Technical Information

TEGO® Care PBS 6

Versatile PEG-free O/W emulsifier for challenging fluid emulsions

Intended use

O/W emulsifier

Benefits at a glance

- Especially suitable for formulating low-viscous lotions and sprays
- Gives outstanding formulation flexibility with regard to high amounts of water soluble UV filters or other difficult to stabilize ingredients
- Forms stable emulsions between pH 4.0 and 8.5
- Provides moisturization properties
- Fully based on renewable sources and thus, ECOCERT, NATRUE and COSMOS certified
- Allows production of O/W emulsions based on hot-cold process

INCI (PCPC name)

Polyglyceryl-6 Stearate (and) Polyglyceryl-6 Behenate

Chemical and physical properties (not part of specifications)

Form	pellets
HLB value	approx. 13

Properties

TEGO® Care PBS 6 is a non-ionic, O/W PEG-free emulsifier that is completely based on renewable raw materials. TEGO® Care PBS 6 is based on glycerol, stearic acid and behenic acid. In a first step, a polycondensation reaction of glycerol is carried out.

The obtained polyglycerol is subsequently esterified with stearic acid and behenic acid.

- TEGO® Care PBS 6 provides excellent stabilization for all types of O/W lotions and sprays, especially for low-viscous ones.
- TEGO® Care PBS 6 is recommended for the formulation of sun care lotions and sprays as it provides extraordinary stable systems with high amounts of water soluble UV filters especially in combination with insect repellents.
- Difficult to stabilize ingredients like electrolytes and high amounts of urea or ethanol are well tolerated by emulsions based on TEGO® Care PBS 6.
- TEGO® Care PBS 6 is suitable for the formulation of O/W emulsions with all types of cosmetic oils at a pH of 4.0 to 8.5.
- TEGO® Care PBS 6 is suitable for systems pre-served with natural preservatives such as organic acids (e. g. benzoic acid and sorbic acid).
- The recommended usage concentration of TEGO® Care PBS 6 is approx. 2.5 to 4.0% in lotions and sprays.
- Typical oil phase contents of emulsions based on TEGO® Care PBS 6 are 10 – 30% for lotions and 10 – 20% for sprays.
- Typical combinations for O/W lotions are 2.5 – 4.0% TEGO® Care PBS 6 with up to 3.0% consistency enhancers. Suitable combinations include TEGIN® M Pellets (Glyceryl Stearate) and TEGO® Alkanol 18 (Stearyl Alcohol) or TEGO® Alkanol 1618 (Cetearyl Alcohol) in a ratio of 50:50.

In addition, 0.1 – 0.3% of carbomer (e. g. TEGO® Carbomer 341 ER) or 0.2 – 0.5% of xanthan gum are recommended.

- In O/W sprays, 0.5 – 1.2% of above mentioned consistency enhancer combination are sufficient for emulsion stabilization together with 2.5 – 4.0% of TEGO® Care PBS 6 and 0.1 – 0.2% of carbomer (e.g. TEGO® Carbomer 341 ER) or 0.1 – 0.5% of xanthan gum.
- As TEGO® Care PBS 6 is able to stabilize electrolyte containing emulsions, the incorporated polymeric thickeners should preferably be resistant to significant electrolyte contents. Therefore, hydrophobically modified carbomers like TEGO® Carbomer 341 ER or xanthan gum types are preferred compared to classical polyacrylate-based thickeners.
- Although TEGO® Care PBS 6 is recommended for the formulation of lotions and sprays, it can also be used for stabilizing creams. In this case, 2.5 – 4.0% emulsifier, 1.5 – 2.5% consistency enhancers and 0.1 – 0.2% carbomer or 0.8 – 1.0% xanthan gum are typical use levels.
- The pelletized product TEGO® Care PBS 6 may tend to agglomerate under elevated temperatures during storage. This effect is not affecting the application properties of the emulsifier. If agglomeration has occurred, manually reduce the lumps to smaller pieces and add them to the oil phase for melting and subsequent standard processing procedure.

In vivo moisturization study

Based on polyglycerol, TEGO® Care PBS 6 enhances the skin moisturization properties of cosmetic formulations.

