

TEGO® Care CG 90

Sugar based, very efficient emulsifier for PEG-free O/W lotions and creams

Intended use

O/W emulsifier

Benefits at a glance

- Emulsifier for "natural" O/W emulsions with excellent application properties
- Concentrated emulsifier
- Very low usage concentration (~ 1%)
- No need for any co-emulsifier
- Sprayable emulsions are possible
- Wide range of oil phase level and content
- Wide temperature stability profile
- PEG-free emulsifier of vegetable origin

INCI (PCPC name)

Cetearyl Glucoside

Chemical and physical properties (not part of specifications)

Form	powder
HLB value	approx. 13

Properties

- Only 1.0 – 1.5% of TEGO® Care CG 90 is needed to form an emulsion.
- The emulsions formed show excellent cosmetic properties with very good spreadability and an enhanced soft skin feel.

- TEGO® Care CG 90 is suitable for the formulation of O/W lotions and creams.
- Using Potassium Stearate as a co-emulsifier sprayable emulsions are also possible.
- The low usage level of TEGO® Care CG 90 allows the formulator to use a wide range of oil phase levels and content.
- The oil phase components can be selected from mineral oil, vegetable oils and synthetic esters which will enable the formulator to vary the application profile of the emulsion. Low viscosity oil phase components give a higher spreadability. The skin feel is modified by the oil phase composition.
- Lotions and creams based on TEGO® Care CG 90 show good application and stability properties, if lotions will contain 10 – 2% of oil phase; and creams 20 – 35% of oil phase.
- TEGO® Care CG 90 based formulas do not whiten the skin on application.
- The lotions and creams have a wide heat and cold stability range; typically they are stable from -25 °C up to +50 °C.
- TEGO® Care CG 90 is a nonionic, PEG-free emulsifier and is hydrolytically stable.
- TEGO® Care CG 90 is vegetable based.

Preparation

Lotions

The suggested usage concentration of TEGO® Care CG 90 is approx. 1%. TEGO® Care CG 90 should be added to the water phase.

As an auxiliary ingredient to improve the freeze stability TEGO® Carbomer 141 should be used at a level of approx. 0.20%.

The viscosity profile can be adjusted by using TEGIN® 4100 Pellets (Glyceryl Stearate) and Stearic Acid.

We recommend for the preparation of lotions to heat oil and water phases separately to approx. 80 °C.

The oil phase is added to the water phase with stirring. The coarsely dispersed pre-emulsion is then homogenized.*

If necessary, because of production considerations the water phase can be added to the oil phase **without stirring** (to avoid the building of the water-in-oil form) and start afterwards with the homogenization.*

After homogenization the dispersion of TEGO® Carbomer 141 in oil – at 20% in Mineral Oil or ester oils such as TEGOSOFT® OS (Ethylhexyl Stearate) – is added and the emulsion is homogenized again for a short time. Avoid the use of triglyceride based esters for dispersion of the Carbomer.

During cooling, a constant horizontal and vertical movement of the emulsion is needed.

Perfume, temperature-sensitive substances or electrolyte containing ingredients should be added at 35 – 45 °C.

Neutralization of the emulsion is completed at approx. 35 °C.

Sprays

For sprayable lotions the suggested usage concentration is 0.5%. Potassium Stearate at 0.5% is recommended as a co-emulsifier to prevent the formation of particles in the emulsion. A special stabilizing system is needed. The combination of Carbomer and an alkyl-modified crosspolymer proved to be especially effective. The preparation is analogous to the preparation of lotions.

* The homogenizer must be placed in the water phase.

Creams

TEGO® Care CG 90 should be used at a level of 1.0 to 1.5%. We recommend adding the emulsifier to the water phase.

Depending on the formulation, 0.1 – 0.3% of TEGO® Carbomer 134 and 3 – 5% of consistency promoting substances are needed for the formation of viscosity-increasing gel structures in the external water phase. Combinations of TEGIN® 4100 Pellets (Glyceryl Stearate), Stearic acid, TEGO® Alkanol 16 (Cetyl Alcohol), TEGO® Alkanol 18 (Stearyl Alcohol) or TEGO® Alkanol 1618 (Cetearyl Alcohol) have proved most effective.

Usage of TEGO® Carbomer 134 improves the freeze stability.

We recommend for the preparation of creams to heat oil and water phases separately to approx. 80 °C.

The oil phase is added to the water phase with stirring. The coarsely dispersed pre-emulsion is then homogenized.*

If necessary because of production considerations the water phase can be added to the oil phase **without stirring** (to avoid the building of the water-in-oil form) and then homogenized.*

After homogenization the dispersion of TEGO® Carbomer 134 in oil – at 20% in Mineral Oil or ester oils such as TEGOSOFT® OS (Ethylhexyl Stearate) – is added and the emulsion is homogenized again for a short time. Avoid the use of triglyceride based esters for dispersion of the Carbomer.

During cooling, a constant horizontal and vertical movement of the emulsion has to be ensured. The viscosity of the liquid emulsion increases to a creamy consistency, as the hydrated consistency promoters solidify.

Perfume, temperature-sensitive substances or electrolyte containing ingredients should be added at 35 – 45 °C.

Neutralization of the emulsion is completed at approx. 35 °C.

Recommended usage concentration

1.0 – 1.5% TEGO® Care CG 90

Packaging

180 kg pallet (12 x 15 kg)

Storage

The product should be stored protected from humidity.

