



## FORMULATIONS FOR SUN CARE



**BAYCUSAN<sup>®</sup>**

POLYURETHANES FOR COSMETICS

## Sun Lotion SPF 25

RR 8014	Ingredient	% by wt.
OIL PHASE	Polyglyceryl-3 Methylglucose Distearate	2.00
	Isopropyl Palmitate	3.00
	Dimethicone <sup>1)</sup>	3.00
	Octocrylene	10.00
	Butyl Methoxydibenzoylmethane	2.00
	Titanium Dioxide (and) Silica <sup>2)</sup>	1.00
WATER PHASE	Water	61.57
	Disodium EDTA (10% solution in water)	1.00
	Glycerin	5.00
THICKENER PHASE	C12-15 Alkyl Benzoate	2.00
	Xanthan Gum <sup>3)</sup>	0.20
ALCOHOL	Ethanol	3.00
FILM FORMER	Baycusan® C 1000	5.00
PRESERVATIVE PHASE	Phenoxyethanol (and) Ethylhexylglycerin <sup>4)</sup>	1.10
	Ethylhexylglycerin (and) Methylisothiazoline <sup>5)</sup>	0.13
		100.00

**Raw materials:** <sup>1)</sup> Abil® 350, Evonik <sup>2)</sup> Eusolex® T-AVO, Merck <sup>3)</sup> Kelrol® CG-T, CP Kelco <sup>4)</sup> Euxyl® PE 9010, Schülke & Mayr <sup>5)</sup> Euxyl® K 220, Schülke & Mayr

**Processing:** The water phase is heated to 80 °C under stirring. In a separate vessel, the oil phase is mixed while heating to 80 °C. When the phases are uniform, the oil phase is added to the water phase under continuous mixing. The emulsion is homogenized. The thickener phase is added to the emulsion. At 25 °C, Ethanol, Baycusan® C 1000 and the preservative phase are added and mixed. The emulsion is homogenized.

**Notes:** In vitro SPF = 14

In vivo SPF (international test method on 5 volunteers) = 29.6

Stability : This formulations successfully passed the microbiological challenge test

## Sun Lotion SPF 30

RR 8020

	Ingredient	% by wt.
OIL PHASE	Polyglyceryl-3 Methylglucose Distearate	1.00
	Butyl Methoxydibenzoylmethane	3.00
	Octocrylene	10.00
	Ethylhexyl Salicylate	5.00
	Homosalate	10.00
	Neopentyl Glycol Diheptanoate	2.50
	C12-15 Alkyl Benzoate	2.50
	Dimethicone <sup>1)</sup>	1.00
	Xanthan Gum <sup>2)</sup>	0.20
	Cetearyl Alcohol	1.00
	Phenoxyethanol (and) Ethylhexylglycerin <sup>3)</sup>	1.00
WATER PHASE	Water	52.25
	Glycerin	3.00
	Disodium EDTA	0.05
FILM FORMER	Baycusan® C 1000	7.50
		100.00

**Raw materials:** <sup>1)</sup> Oil M50, Momentive <sup>2)</sup> Keltrol® CG-T, CP Kelco <sup>3)</sup> Euxyl® PE 9010, Schülke & Mayr

**Processing:** The water phase is heated to 80°C under stirring. In a separate vessel, the oil phase is mixed while heating to 80°C. When the phases are uniform, the oil phase is added to the water phase under continuous mixing. The emulsion is homogenized. At 25°C, Baycusan® C 1000 is added and mixed. The emulsion is homogenized.

**Notes:** In vivo SPF (international test method on 10 volunteers) = 36.0  
Water-resistant formulation (Colipa test method on 10 volunteers)

## Sun Lotion SPF 25

RR 8021	Ingredient	% by wt.
OIL PHASE	PEG-100 Stearate (and) Glyceryl Stearate <sup>1)</sup>	2.00
	Sorbitan Stearate	1.00
	Octocrylene	9.00
	Butyl Methoxydibenzoylmethane	2.50
	Ethylhexyl Methoxycinnamate	7.00
	Ammonium Acryloyldimethyltaurate/ VP Copolymer	0.30
	Dimethicone <sup>2)</sup>	3.75
	Decyl Cocoate	3.75
	Cetearyl Ethylhexanoate	3.75
	Tocopheryl Acetate	0.40
WATER PHASE	Water	55.22
	Disodium EDTA	0.10
	Titanium Dioxide (and) Silica <sup>3)</sup>	5.00
FILM FORMER	Baycusan® C 1000	5.00
PRESERVATIVE PHASE	Phenoxyethanol (and) Ethylhexylglycerin <sup>4)</sup>	1.10
	Ethylhexylglycerin (and) Methylisothiazoline <sup>5)</sup>	0.13
		100.00

