Technical Information

August 2007
Supersedes issue dated April 2007

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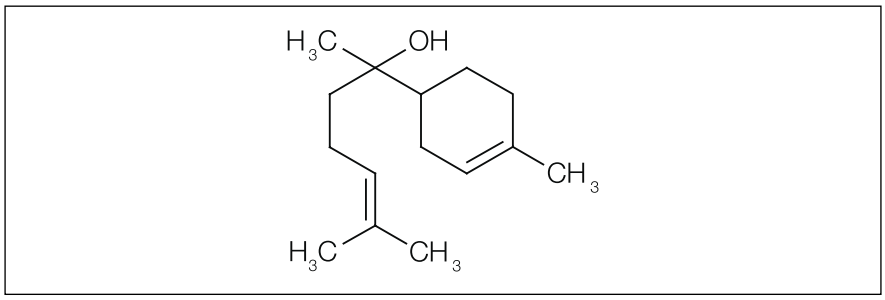
Bisabolol

Active ingredient for the cosmetics industry.
Natural care for the skin.

Cosmetic Solutions

BASF
The Chemical Company

Structural formula



INCI name

Bisabolol

Synonyms

alpha-Bisabolol, Levomenol

Chemical name

1-Methyl-4 (1,5-dimethyl-1-hydroxyhex-4(5)-enyl)cyclohexene

Molecular formula

$C_{15}H_{26}O$

Molar mass

222.4 g/mol

CAS No.

515-69-5

EINECS No.

208-205-9

PRD Nos.

Bisabolol F: 30269866
Bisabolol rac: 30035139
Bisabolol nat. 30055223

Description

Bisabolol is a clear, colourless to slightly yellowish liquid with a faint, floral, sweetish odour

Solubility

Bisabolol is soluble in ethanol, 2-propanol and in natural, mineral and synthetic fats and oils. It is insoluble in water and glycerol. Clear aqueous solutions can be prepared with the aid of solubilisers, e.g. Cremophor® CO 40

Product Line

Bisabolol F
is of synthetic origin. It contains low levels of Farnesol.It also contains the four isomers of alpha-Bisabolol, which all occur in nature.

Bisabolol rac.
is of synthetic origin. It contains the four isomers of alpha-Bisabolol which all occur in nature

Bisabolol nat.
is obtained from natural raw material. It is the (-)-alpha-Bisabolol isomer which is the active principle of the traditional medical plant chamomile (Matricaria chamomilla)

Specification

See separate document: "Standard Specification (not for regulatory purposes)“ available via BASF‘s WorldAcccount: https://worldaccount.basf.com (registered access).

Application

Bisabolol is the main active ingredient of the medical plant chamomile (Matricaria chamomilla) which is used in traditional medicine for hundreds of years.

Bisabolol protects and heals the skin from the effects of daily stress. It is a naturally occurring active ingredient that accelerates the healing process of skin. Bisabolol can be used with confidence in personal care formulations, especially in products for sensitive skin, baby care, after-shave, and after-sun application. Its added anti-inflammatory properties make it a truly versatile active ingredient for skin care products.

Stability and storage

If it is stored at around 20°C in the tightly sealed original containers, Bisabolol has a shelf life of at least 24 months.

In-vivo study

Treatment of UV induced erythema in double blind study.

10 people (male and female) were exposed to a UV irradiation of 1.75 MED. The erythema that resulted was then treated by twice daily topical applications (2mg/cm^2) of Bisabolol O/W formulations. The following formulations were used:
0.01wt% Bisabolol
0.25wt% Bisabolol F
0.25wt% Bisabolol Nat
Placebo

The intensity of the erythema on the skin was evaluated through two measurements – UV absorption measurements on the skin and by colorimetry – determination of the a* value (intensity of red colour hue) of the erythema. The study took place over a time frame of 11 days.

Results:
The data generated by the UV absorption showed a clear improved performance between Bisabolol F and Bisabolol nat, when formulated at 0.25wt%.

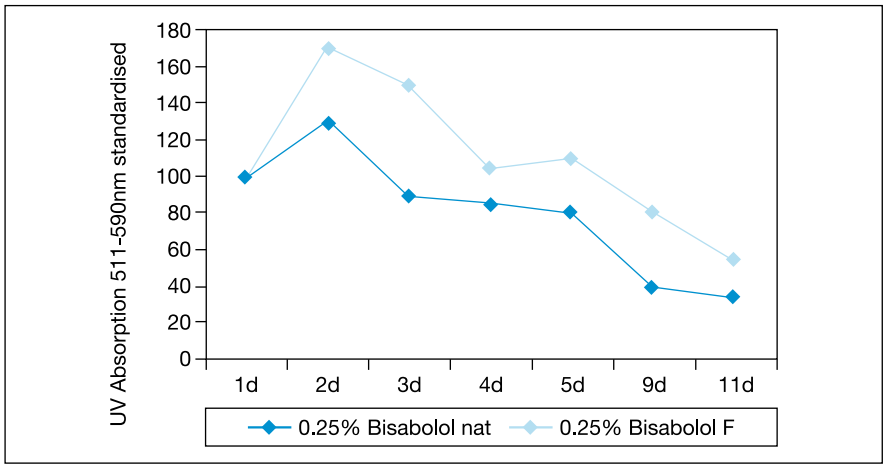


Figure 1: UV absorption data standardised to 630nm baseline.

