

TEGO® Carbomer 341 ER

Emulsion stabilizer, viscosity enhancer for aqueous solutions with high electrolyte tolerance

Intended use

Rheological additive

Stabilizer

Benefits at a glance

- Thickener for mild (low active) personal cleansing formulations
- Stabilizer for cosmetic emulsions and gels
- Benzene-free acrylic acid polymer

INCI (PCPC name)

Acrylates / C10–30 Alkyl Acrylate Crosspolymer

Chemical and physical properties

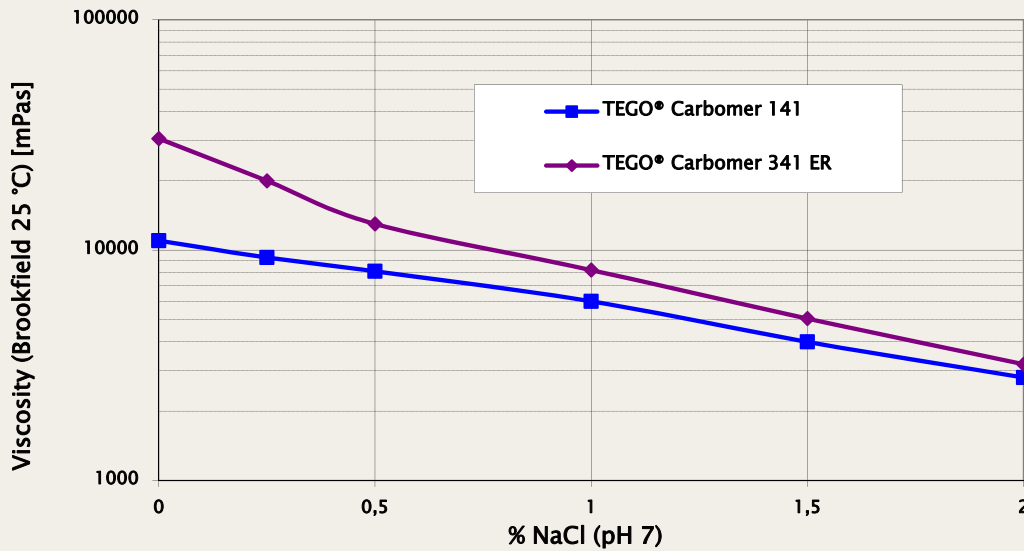
Appearance	white powder
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Application

- TEGO® Carbomer 341 ER is an acrylic acid polymer. N-Hexane is used as solvent in the polymerisation step.
- The electrolyte compatibility of TEGO® Carbomer 341 ER is high. A comparison with TEGO® Carbomer 141 (INCI: Carbomer) is given in Fig. 1. The graph shows the viscosity of aqueous solutions of 1% carbomer at pH 7 with variation of NaCl level.
- TEGO® Carbomer 341 ER is suitable for thickening of personal cleansing formulations with low level of surfactants (face lotions, skin tonics).

- TEGO® Carbomer 341 ER provides a yield value in personal cleansing products. This effect stabilises dispersed particles, like abrasives or mica.
- TEGO® Carbomer 341 ER is suitable for the preparation and stabilization of creams, lotions and suspensions.
- TEGO® Carbomer 341 ER is suitable for the preparation of low viscosity formulations, especially for O/W lotions.
- TEGO® Carbomer 341 ER can be used over a wide pH range. See Fig. 2 for pH response of various TEGO® Carbomer types.

Fig.1: Viscosity of 1% Carbomer solution.



Preparation

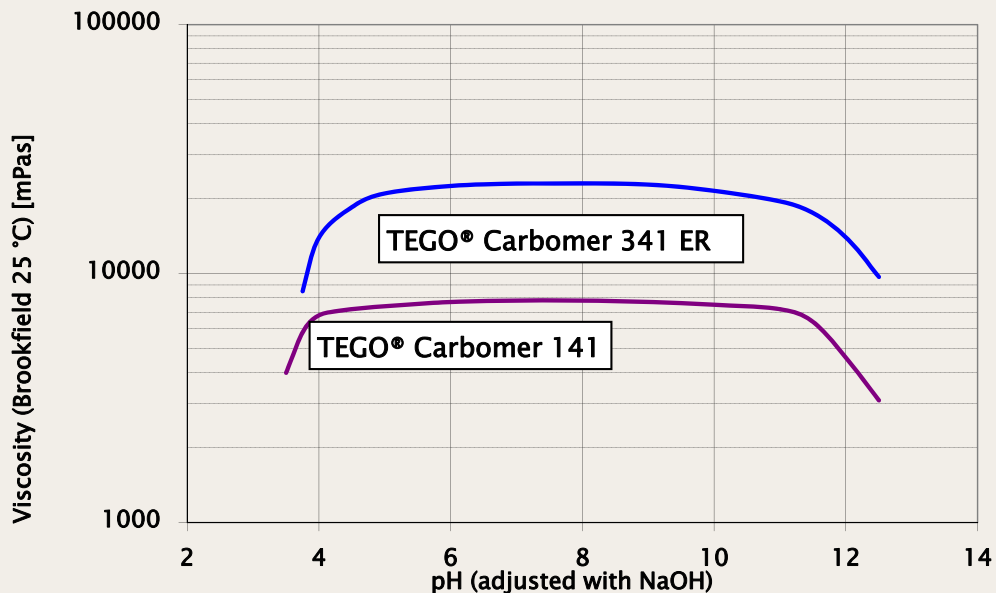
Add TEGO® Carbomer 341 ER early in the formulation to allow it to thoroughly wet out and disperse. Use propeller stirrer.