**Raw materials:** <sup>1)</sup> Cithrol® GMS/AS/Na, Croda <sup>2)</sup> Oil M50, Momentive <sup>3)</sup> Eusolex® T-AVO, Merck <sup>4)</sup> Euxyl® PE 9010, Schülke & Mayr <sup>5)</sup> Euxyl® K 220, Schülke & Mayr

**Processing:** The water phase is heated to 80°C under stirring. In a separate vessel, the oil phase is mixed while heating to 80°C. When the phases are uniform, the oil phase is added to the water phase under continuous mixing. The emulsion is homogenized. At 25 °C, Baycusan® C 1000 and the preservative phase are added and mixed. The emulsion is homogenized.

**Notes:** In vivo SPF (international test method on 10 volunteers) = 26

Water-resistant formulation (Colipa test method on 10 volunteers)

Stability: This formulations successfully passed the microbiological challenge test

# BAYCUSAN® C 1000

## Sun Lotion SPF 50 (FDA)

### RR 8022

	Ingredient	% by wt.
OIL PHASE	Ethylhexyl Salicylate	5.00
	Homosalate	13.00
	Octocrylene	7.00
	Benzophenone-3	4.00
	Butyl Methoxydibenzoylmethane	3.00
	Dimethicone <sup>1)</sup>	1.00
	Decyl Cocoate	3.75
	Cetearyl Ethylhexanoate	3.75
	Tocopheryl Acetate	0.40
WATER PHASE	Water	47.35
	Disodium EDTA	0.05
	Phenoxyethanol (and) Ethylhexylglycerin <sup>2)</sup>	1.00
	Potassium Cetyl Phosphate	2.00
	Glycerin	1.00
	Carbomer <sup>3)</sup>	0.20
	NaOH	To pH 7.0
FILM FORMER	Baycusan® C 1000	7.50
		100.00

**Raw materials:** <sup>1)</sup> Oil M50, Momentive <sup>2)</sup> Euxyl® PE 9010, Schülke & Mayr <sup>3)</sup> Carbopol® 980, Lubrizol

**Processing:** The water phase is heated to 80 °C under stirring. In a separate vessel, the oil phase is mixed while heating to 80 °C. When the phases are uniform, the oil phase is added to the water phase under continuous mixing. The emulsion is homogenized. At 25 °C, Baycusan® C 1000 is added and mixed. The emulsion is homogenized.

**Notes:** In vivo SPF (international test method on 11 volunteers) = 43.1

In vivo SPF (FDA test method on 5 volunteers) = 58.7

Water-resistant formulation (Colipa test method on 11 volunteers)

# BAYCUSAN® C 1000

## Sun Spray SPF 20

RR 8023

	Ingredient	% by wt.
OIL PHASE	Ethylhexyl Methoxycinnamate	7.00
	Butyl Methoxydibenzoylmethane	4.50
	Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine	4.00
	C12-15 Alkyl Benzoate	5.00
	C21-28 Alkane	7.00
	Tocopheryl Acetate	0.50
WATER PHASE	Water	55.15
	Sodium Hydroxide	To pH 6.0 – 6.5
	Glycerin	4.00
	Disodium EDTA	0.10
	Acrylates/C10-30 Alkyl Acrylates Crosspolymer <sup>1)</sup>	0.15
ALCOHOL	Ethanol	4.00
FILM FORMER	Baycusan® C 1000	7.50
PRESERVATIVE PHASE	Phenoxyethanol (and) Ethylhexylglycerin <sup>2)</sup>	1.00
	Ethylhexylglycerin (and) Methylisothiazoline <sup>3)</sup>	0.10
		100.00

**Raw materials:** <sup>1)</sup> Pemulen® TR-2, Lubrizol <sup>2)</sup> Euxyl® PE 9010, Schülke & Mayr <sup>3)</sup> Euxyl® K 220, Schülke & Mayr

**Processing:** The water phase is heated to 80 °C under stirring. In a separate vessel, the oil phase is mixed while heating to 80 °C. When the phases are uniform, the oil phase is added to the water phase under continuous mixing. The emulsion is homogenized. At 25 °C, Ethanol, Baycusan® C 1000 and the preservative phase are added and mixed. The emulsion is homogenized.

**Notes:** In vivo SPF (international test method on 5 volunteers) = 23.2

Water-resistant formulation (Colipa test method on 5 volunteers)

Stability: This formulations successfully passed the microbiological challenge test



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