The data generated from measuring the redness of the erythema showed that 0.25wt% Bisabolol F delivered the quickest reduction in redness when compared to 0.25wt% Bisabolol nat and 0.01wt% Bisabolol rac. Bisabolol F was able to soothe the erythema twice as quickly as the placebo. Using Bisabolol rac at the level of 0.01wt% showed a comparable performance to the placebo material, indicating an insufficient quantity of Bisabolol in the formulation, to be of benefit to the erythema treatment.

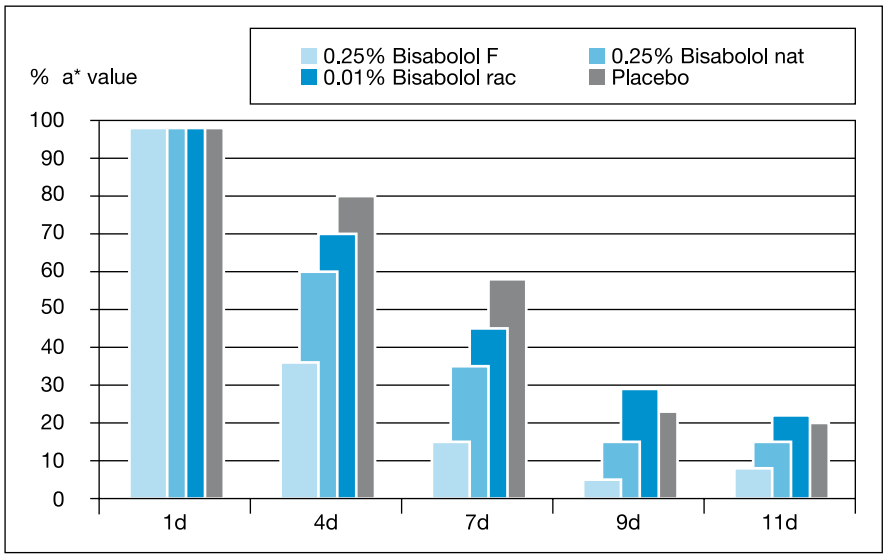


Figure 2: Effect of Bisabolol treatment on the redness of erythema.

Conclusion:
Bisabolol F shows the same performance as Bisabolol Nat.
Both ingredients are very effective actives for treating UV induced erythema.
These materials are perfectly suited for all kinds of skin-care products that protect and care for the skin.

Typical formulations

Shaving foam „Extra creamy“ **No. 07/00038 v2**

	%	Ingredients	Supplier	INCI name
A	3.30	Stearic Acid	(27)	Palmitic Acid
	1.70	Myristic Acid	(44)	Myristic Acid
	0.50	Cremophor® A 6	(1)	Ceteareth-6, Stearyl Alcohol
	0.50	Cremophor® A 25	(1)	Ceteareth-25
	3.20	Triethanolamine Care	(1)	Triethanolamine
	2.00	Paraffin Oil, highly fluid		Mineral Oil
	1.00	Isopropylmyristate	(27)	Isopropyl Myristate
	0.50	Lanette O	(27)	Cetearyl Alcohol
B	7.40	Luviquat® Care	(1)	Polyquaternium-44
	5.00	1,2-Propylene Glycol Care	(1)	Propylene Glycol
	q.s.	Preservative		
	74.70	Water dem.		Aqua
C	0.20	Bisabolol F	(1)	Bisabolol
	q.s.	Perfume		

Production: Saponify phase A at about 80°C for one hour.
Heat phase B to about 80°C and stir it into phase A whilst homogenizing.
Cool to about 40°C whilst stirring, add phase C and homogenize again.

Filling: 96% active ingredient
4% Propane/Butane 3.5 bar (20°C)

Properties: Viscosity: 1600 mPa·s Brookfield RVD VII+
pH value: 8.5

After shave balm **No. 07/00040 v2**

	%	Ingredients	Supplier	INCI name
A	0.25	Pemulen TR-1	(6)	Acrylates/C10-30 Alkyl Acrylate Crosspolymer
	1.50	Vitamine E Acetate	(1)	Tocopheryl Acetate
	0.20	Bisabolol F	(1)	Bisabolol
	10.00	Miglyol 812	(11)	Carpylic/Capric Triglyceride
	0.20	Perfume “Round” 250 090”	(70)	Perfume
	1.00	Cremophor® CO 40	(1)	PEG-40 Hydrogenated Castor Oil
B	1.00	D-Panthenol USP	(1)	Panthenol
	15.00	Ethanol 96%		Alcohol
	5.00	Glycerin 87%	(20)	Glycerin
	0.05.	Tylose H 4000	(28)	Hydroxyethyl Cellulose
	65.72	Water dem.		Aqua
C	0.08	Sodium Hydroxide	(20)	Sodium Hydroxide

Production: Weigh out the components of phase A and mix them. Stir phase B into phase A whilst homogenizing and continue homogenizing for a while.
Neutralize with phase C and homogenize again.