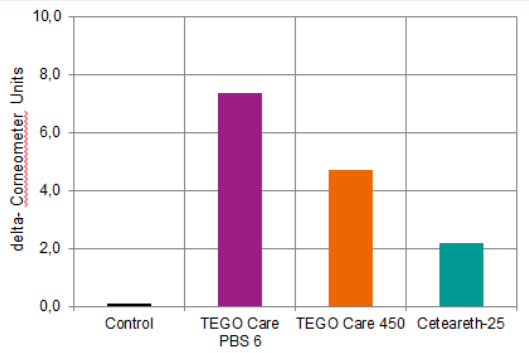

Fig. 1: Test results of *in vivo* short term moisturization study.

Test parameters: test formulations: control (untreated skin), O/W emulsions with different emulsifiers; number of panelists: 14; test area: inner forearm; size of test area: 5 cm^2; amount of test formulation: 20 mg; measurement device: Corneometer CM 825; measurement time points: start, 2h after appl.

Figure 1 shows the increase of corneometer units as indicator for skin moisturization two hours after application of the formulation based on TEGO® Care PBS 6 in comparison to two identical emulsions based on TEGO® Care 450 and Ceteareth-25 and to control.

Preparation

For the preparation of sprays, lotions and creams, the oil and water phases should be heated separately to 70 – 80 °C. It is suggested to add the hot oil phase to the hot water phase **while stirring**. The coarsely dispersed pre-emulsion is then homogenized.

If the above mentioned processing is not possible, the hot water phase should be added to the hot oil phase **without stirring** (to avoid the building of the water-in-oil form) and start afterwards with the homogenization. During the homogenization process the homogenizer must be placed in the water phase to ensure that the oil phase will be incorporated into the water phase.

Besides above favourable preparation procedures, in some cases the so-called "inverse" processing – addition of the hot water phase into the hot oil phase while stirring – can be used (see also guideline formulation H 3/12-8). The applicability of this method is strongly dependant on the respective formula, especially on the polarity of the used emollients and cannot be guaranteed for all systems. Typically, polar emollients are more suitable for inverse processing. Thus, this type of processing has to be tested in each case. Incompatible formulas tend to form a W/O emulsion during water addition (recognizable by high viscosity). When cooling down, this emulsion converts to an unstable oil-in-water emulsion with large particle size.

During cooling, a constant horizontal and vertical movement of the emulsion has to be ensured. The viscosity of the liquid emulsion increases in dependence of the amounts of consistency enhancers, as these components solidify.

It is recommended that thickeners, such as electrolyte tolerant, alkyl modified carbomers, are dispersed in oil and then added to the emulsion. The dispersion TEGO® Carbomer 341 ER in oil (e. g. in mineral oil, ethylhexyl stearate; not in triglycerides) is added at 60 °C. Then, the emulsion is homogenized again. Alternatively, polyacrylate based thickeners can also be incorporated via dissolving them in the hot water phase.

In order to avoid a negative impact on the lamellar structures formed by the emulsifier and consistency enhancers, it is recommended to add Xanthan Gum below 40 °C to the emulsions.

Perfume, temperature-sensitive substances or electrolyte-containing ingredients are preferably added at 35 – 40 °C. Phenoxyethanol-containing preservatives should be incorporated at this temperature, as well. Since phenoxyethanol is an amphiphilic molecule it can interfere with the emulsification process when added directly to the oil or water phase.

It is also suggested to add natural preservatives, such as benzoic acid or sorbic acid, to the emulsion at temperatures below 40 °C. In order to prevent partial crystallization of the organic acids, it is recommended that the necessary amount of Sodium Hydroxide to neutralize those acids is incorporated in the emulsion prior to adding such natural preservatives. After addition of the acids, it is recommended to adjust to a final pH of 5.0 – 5.5. Neutralization of the emulsion is done at approx. 35 °C.

In order to save processing time and energy, TEGO® Care PBS 6 can also be used for the so-called hot-cold processing. The hot oil phase is quickly incorporated into the cold water phase while homogenizing. We recommend heating the oil phase to 70-80 °C and the water phase to 30 °C.

This drastically reduces time and energy that is usually required for heating of the water phase as well as cooling of the emulsion.

When using this process, it is important that the oil phase is instantly incorporated while still hot. It is therefore recommended to quickly add the oil phase directly in close proximity to the location of the homogenizer. The final emulsion generated by the hot-cold process will be of lower viscosity compared to the emulsion prepared by the standard hot-hot process. The emulsions viscosity will increase during two to three days after production.

The droplet size of the dispersed oil droplets for emulsions with long-term stability is approx. 1 to 8 µm. More coarsely dispersed emulsions tend to separate.

