordapon® ACI 30 G	(1)	Ammonium Cocoyl Isethionate
C	2.0	Mazamide® SS 10 CG	(1)	Soyamide DEA
	q.s.	Fragrance		
	0.1	Citric acid	(4)	Citric acid
	1.0	Ammonium Chloride		Ammonium Chloride

pH: 6.3-6.7

Viscosity: 4,000 6,000 cPs

Appearance

Clear, straw-colored liquid.

Procedure

Mix Part A at room temperature for 20 minutes until dissolved. Add Part B ingredients in order, and mix until clear and uniform. Add Soyamide DEA and fragrance, mixing until clear. Add Soyamide DEA and fragrance, mixing until clear. Adjust pH and viscosity.

Syndet bar soap

52/00086

Properties:

Mild cleansing bar, which provides a rich lather and soft skin feel.

%	Ingredient	Supplier	INCI name
80.0	Jordapon® CI 50	(1)	Sodium Cocoyl Isethionate, Stearic Acid
10.0	Stearyl Alcohol	(2)	Stearyl Alcohol
3.0	Pluracare® E 6000	(1)	PEG-150
5.0	Triethanolamine Care	(1)	Triethanolamine
2.0	Deionized Water		Aqua

Procedure

With all ingredients in the vessel, heat to 70 °C. Begin propellor agitation when the batch becomes fluid. Maintain slow mixing until all solids are dissolved and the batch becomes a uniform, nonviscous, opaque fluid. Fill molds, allow to solidify.

Properties:

Rich lather, good blade glide, and no calcium soap scum.

	%	Ingredient	Supplier	INCI name
A	76.9	Deionized Water		Aqua
	0.2	Carbopol 934	(6)	Carbomer
	15.0	Jordapon® CI 50	(1)	Sodium Cocoyl Isethionate (and) Stearic Acid
	5.0	1,2-Propylene Glycol Care	(1)	Propylene Glycol
	0.5	PEG-75 Lanolin	(2)	PEG-75 Lanolin
	q.s.	Preservative		
	q.s.	Fragrance		
	2.0	Triethanolamine Care	(1)	Triethanolamine

Procedure

Disperse and dissolve the Carbopol® 934 in the water. Add the Jordapon® CI 50 and heat to 45 °C to dissolve. Premix the propylene glycol, PEG-75 Lanolin, preservative and fragrance; add this to the batch. Adjust the pH to 7.0-7.5 with triethanolamine. Use this concentrate at 96 % with 4 % propellant.

Foaming Facial Cleanser

52/00087

Properties:

Rich pearlescent lotion with rapid flash foaming and gentle cleansing, which leaves skin soft and silky smooth.

	%	Ingredient	Supplier	INCI name
A	38.7	Deionized		Water Aqua
	10.0	1,2-Propylene Glycol Care	(1)	Propylene Glycol
	9.0	Sodium Isethionate, 56 %	(8)	Sodium Isethionate
	2.5	TEA Lauryl Sulfate	(2)	TEA Lauryl Sulfate
	16.0	Lauramine Oxide	(9)	
B	19.3	Jordapon® CI 65	(1)	Sodium Cocoyl Isethionate (and) Stearic Acid
	2.5	Sodium Tallowate, Sodium Cocoate	(10)	Sodium Tallowate, Sodium Cocoate
	2.0	Stearic acid	(2)	Stearic acid

Procedure

Blend Part A ingredients in main vessel, heating to 80-85 °C. Add Part B ingredients in order, maintaining temperature. Mix at temperature until all solids are dissolved, about 30 minutes. Stir-cool to 40-45 °C, and adjust pH if necessary.

Viscosity: 2,400 cPs

pH-value: 6.3-6.8

Appearance

Firm white paste.

Properties:

High viscosity shampoo suitable for tube packaging.

	%	Ingredient	Supplier	INCI name
A	44.2	Deionized Water		Aqua
	31.0	Ammonium Laureth Sulfate	(2)	Ammonium Laureth Sulfate
	15.4	Jordapon® ACI 30 G	(1)	Ammonium Cocoyl Isethionate
	0.2	Edeta® BD	(1)	EDTA
	q.s.	Preservative		
B	5.8	Mafo® CAB	(1)	Cocamidopropyl Betaine
	1.5	Mazamide® 80 CG	(1)	Cocamide DEA
	1.0	Emery 655	(2)	Myristic Acid
	q.s.	Fragrance		
C	0.1	Citric Acid	(4)	Citric Acid
	0.4	Ammonium Chloride		Ammonium Chloride

Procedure

Mix Part A ingredients in main vessel until uniform. In separate vessel, premix Part B, heating to 40 °C if necessary to dissolve myristic acid. Add B to A, mixing continuously. Adjust pH and viscosity with part C ingredients.

Viscosity: 18,000-22,000 cPs

pH-value: 6.3-6.7

Appearance

Clear, pale yellow viscous liquid.

Toxicity

An investigation of raw materials gave no indication of harmful effects to health if the substance is used for the stated applications and concentrations. Due to the large variety of applications and possible combinations with other products, users are responsible for their own safety assessment of their products.

Safety Data Sheets

Safety Data Sheets are available.

Suppliers

1. **BASF Aktiengesellschaft,**
67056 Ludwigshafen, Germany
Tel.: (0621) 60-0
Telefax: (0621) 60-48444
2. **Cognis Deutschland GmbH**
Care Chemicals
Henkelstr. 67 or Postfach 130164, 40551 Düsseldorf, Germany
Tel.: 49 211 9740-0
Fax: 49 211 798-4008
3. **Croda Oleochemicals,** Cowick Hall, Snaith, Goole
DN 149 AA North Humberside, GB
Tel.: (044) 1405-860551
4. **Roche AG,**
Emil-Barell-Str. 1, 79369 Grenzach--Wyhlen, Germany
Tel.: 07624/142101
5. **Amerchol Corporation,**
136 Talmadge Road / P.O. Box 4051, Edison, 08818-451 NJ, USA
Tel.: (908) 248-6000
Telefax: 908-287-4186
6. **Noveon Inc.**
9911 Brecksville Road, Cleveland OH 44141-3247, USA
Tel. 1 216 447-5000
7. **Dynamit Nobel GmbH,**
P.O. Box 1261, 53838 Troisdorf, Germany
Tel.: 02241/89-1085
8. **Witco Corporation,** One American Way,
Greenwich, CT 06831-2554
Tel.: (203) 552-3370
Telefax; (203) 552-2890
9. **Degussa Care Specialities**
710 South 6th Street, Hopewell VA 23860, USA
Tel. 1 800 46-1890

German adress:
Goldschmidtstraße 100, 45127 Essen, Germany, Tel. 0201 173-0
10. **The Procter & Gamble Company Industrial
Chemicals Division,**
P.O. Box 599, Cincinnati, OH 45201
Tel.: (513) 626-3701, (513) 983-3754
Telefax: (513) 626-1313

Note

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