

TEGO® Cosmo C 250

Natural, skin identical active ingredient with skin brightening properties

Intended use

Active for skin care

Benefits at a glance

- Ideal for skin brightening applications
- Skin conditioner
- pH-regulating properties
- Amino acid derivative occurring naturally in the body

INCI (PCPC name)

1-Methylhydantoin-2-Imide

Chemical and physical properties (not part of the specification)

Form	crystals*
Water solubility	approx. 90 g/l (20 °C)
pH	7.5 - 8.5 (50.0 g/l at 20 °C)

* TEGO® Cosmo C 250 tends to cake during storage; the product can be powderized by mechanical treatment.

TEGO® Cosmo C 250 is a natural amino acid derivative. It belongs to the class of guanidino-compounds which are ubiquitous in mammalian cells and known to have an important biological function as they regulate e.g. cellular growth and transformation.

The inherent buffering properties of TEGO® Cosmo C 250 helps to maintain a desirable pH mantle on the skin.

Applications

- Skin brightening products
- Age-spot fade creams
- Skin conditioning products

Properties

- TEGO® Cosmo C 250 has been demonstrated to inhibit tyrosinase activity in melanocytes. It can be used in applications such as skin brightening products and fade creams to improve the clarity and evenness of skin tone.

Efficacy studies

Three studies were performed to assess the functionality of TEGO® Cosmo C 250 as a skin brightener. Two used in vitro methodologies, one used human subjects. Comparisons were made to both Kojic Dipalmitate and Kojic Acid.

- *in vitro study - biochemical efficacy*
An in vitro assay was used to demonstrate the efficacy of TEGO® Cosmo C 250 in the suppression of tyrosinase activity. In this study it was found that 1.5% TEGO® Cosmo C 250 would suppress tyrosinase activity by 30%.

- *in vitro study – cellular efficacy*

The depigmentation effect of TEGO® Cosmo C 250 at the cellular level was tested in an in vitro model system.

This study was performed in the MelanoDerm™ model by the independent institute Hill-Top (UK). Cells used in the procedure were of Asian origin. A pre-screen cytotoxicity study was conducted using the MTT assay in the EpiDerm™ model.

TEGO® Cosmo C 250, Kojic Dipalmitate as a positive control and the vehicle (water) as a negative control were applied (25 mg/ cm²) every 48 hours over a period of 21 days to the MelanoDerm™ in vitro skin. A quantitative melanin assay was then performed on day 17 and 21. (fig. 1)

The efficacy of TEGO® Cosmo C 250 was compared to Kojic Dipalmitate as a positive control.

The data demonstrate that

TEGO® Cosmo C 250 is as effective as Kojic Dipalmitate in the shorter term and even more effective with extended use.



Fig. 1: Quantitative melanin assay of MelanoDerm™ in vitro skin model

- *Human evaluation study*

The screening study was performed by an independent institute (Sequani Consumer, UK).

Four volunteers with „type3“-skin (brownish skin with spots) applied a placebo cream and formulations containing 0.1% TEGO® Cosmo C 250, and 1.0 % Kojic Acid as a positive standard, respectively, over a period of four weeks to their arms.

At the beginning of the study and after 4 weeks the skin colour was evaluated by chromametry.

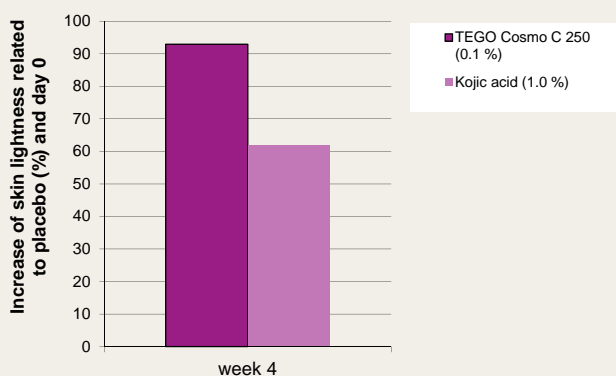


Fig.2: Brightness relative to placebo

In Fig. 2 the brightness relative to the placebo formulation is shown. The graphic indicates that TEGO® Cosmo C 250 shows good effects in skin brightening properties.