After processing and cooling down, the viscosity of the system can be still low and can increase particularly during the next 2 days. This is due to a reorganisation process of the stabilizing lamellar structures. Thus, it is recommended to determine the final viscosity of a formula not directly after preparation.

Recommended usage concentration

2.5 – 4.0% TEGO® Care PBS 6

Packaging

360 kg EURO pallet (24 x 15 kg carton box)

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 accidents and fires
- toxicity and ecological effects

is given in our material safety data sheets.

Guideline formulations

Sun Care Lotion with insect repellent SPF 50+ SG 40/13-3	
Phase A	
TEGO® Care PBS 6	3.00%
TEGO® Alkanol 18 (Stearyl Alcohol)	0.75%
TEGIN® M Pellets (Glyceryl Stearate)	0.75%
TEGOSOFT® XC (Phenoxyethyl Caprylate)	6.50%
Diethylamino Hydroxybenzoyl Hexyl Benzoate (Uvinul A plus, BASF SE)	10.00%
Ethylhexyl Methoxycinnamate	6.00%
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.50%
Ethyl Butylacetylaminopropionate (Insect repellent IR 3535, Merck KGaA)	4.00%
Tocopheryl Acetate	0.50%
Phase B	
Water	46.00%
Glycerin	2.00%
Phase C	
Water	14.20%
Tromethamine	1.80%
Phenylbenzimidazole Sulfonic Acid (Eusolex 232, Merck KGaA)	4.00%
Phase Z	
Preservative*, Perfume	q.s.

Preparation:

1. Add phase C to phase B and adjust pH of phase B/C to 7.0.
2. Heat phase A and B/C separately to approx. 80 °C.
3. Add phase B/C to phase A without stirring.
4. Homogenize.

[1)] Important:
If phase A has to be charged into the vessel first, phase B must be added **without stirring**.

Remarks:

Formulation viscosity: 8 Pas (Brookfield RVT, spindle 5, 10 rpm)
SPF (*in vitro*): 64**
UVA-Balance: 36%**
**Labsphere 2000S; 1.0 mg/cm², PMMA slides

*Formulation was tested with 0.8% Dipropylene Glycol; Methylparaben; Ethylparaben; Aqua; Methyl-isothiazolinone (Microcare MEM, Thor GmbH)

Protecting Sun Care Spray SPF 30 F 42/11-1	
Phase A	
TEGO® Care PBS 6	3.00%
TEGIN® M Pellets (Glyceryl Stearate)	0.50%
TEGO® Alkanol 18 (Stearyl Alcohol)	0.50%
TEGOSOFT® XC (Phenoxyethyl Caprylate)	3.20%
Phase B	
Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine (Tinosorb S, BASF SE)	3.00%
Butyl Methoxydibenzoylmethane	2.00%
Ethylhexyl Methoxycinnamate	2.00%
Ethylhexyl Salicylate	4.00%
Octocrylene	4.00%
TEGOSOFT® P (Isopropyl Palmitate)	2.00%
Phase C	
Glycerin	3.00%
Water	60.90%
Phase D	
TEGO® Carbomer 341 ER (Acrylate/C10-30 Alkyl Acrylate Copolymer)	0.20%
TEGOSOFT® XC (Phenoxyethyl Caprylate)	0.80%
Phase E	
Tromethamine (30% aq.)	0.80%
Phase F	
Phenylbenzimidazole Sulfonic Acid (Eusolex 232, Merck KGaA)	2.00%
Tris(hydroxymethyl)aminomethane	0.90%
Water	7.10%
Phase Z	
Preservative*, Perfume	q.s.

Preparation:

1. Merge components of phase B and heat to 85 °C.
2. Merge phases A and B.
3. Heat phase A/B and C separately to approx. 70 – 75 °C.
4. Add phase A/B to phase C with stirring.[1)]
5. Homogenize.
6. Cool with gentle stirring and add phase D below 60 °C and homogenize for a short time.
7. Add phase E at approx. 40 °C and stir well.
8. Adjust pH of formulation to 7.0.
9. Add phase F, stir until uniform and check pH.

[1)] Important:
If phase A/B has to be charged into the vessel first, phase C must be added **without stirring**.

