

TEGO® Natural Betaine

Active ingredient with skin and hair conditioning properties

Intended use

Active for hair and skin care

Benefits at a glance

- Naturally derived amino acid, obtained from sugar beet molasses
- skin and hair conditioning
- moisturizing
- improves the skin compatibility of surfactant mixtures
- biodegradable

INCI (PCPC name)

Betaine

Chemical and physical properties (not part of specifications)

Appearance (20°C)	white crystals
Active content (Betaine Monohydrat)	>= 99%
Solubility in water	160 g/100 g
Solubility in ethanol	8.7 g/100 g

Properties

TEGO® Natural Betaine is a naturally occurring product. It can be found in plants and animals, especially in crustacean animals, but as well in the human organism.

TEGO® Natural Betaine is a pure, non-sensitizing, non-irritating raw material. It is derived from sugar beet molasses.

TEGO® Natural Betaine is hygroscopic and has moisturizing properties.

Result:

TEGO® Natural Betaine is an amphoteric compound. It is related to amino acids.

The influence on the skin compatibility in surfactant mixtures has been verified by the RBC Test.

RBC Test

Test formulation	1	2
Sodium Laureth Sulfate	8.4%	8.4%
REWOPOL® SB FA 30 B	1.6%	1.6%
REWOTERIC® AM 2 C NM	2.0%	–
TEGO® Betain F	–	2.0%
REWODERM® LI 520–70	–	4.0%
TEGO® Natural Betaine	0 / 3.5%	0 / 3.5%
Water	up to 100%	

Both formulations were tested according to RBC test, with and without the addition of TEGO® Natural Betaine (Fig. 1). The addition of 3.5% TEGO® Natural Betaine improves the mildness of both formulations. The mildness score (L/D value) is shifted from “irritant” to “moderately irritant”.

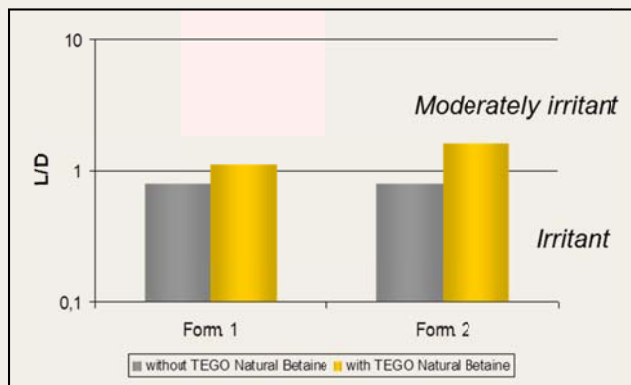


Fig. 1: Influence on RBC-Test with TEGO® Natural Betaine containing surfactant mixtures.

TEGO® Natural Betaine has additional soft conditioning properties. This has been confirmed in different formulations [1, 2].

Application

TEGO® Natural Betaine is recommended for use in Rinse off and Skin Care products:

- *Rinse off applications:*
 - Hair shampoos
 - Hair rinses
 - Shower shampoos
 - Baby shampoos
 - Facial cleansing lotions
 - Soap bars
 - Syndet soaps

In these formulations it reduces skin irritation and has a positive influence on the skin feeling as well as the conditioning effect on hair.

- *Skin Care applications:*
 - Body and Facial Care creams and lotions
 - After Shave lotions
 - Sun Care/ After Sun Lotions
 - Deodorants
 - Cream gels

In skin care products TEGO® Natural Betaine reduces transepidermal water loss and gives the skin a soft, smooth feeling [1].

References

[1] Rigano et al., *Cosmetics & Toiletries* 115 No. 12, 47–54 (2000)

[2] Woodruff, *Cosmetics & Toiletries* 117 No. 3, 33–35 (2002)

Preparation

Soluble at 20 – 30 °C in water, easy to dissolve while stirring.

To incorporate TEGO® Natural Betaine into cosmetic emulsions, it is recommended to add the product as aqueous solution to the already formed emulsion (after the homogenisation step) below 40 °C.