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

O/W Foaming Skin Care Lotion WR 27/02-1	
Phase A	
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	5.000%
TEGOSOFT® DC (Decyl Cocoate)	6.000%
TEGOSOFT® DEC (Diethylhexyl Carbonate)	5.000%
Phase B	
TEGO® Care CG 90 (Cetearyl Glucoside)	1.000%
Glycerin	2.000%
TEGO® Cosmo C 100 (Creatine)	0.500%
Water	70.610%
Phase C	
TEGO® Carbomer 141 (Carbomer)	0.125%
TEGO® Carbomer 341ER (Acrylates/C10-30 Alkyl Acrylates Crosspolymer)	0.125%
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	1.000%
Phase D	
Sodium Hydroxide (10% in water)	0.500%
Phase E	
Perfume	0.300%
Phase F	
TEGO® Betain 810 (Capryl/Capramidopropyl Betaine)	7.140%
Phenoxyethanol; Methylparaben; Ethylparaben; Butylparaben; Propyl- paraben; Isobutylparaben (Phenonip)	0.700%

Preparation:

1. Heat phase A and B separately to approx. 80 °C.
2. Add phase A to phase B with stirring.
3. Homogenize.
4. Cool with gentle stirring to approx. 60 °C and add phase C.
5. Homogenize for a short time.
6. Cool with gentle stirring and add phase D below 40 °C.
7. Cool with gentle stirring to approx. 25 °C.
8. Add phase E with gentle stirring.
9. Mix phase F until it is clear.
10. Add phase F to the emulsion with gentle stirring.

Please observe patent no. EP 554 292 / US 5494938.

Facial Mask F 4/01-2	
Phase A	
TEGIN® 4100 Pellets (Glyceryl Stearate)	1.50%
TEGO® Alkanol 18 (Stearyl Alcohol)	3.50%
Macadamia Ternifolia Nut Oil	4.00%
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	4.00%
TEGOSOFT® DC (Decyl Cocoate)	8.00%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	7.80%
ABIL® 350 (Dimethicone)	0.20%
Phase B	
TEGO® Care CG 90	1.50%
TEGOSOFT® PSE 141 G (Sucrose Stearate)	2.00%
Panthenol	0.50%
Allantoin	0.20%
Glycerin	3.00%
Water	60.30%
Phase C	
TEGO® Carbomer 134 (Carbomer)	0.10%
Mineral Oil (30 mPas)	0.40%
Phase D	
Sodium Hydroxide (10% in water)	q.s.
Phase E	
Rovisome ACE III (Aqua, Lecithin, Alcohol, PEG-75 Shea Butter Glycerides, Ascorbyl Palmitate, Tocopherol, Retinyl Palmitate, Phenoxyethanol, Methyl/Butyl/Ethyl/Isobutyl/ Propylparabens, Rovi GmbH)	3.00%
Preparation:	
<ol style="list-style-type: none"> 1. Heat phase A and B to approx. 80 °C. 2. Add phase A to phase B with stirring.¹⁾ 3. Homogenize. 4. Cool with gentle stirring to approx. 60 °C and add phase C. 5. Homogenize for a short time. 6. Cool with gentle stirring and add phase D/E below 40 °C. 	
¹⁾ Important: If phase A has to be charged into the vessel first, phase B must be added without stirring .	

Skin Repair Cream (Ceramide III) F 38/00-2	
Phase A	
TEGOSOFT® liquid (Cetearyl Ethylhexanoate)	9.80%
TEGOSOFT® OP (Ethylhexyl Palmitate)	5.00%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	3.00%
TEGOSOFT® DC (Decyl Cocoate)	2.00%
Stearic Acid	1.00%
TEGIN® 4100 Pellets (Glyceryl Stearate)	2.50%
TEGO® Alkanol 18 (Stearyl Alcohol)	1.50%
Ceramide III (Ceramide NP)	0.20%
Phase B	
TEGO® Care CG 90 (Cetearyl Glucoside)	1.00%
Glycerin	3.00%
Water	70.50%
Phase C	
TEGO® Carbomer 134 (Carbomer)	0.10%
TEGOSOFT® liquid (Cetearyl Ethylhexanoate)	0.40%
Phase D	
Sodium Hydroxide (10% in water)	q.s.
Preservative, Perfume	q.s.
Preparation:	
<ol style="list-style-type: none"> 1. Heat phase A until it is clear (approx. 90 °C). 2. Heat phase B separately to approx. 90 °C. 3. Add phase A to phase B with stirring.¹⁾ 4. Homogenize at approx. 90 °C. 5. Cool with gentle stirring to approx. 60 °C and add phase C. 6. Homogenize for a short time. 7. Cool with gentle stirring and add phase D below 40 °C. 	
¹⁾ Important: If phase A has to be charged into the vessel first, phase B must be added without stirring .	

After Sun Spray	
Ma 91/00-2	
Phase A	
TEGOSOFT® DC (Decyl Cocoate)	4.00%
TEGOSOFT® OP (Ethylhexyl Palmitate)	2.00%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	5.00%
Sweet Almond (Prunus Amygdalus Dulcis) Oil	1.00%
Tocopheryl Acetate	0.40%
Tocopherol	0.10%
Retinyl Palmitate	0.10%
Phase B	
TEGO® Care CG 90	0.50%
Potassium Stearate	0.50%
GluCare® S (Sodium Carboxymethyl Betaglucan)	0.10%
Panthenol	1.00%
Glycerin	2.00%
Water	82.30%
Phase C	
TEGO® Carbomer 141 (Carbomer)	0.10%
TEGO® Carbomer 341 ER (Acrylates/C10-30 Alkyl Acrylate Crosspolymer)	0.10%
Mineral Oil (30 mPas)	0.80%
Phase D	
Sodium Hydroxide (10% in water)	q.s.
Preservative, Perfume	q.s.

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