Remarks:

Formulation viscosity: 5 Pas (Brookfield RVT, spindle 4, 5 rpm)
SPF: 33.7, UVA-Balance: 35%, CW 373 nm
(Calculated values, BASF Sunscreen Simulator)

*Formulation was tested with 0.8% Dipropylene Glycol; Methylparaben; Ethylparaben; Aqua; Methyl isothiazolinone (Microcare MEM, Thor GmbH)

Sun Care Lotion SPF 50+ with mineral UV filter SG 37/13-1	
Phase A	
TEGO® Care PBS 6	3.00%
TEGO® Alkanol 18 (Stearyl Alcohol)	0.50%
TEGIN® M Pellets (Glyceryl Stearate)	0.50%
TEGOSOFT® XC (Phenoxyethyl Caprylate)	3.00%
TEGO® Sun TDEC 45 (Titanium Dioxide; Diethylhexyl Carbonate; Polyglyceryl-6 Polyhydroxystearate)	11.00%
Butyl Methoxydibenzoylmethane	5.00%
Octocrylene	4.90%
Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine (Tinosorb S, BASF SE)	4.70%
Diethylhexyl Butamido Triazone	3.70%
Ethylhexyl Methoxycinnamate	0.10%
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.20%
Phase B	
Water	61.40%
Glycerin	2.00%
Phase Z	
Preservative*, Perfume	q.s.

Preparation:

1. Heat phase A and B separately to approx. 80 °C.
2. Add phase B to phase A without stirring.
3. Homogenize.

[1)] Important:
If phase A has to be charged into the vessel first, phase B must be added **without stirring**.

Remarks:

Formulation viscosity: 19 Pas (Brookfield RVT, spindle 4, 5 rpm)
SPF (*in vitro*): 60**
UVA-Balance: 34%**
**Labsphere 2000S; 1.0 mg/cm², PMMA slides

*Formulation was tested with 0.8% Dipropylene Glycol; Methylparaben; Ethylparaben; Aqua; Methyl-isothiazolinone (Microcare MEM, Thor GmbH)

Moisturizing After Sun Lotion FU 12/13-17	
Phase A	
TEGO® Care PBS 6	3.00%
TEGIN® M Pellets (Glyceryl Stearate)	0.35%
TEGO® Alkanol 1618 (Cetearyl Alcohol)	0.65%
TEGOSOFT® OER (Oleyl Erucate)	2.00%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	5.00%
TEGOSOFT® DEC (Diethylhexyl Carbonate)	5.00%
Phase B	
Glycerin	5.00%
Water	36.50%
Triacetin	2.00%
Phase C	
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.50%
Phase D	
Urea (50% aq.)	40.00%
Phase Z	
Preservative*, Perfume	q.s.

Preparation:

1. Heat phase A and B separately to approx. 85 °C.
2. Add phase A to phase B with stirring.[1)]
3. Homogenize.
4. Cool with gentle stirring and add phase C below 40 °C.
5. Homogenize for a short time.
6. Cool with gentle stirring and add phase D below 30 °C.
7. Homogenize for a short time.

[1)] Important:
If phase A has to be charged into the vessel first, phase B must be added **without stirring**.

Remarks:

Emulsion viscosity: 20 Pas (Brookfield RVT, spindle 4, 5 rpm)
*Formulation was tested with 0.7% Phenoxyethanol (and) Ethylhexylglycerin (Euxyl PE 9010, Schülke & Mayr)

O/W Make-Up Foundation FU 12/13-1	
Phase A	
TEGO® Care PBS 6	4.00%
TEGIN® M Pellets (Glyceryl Stearate)	1.00%
TEGO® Alkanol 1618 (Cetearyl Alcohol)	1.00%
TEGOSOFT® DEC (Diethylhexyl Carbonate)	8.00%
TEGOSOFT® OP (Ethylhexyl Palmitate)	8.00%
Phase B	
Water	65.10%
Glycerin	1.00%
TEGO® Carbomer 141 (Carbomer)	0.20%
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.10%
Phase C	
CI 77891, Titanium Dioxide (Kronos 1171, Kronos)	8.00%
TEGO® Feel Green (Cellulose)	2.00%
Titanium Dioxide, CI 77891(Kronos 1171, Kronos)	8.00%
CI 77492, Iron Oxides (Sicovit Gelb 10 E, BASF SE)	0.90%
CI 77491, Iron Oxides (Sicovit Rot 30E, BASF SE)	0.20%
CI 77491, CI 77492, CI 77499, Iron Oxides (Sicovit Braun 70E, BASF SE)	0.40%
CI 77499, Iron Oxides (Sicovit Schwarz 80E, BASF SE)	0.10%
Phase D	
Sodium Hydroxide (10% aq.)	q.s
Phase Z	
Preservative, Perfume	q.s.