Properties: Viscosity: 6000 mPa·s Brookfield RVD VII+
pH value: 7.0

Pre shave **No. 07/00044 v2**

	%	Ingredients	Supplier	INCI name
A	81.70	Ethanol		Alcohol
	3.00	Vitamine E Acetate	(1)	Tocopheryl Acetate
	1.00	Bisabolol F	(1)	Bisabolol
	0.20	Perfume		
	0.10	Menthol	(20)	Menthol
	4.00	Luvitol® EHO	(1)	Cetearyl Ethylhexanoate
	2.00	Eutanol G	(27)	Octyldodecanol
	2.00	Miglyol 812	(11)	Caprylic/Capric Triglyceride
	2.00.	D-Panthenol USP	(1)	Panthenol
	2.00	Whitch Hazel Distillate	(212)	Hamamelis Virginiana (Whitch Hazel) Distillate
	2.00	Jojoba Oil		Simmondsia Chinensis (Jojoba) Oil

Production: Weigh out the components of phase A and dissolve them clearly.

Skin conditioning gel with vitamins **No. 62/00099 v2**

	%	Ingredients	Supplier	INCI name
A	4.00	Cremophor® CO 410	(1)	PEG-40 Hydrogenated Castor Oil
	15.00	Ethanol		Alcohol
	0.10	Bisabolol F	(1)	Bisabolol
	0.50	Vitamin E Acetate	(1)	Tocopheryl Acetate
	q.s.	Perfume		
B	3.00	D-Panthenol USP	(1)	Panthenol
	0.60	Carbopol 940	(6)	Carbomer
	76.40	Water, dem.		Aqua dem.
C	0.80	Triethanolamine Care	(1)	Triethanolamine

Production: Dissolve phase A clearly.
Allow phase B to swell and neutralize it with phase C.
Stir phase A into the neutralized phases B + C and homogenize.

Properties: Viscosity: 57600 mPa·s Brookfield RVD VII+
pH value: 7.7

Deostick transparent **No. 63/00017 v2**

	%	Ingredients	Supplier	INCI name
A	3.00	Cremophor® A 25	(1)	Ceteareth-25
	3.00	Cremophor® CO 40	(1)	PEG-40 Hydrogenated Castor Oil
	0.20	Bisabolol F	(1)	Bisabolol
	1.00	Vitamin E Acetate	(1)	Tocopheryl Acetate
	3.00	Perfume		
	5.00	Sodium Stearate C1	(44)	Sodium Stearate
	0.50	Irgasan DP 300	(12)	Triclosan
	15.00	Glycerin 87%	(20)	Glycerin
	60.00	1,2-Propylene Glycol Care	(1)	Propylene Glycol
	9.30	Water dem.		Aqua

Production: Weigh out the components of phase A and melt them.
Cast the melted mixture into appropriate moulds.

Properties: pH value: 9.0

Suppliers

1. **BASF Aktiengesellschaft**
67056 Ludwigshafen, Germany
Tel.: +49 (621) 60-0
Fax: +49 (621) 60-42525

6. **Noveon, Inc.**
9911 Brecksville Road, Cleveland OH 44141-3247, USA
Tel.: +1 (216) 447-5000
Fax: +1 (216) 447-5250

11. **Sasol Germany GmbH – Witten**
Arthur-Imhausen-Str. 92, 58453 Witten/Ruhr, Germany
Tel.: +49-2302-925-537
Fax: +49-2302-925-358

12. **Ciba Spezialitätenchemie AG**
Klybeckstraße 141,4002 Basel, Schweiz
Tel.: +41 (61) 6361111

20. **Merck KGaA**
Frankfurter Straße 250, 64293 Darmstadt, Germany
Tel.: +49 (6151) 72-7869
Fax: +49 (6151) 728333

27. **Cognis Deutschland GmbH – Care Chemicals**
Henkelstraße 67, 40191 Düsseldorf, Germany
Tel.: +49 (211) 7940-22889
Fax: +49 (211) 798-2016

28. **Clariant GmbH – Functional Chemicals Division, Personal Care**
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Tel.: +49 (69) 305 44291
Fax: +49 (69) 305 89129

44. **Goldschmidt GmbH**
Goldschmidtstraße 100, 45127 Essen, Germany
Tel.: 0201/173-0
Fax: 0201/173-3000

70. **Drom Fragrances International**
Oberdiller Straße 18, 82065 Baierbrunn, Germany
Tel.: +49 (89) 744-250
Fax: +49 (89) 793-4966

212. **Symrise**
Mühlenfeldstrasse 1, 37601 Holzminden, Germany
Tel.: (201) 750-1055, (800) 526-0372
Fax: (201) 750-9785

Note

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August 2007

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