Recommended usage concentration

2 – 10% TEGO® Natural Betaine

Packaging

6 x 50 kg drums / pallet

Storage and processing recommendation

Store in a cool place in closed packaging. Due to the product's hygroscopic nature it must be kept dry during storage. Small lumps can be formed which are easily dissolved in water.

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in case of accidents and fires
- toxicity and ecological effects

is given in our material safety data sheets.

Guideline formulations

Clear Conditioning Shampoo SG 978/12/2	
Sodium Laureth Sulfate, 28%	32.00%
ABIL® Quat 3272 (Quaternium-80)	2.00%
Perfume	0.25%
Hydroxypropyl Guar Hydroxypropyl- trimonium Chloride (Jaguar C-162, Rhodia)	0.30%
Water	52.70%
TEGO® Natural Betaine	2.00%
TEGO® Betain F 50 (Cocamidopropyl Betaine)	8.00%
ANTIL® 200 (PEG-200 Hydrogenated Glyceryl Pal- mate; PEG-7 Glyceryl Cocoate)	2.75%
Preparation: 1. Dissolve Hydroxypropyl Guar Hydroxypropyltrimonium Chloride in the water and let it swell. 2. Adjust the pH value of this solution to appr. 5 for a better solubility. 3. Dissolve the ABIL® Quat 3272 and the perfume carefully in the Sodium Laureth Sulfate, 4. Add the other ingredients in the given order.	

Facial Cleansing foam for sensitive skin UW 269/7	
Water	84.90%
TEGOCEL® HPM 50 (Hydroxypropyl Methylcellulose)	1.00%
REWOPOL® SB C 55 (Disodium PEG-5 Laurylcitrate Sulfosuccinate; Capryl/Capramidopropyl Betaine)	11.10%
TEGO® Natural Betaine	3.00%
Preservative, Perfume	q.s.
Preparation: 1. Dissolve the TEGOCEL® HPM 50 into the water and allow to soak. 2. Blend the remaining ingredients in the given. 3. Adjust the pH value to 5.5.	

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Especially concerning Active Ingredients

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Product specification

Material TEGO NATURAL BETAINE
Spec.Code K00 STANDARD

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Inspection Characteristics	Method	Limits	Units	Z
Content	GM_1505_01	>=99.0	%	X
Water Content	GM_0080_01	<=15.00	%	X
Sulphate	GM_0916_05	<=0.010	%	X
pH-Value 5% solids	GM_0131_05	5.0-7.0	pH-Value	X
Appearance 20°C	GM_0170_00	OK		X

Appearance 20°C white powder

Report on inspection certificate: X = specific/actual value, C = unspecific value/conformity, T = not reported

This document is computer printed and therefore valid without signature.

All warranty claims in respect of the conformity of our product are subject to our General Terms and Conditions of Sale and Delivery. The data listed above reflects the criteria for our internal quality tests. We do not hereby make any express or implied warranty, whether for specific properties or for fitness for any particular application or purpose. All values are valid for the product when despatched from the works.

The Standard Test Methods can be obtained from specialized publishers. Evonik's test methods are available on request.

TEGO® Natural Betaine

Product data record

1. General information

1.1 Manufacturer/Supplier

Evonik Nutrition & Care GmbH
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1.2 Product Description

1.2.1 Raw material category Moisturizer

1.2.2 Ingredients according to INCI

Betaine

1.2.3 Composition

Components	Source	Ratio
Betaine	vegetable	100 %

This composition information serves for information of our customers only.

It is neither relevant for the composition listing according to Regulation (EC) No 1223/2009, nor does it reflect the chemical composition according to the different chemical regulations in the world which is disclosed in the table "information on ingredients/hazardous components" in the relevant parts of the respective (Material) Safety Data Sheets.

1.2.4 Solvents, preservatives and other additives

	CAS No.	EINECS / EC No.	content	Function
no additives				

No components which are listed in Annex II of the Regulation (EC) No 1223/2009 and its modifications and updates are added to and are not to be expected in the above mentioned product due to the raw materials used and the production process.

2. Information on production process

General description of production process:
Extraction from sugar beet molasses

The product is not irradiated.

TEGO® Natural Betaine is produced in the strictest absence of any animal derived material of any type.