Preparation:

1. Mix phase C in a blender until homogeneous.
2. Heat phase A and B separately to approx. 75 °C.
3. Add phase C to phase b and homogenize for a short time.
4. Add phase A to phase B/C without stirring.
5. Homogenize.
6. Cool with gentle stirring and add phase D below 40 °C.
7. Cool with gentle stirring below 30 °C.

Remarks:

Emulsion viscosity: 31 Pas (Brookfield RV DV-I, spindle 4, 5 rpm)

Chilling Body Lotion FU 12/13-5	
Phase A	
TEGO® Care PBS 6	3.00%
TEGIN® M Pellets (Glyceryl Stearate)	0.50%
TEGO® Alkanol 18 (Stearyl Alcohol)	0.50%
Prunus Amygdalus Dulcis (Sweet Almond) Oil	5.00%
TEGOSOFT® AC (Isoamyl Cocoate)	5.50%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	5.50%
Phase B	
Glycerin	4.00%
Water	64.30%
Phase C	
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.50%
Phase D	
Sodium Hydroxide (10% aq.)	0.20%
Phase E	
Benzyl Alcohol, Glycerin, Benzoic Acid, Sorbic Acid (Rokonsal BSB-N, Ashland)	1.00%
Alcohol	10.00%
Phase Z	
Perfume	q.s.

Preparation:

1. Heat phase A and B separately to approx. 70 - 75 °C.
2. Add phase A to phase B with stirring.[1)]
3. Homogenize.
4. Cool with gentle stirring and add phase C below 40 °C.
5. Homogenize for a short time.
6. Add phase D below 30 °C.
7. Add phase E and adjust pH of formulation to 5.0 - 5.5.

[1)] Important:
If phase A has to be charged into the vessel first, phase B must be added **without stirring**.

Remarks:

Emulsion viscosity: 13 Pas (Brookfield RVT, spindle 4, 5 rpm)

Moisturizing Lotion based on inverse Processing H 3/12-8	
Phase A	
TEGO® Care PBS 6	3.00%
TEGIN® M Pellets (Glyceryl Stearate)	0.50%
TEGO® Alkanol 18 (Stearyl Alcohol)	0.50%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	5.50%
TEGOSOFT® OP (Ethylhexyl Palmitate)	5.50%
Phase B	
Glycerin	3.00%
Water	79.50%
Phase C	
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.50%
Phase D	
LACTIL® (Sodium Lactate; Sodium PCA; Glycine; Fructose, Urea; Niacinamid; Inositol; Sodium Benzoate, Lactic Acid)	2.00%
Phase Z	
Preservative*, Perfume	q.s.

Preparation:

1. Heat phase A and B to approx. 75 °C separately.
2. **Add phase B to phase A slowly while stirring.**
3. Homogenize.
4. Cool with gentle stirring and add phase C below 40 °C.
5. Homogenize for a short time.
6. Add phase D and stir until uniform.

Remarks:

Formulation viscosity: 23 Pas (Brookfield RVT, spindle C, 10 rpm)
*Formulation was tested with 0.8% Dipropylene Glycol; Methylparaben; Ethylparaben; Aqua; Methyl-isothiazolinone (Microcare MEM, Thor GmbH)

Body Energizing Lotion SZ 9/13-3.2	
Phase A	
TEGO® Care PBS 6	3.00%
TEGO® Alkanol 1618(Cetearyl Alcohol)	0.50%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	4.00%
TEGOSOFT® AC (Isoamyl Cocoate)	2.50%
Phase B	
Water	88.20%
TEGO® Cosmo C 100 (Creatine)	0.50%
TEGO® Carbomer 140 (Carbomer)	0.10%
TEGO® Carbomer 141 (Carbomer)	0.10%
Xanthan Gum (Keltrol CG-SFT, CP Kelco)	0.50%
Phase C	
Sodium Hydroxide (10% aq.)	0.60%
Phase Z	
Preservative*, Perfume	q.s.

Preparation:

1. Heat phase A separately to approx. 75 °C.
2. Disperse powders in phase B until uniform and heat to approx. 75 °C.
3. Add phase A to phase B with stirring.[1)]
4. Homogenize.
5. Cool with gentle stirring and add phase C below 40 °C.
6. Homogenize for a short time.