All studies including details of the methods are available on request.

Packaging

240 kg pallet (24 x 10 kg boxes)

Suggested use concentration

0.1 – 1.5% TEGO® Cosmo C 250

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 Cream with brightening effect MM 13/2		
Phase A		
TEGO® Alkanol 18 (Stearyl Alcohol)		1.0%
TEGIN® 4100 (Glyceryl Stearate)		2.5%
TEGOSOFT® CT (Caprylic/Capric Triglyceride)		6.5%
TEGOSOFT® liquid (Cetearyl Ethylhexanoate)		6.0%
TEGOSOFT® DC (Decyl Cocoate)		5.0%
Avocado oil		3.0%
Phase B		
TEGO® Care CG 90 (Cetearyl Glucoside)		1.0%
Glycerol		3.0%
Water		ad 100%
Phase C		
TEGO® Carbomer 134 (Carbomer)		0.2%
Mineral oil		0.8%
Phase D		
TEGO® Cosmo C 250 (10% in water)		10.0%
Sodium Hydroxide (10% in water)		0.5%
Preservative, Parfum		q.s.
Preparation:		
<ol style="list-style-type: none"> Heat phase A and B separately to approx. 80 °C. Add phase A to phase B with stirring.¹⁾ Homogenize. Cool with gentle stirring to approx. 60 °C and add phase C. Homogenize for a short time. Cool with gentle stirring and add phase D below 40 °C. Adjust pH with sodium hydroxide to 6.5–7.0. 		
¹⁾ Important: If phase A has to be charged into the vessel first, phase B must be added without stirring .		

Skin Brightening Cream F 52/01–3		
Phase A		
ABIL® Care 85 (Bis-PEG/PPG-16/16 PEG/PPG-16/16 Dimethicone; Caprylic/Capric Triglycerides)		1.5%
TEGINACID® C (Ceteareth-25)		0.5%
TEGIN® M (Glyceryl Stearate)		2.0%
TEGO® Alkanol 1618 (Cetearyl Alcohol)		6.0%
Cyclomethicone		5.0%
Phase B		
TEGO® Cosmo C 250		0.5%
Glycerol		3.0%
Water		ad 100%
Phase C		
TEGO® Carbomer 134 (Carbomer)		0.15%
TEGOSOFT® OP (Ethylhexyl Palmitate)		0.6%
Phase D		
Sodium Hydroxide (10% in water)		q.s.
Preservative, Parfum		q.s.
Preparation:		
<ol style="list-style-type: none"> Heat phase A and B separately to approx. 75 °C. Add phase A to phase B with stirring.¹⁾ Homogenize. Cool with gentle stirring to approx. 60 °C and add phase C. Homogenize for a short time. 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 .		

Skin Protecting Lotion with brightening effect (Cold Processing) MM 7/2	
Phase A	
ABIL® Care 85 (Bis-PEG/PPG-16/16 PEG/PPG-16/16 Dimethicone; Caprylic/Capric Triglycerides)	2.0%
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	3.0%
TEGOSOFT® DC (Decyl Cocoate)	2.0%
TEGOSOFT® P (Isopropyl Palmitate)	0.4%
Preservative	q.s.
Phase B	
TEGO® SMO 80 V (Polysorbate 80)	0.2%
TEGO® Cosmo C 250	1.0%
Water	ad 100%
Phase C	
TEGO® Carbomer 140 (Carbomer)	0.15%
TEGO® Carbomer 141 (Carbomer)	0.15%
Xanthan Gum (Keltrol T / Lubrizol)	0.1%
TEGOSOFT® P (Isopropyl Palmitate)	1.6%
Phase D	
Sodium Hydroxide (10% in water)	to pH ~7
Preparation:	
<ol style="list-style-type: none"> 1. Add phase B to phase A without stirring. 2. Homogenize (2 minutes, UltraTurrax). 3. Add phase C and homogenize for a short time. 4. Add phase D to adjust pH. 	

Especially concerning Active Ingredients

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