Origin of vegetable starting material: sugar beet

GMO-Status:

The item does not contain ingredients that might have been derived from GM sources. However max 0.9 % cross-contamination is possible. Any protein or DNA is not present. Consequently the product will be PCR negative when tested.

2.1 By products

		method
Residual solvents	not applicable	
Free amines	not applicable	Chromatography
Nitrosamines	not applicable	
Monochloroacetic acid	not applicable	Chromatography
Dichloroacetic acid	not applicable	Chromatography
Pesticides	meets the valid regulatory requirements for limits on agricultural pesticides	
Total heavy metals	max. 20 ppm	AAS-ICP
As, Cd, Co, Cr, Hg, Ni, Pb, Sb	Each < 1 ppm	AAS-ICP
Latex	not to be expected in the product due to the raw materials used and the production process	
VOC	< 3 % according to SR (Swiss Right) 814.018	

2.2 CMR (Carcinogenic, Mutagenic or Reprotoxic)

The use in cosmetic products of substances classified as CMR substances, of category 1A or 1B or 2 under Part 3 of Annex VI to Regulation (EC) No 1272/2008 shall be prohibited.

Further Information:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:342:0059:0209:en:PDF>

Some of the CMR substances mentioned below and listed in Annex VI to Regulation (EC) No 1272/2008 are used as starting materials or solvents for the production of our cosmetic raw materials and may require reporting under California Proposition 65 or the Safe Cosmetics Act, SB 484.

The presence of these prohibited substances has to be seen as non-intended. It is stemming

from impurities of the starting materials or the manufacturing process which is technically unavoidable in good manufacturing practice.

CMR substance	Starting material	max. concentration	method
Ethylene Oxide	no		
Propylene Oxide	no		
Octamethylcyclotetrasiloxane (D4)	no		
2-Ethylhexanoic Acid	no		
n-Hexane	no		
Methyl Chloride	no		
Dimethyl Sulphate	no		

2.3 “Allergens” according to the Regulation (EC) No 1223/2009

The presence of substances, the mentioning of which is required under the column ‘Other’ in Annex III, shall be indicated in the list of ingredients in addition to the terms parfum or aroma.

The cosmetic raw materials and the cosmetic actives supplied by Evonik Personal Care are manufactured without the use of perfumes and fragrances. An analytical proof for the absence in traces of the substances to be mentioned in addition to the terms parfum or aroma is not performed in cosmetic raw materials, which are chemically produced.

None of these substances have been intentionally added to our cosmetic raw materials or are formed during the manufacturing process according to our knowledge of the chemistry.

2.4 Food Ingredients listed in Annex IIIa of Commission Directive 2007/68/EC.

None of these substances have been intentionally added to our cosmetic raw materials or are formed during the manufacturing process according to our knowledge of the chemistry.

3. Microbiological status

Total Viable Count	max. 100 cfu/g
Pathogens*	absent/g

*Pathogens are: Enterobacteria, Pseudomonas, Enterococci, Candida albicans, Staphylococci

4. Shelf life / storage conditions

24 months after production (unopened original packaging)

5. Regulatory Status

5.1 Customs tariff number 29239000

5.2 Regulatory status (chemical regulations)

Europe

Components	REACH status	CAS No.	EINECS / EC No.
Betaine	exempt Reg. No. 01-2119520508-42	590-47-6 refers to the registered 107-43-7	209-684-7 203-490-6

Other countries

Country		yes / no	Remark
Australia	AICS:	yes	CAS No. 107-43-7
China	IECSC:	yes	CAS No. 107-43-7
Canada	DSL: NDSL:	yes	CAS No. 107-43-7
Taiwan	TCSI:	yes	

In the following countries the relevant authorities currently do not require pre-market approval for cosmetic raw materials:

Brazil, Japan, South Korea, Philippines, USA

5.2.1 Regulatory status (cosmetic regulation)

Country		yes / no	Remark
China	CFDA:	yes	
Japan	JSQI:	yes	JSQI No. 523156, but specifications not controlled

6. Toxicology and Ecotoxicology

Refer to summary of ecotoxicological and toxicological data