[1)] Important:
If phase A has to be charged into the vessel first, phase B must be added **without stirring**.

Remarks:

Formulation viscosity: 15 Pas (Brookfield RVT, spindle 5, 10 rpm)
*Formulation was tested with 0.7% Phenoxyethanol (and) Ethylhexylglycerin (Euxyl PE 9010, Schülke & Mayr)

E 03/15

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Product specification

Material TEGO CARE PBS 6
Spec.Code K00 STANDARD

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Inspection Characteristics	Method	Limits	Units	Z
Acid Value	GM_0010_01	<= 5.0	mg KOH/g	X
Saponification Value	GM_0030_01	85 - 105	mg KOH/g	X
Melting Point	GM_0150_01	51.0 - 58.0	°C	X
Water Content	GM_0080_01	<= 2.0	%	X
Appearance 25°C	GM_0170_00	OK		X

Appearance 25°C	OK

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

Appearance 25°C: dark yellow pellets

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This product only starting with an E in the batch number is
produced in a RSPO certified site.
The raw materials for this product are sourced according to
rules set by the RSPO, Supply Chain Mass Balance,
Evonik AG RSPO Certification Number : RSPO-V-14-13553.
Certificates can only be used from RSPO certified Supply
Chain Partners.

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.

Edition 4
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TEGO® Care PBS 6

Product data record

1. General information

1.1 Manufacturer / Supplier

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1.2 Product Description

1.2.1 Raw material category

O/W Emulsifier

1.2.2 Ingredients according to INCI

Polyglyceryl-6 Stearate (and) Polyglyceryl-6 Behenate

1.2.3 Composition

Components	Source	Ratio
Polyglyceryl-6 Stearate	vegetable	85 - 98%
Polyglyceryl-6 Behenate	vegetable	2 - 15%

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 as well as in its modifications and updates were added to the product. Hence, and because of the used raw materials as well as the production process, none of the above mentioned components are expected to be found in the product.

2. Information on production process

General description of production process: Conversion of polyglycerol with fatty acids.

The product is not irradiated.

TEGO® Care PBS 6 is produced in the strictest absence of any animal derived material of any type.

Origin of vegetable starting material: rapeseed oil, palm oil

GMO-Status: The item contains ingredients derived from rapeseed (including oils and other refined ingredients). These ingredients are sourced from an "Identity Preserved" program and can be certified NON-GMO. However, max. 0.9% cross-contamination is possible. No protein or DNA is present. Consequently the product will be PCR negative when tested.

2.1 By products

		Method
1,4-Dioxane	not applicable	
Residual solvents	not applicable	
Dichloroacetic acid	not applicable	Chromatography
Monochloroacetic acid	not applicable	Chromatography
Free amines	not applicable	Chromatography
Pesticides	excluded by origin and facilities, certified by suppliers	
Nitrosamines	not applicable	
Total heavy metals (as Pb)	max. 20 ppm	AAS-ICP
As, Cd, Co, Cr, Cu, Hg, Mo, Ni, Pb, Sb, respectively	max. 1 ppm	AAS-ICP
Latex	Not to be expected to be found in the product due to the used raw materials 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 in the original packaging).

5. Regulatory Status

5.1 Customs tariff number 34029010

5.2 Regulatory status (chemical regulations)

Europe

Components	REACH status	CAS No.	EINECS / EC No.
Polyglyceryl-6 Stearate	Polymer	9009-32-9	Polymer
Polyglyceryl-6 Behenate	Polymer	64366-79-6	Polymer

Other countries

Country		yes / no	Remark
Polyglyceryl-6 Stearate			
Australia	AICS:	yes	
China	IECSC:	yes	
Canada	DSL: NDSL:	no	but substance is on the Canadian in-commerce list
Taiwan	TCSI:	yes	
Polyglyceryl-6 Behenate			
Australia	AICS:	yes	
China	IECSC:	yes	
Canada	DSL: NDSL:	yes	
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
Polyglyceryl-6 Stearate			
China	CFDA:	yes	
Japan	JSQI:	yes	JSQI No. 521143, but specifications not controlled

Country		yes / no	Remark
Polyglyceryl-6 Behenate			
China	CFDA:	yes	
Japan	JSQI:	no	

6. Toxicology and Ecotoxicology

Refer to summary of ecotoxicological and toxicological data.