Dissolver or rotor-stator-homogeniser may be used as well. Intensive shear may lead to a viscosity reduction of the final product and should be avoided.

Neutralise near the end of the process so that all of the ingredients can mix well before the viscosity is increased. For neutralisation use triethanolamine, tetrahydroxypropyl ethylenediamine, sodium hydroxide or other inorganic bases.

TEGO® Carbomer products can also be dispersed directly into mineral oil or ester oils just before manufacturing.

Fig. 2 Viscosity of 0.5% carbomer solution



Recommended usage concentration

0.05 – 1.0% TEGO® Carbomer 341 ER

Packaging

270 kg pallet (18 x 15 kg box)

Storage

TEGO® Carbomer products are hygroscopic. The material should be stored dry and in the dark. Open boxes should be used immediately.

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

Moisturizing Body Wash VK 16/1	
Phase A	
Water	18.5%
TEGO® Carbomer 341 ER	0.3%
Sodium Hydroxide (10% in water)	0.3%
Phase B	
Sodium Laureth Sulfate (28%)	38.0%
TEGOSOFT® PC 31 (Polyglyceryl-3 Caprate)	0.3%
REWOTERIC® AM C (Sodium Cocoamphoacetate)	25.0%
REWOPOL® SB CS 50 B (Disodium PEG-5 Laurylcitrate Sulfosuccinate; Sodium Laureth Sulfate)	4.0%
ANTIL® HS 60 (Cocamidopropyl Betaine; Glyceryl Laurate)	2.0%
Glycerin	3.0%
Phase C	
Myristic Acid	5.3%
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	1.8%
Sunflower Oil (Helianthus Annuus)	1.8%
Perfume, Preservative	q.s.
Citric or Lactic acid	ad pH 6
Preparation: Disperse TEGO® Carbomer 341 ER in warm water (30 °C). Mix for 30 min. Neutralize with Sodium Hydroxide. Prepare phases B and C separately. Add phase A to B while stirring. Heat phases A/B and C to 65 °C separately and mix C into A/B. Cool down with gentle stirring. Adjust pH to about 6.	

Cleansing Gel with Abrasive SG 883/3-1	
Ingredients:	
Water	65.25%
TEGO® Carbomer 341 ER	1.6%
Sodium Laureth Sulfate (28%)	21.4%
TEGO® Betain F 50 (Cocamidopropyl Betaine)	5.3%
Polyethylene*	5.0%
Sodium Hydroxide (25% in water)	0.7%
Perfume, Preservative	q.s.
* Lupolen 1800 SP 15 (BASF)	
Preparation:	
Dissolve TEGO® Carbomer 341 ER in water. Add further ingredients in the given order.	

W₁/O/W₂ Multiple Emulsion Ma 100/01-2	
Phase O	
ABIL® EM 90 (Cetyl PEG/PPG-10/1 Dimethicone)	1.5%
Mineral Oil (30 mPas)	11.0%
Phase W₁	
Water	32.25%
Glycerin	2.0%
Sodium Chloride	0.25%
Panthenol	3.0%
Preservative	q.s.
Phase W₂	
TEGO® Betain F (Cocamidopropyl Betaine)	0.6%
Water	48.9%
TEGO® Carbomer 341 ER	0.1%
Sodium Hydroxide (10%)	0.4%
Perfume, Preservative	q.s.
Preparation:	
1. W ₁ O Emulsion: Stir W ₁ into O, homogenise.	
2. W ₂ -solution: Dilute TEGO® Betain F in water, disperse TEGO® Carbomer 341 ER and neutralise with Sodium Hydroxide to about pH 6.5.	
3. Mix W ₁ /O with W ₂ , stir 2 to 5 minutes.	

Mild Facial Cleansing Gel	
SG883/1-1	
Phase A	
Sodium Laureth Sulfate (28%)	4.3%
Perfume	0.2%
TEGOSOFT® GC (PEG-7 Glyceryl Cocoate)	0.5%
TEGO® Betain 810 (Capryl/Capramidopropyl Betaine)	3.2%
Lactil (Sodium Lactate; Sodium PCA; Glycine; Fructose; Urea; Niacinamide; Inositol; Sodium Benzoate; Lactic Acid)	1.0%
Glycerin	30.0%
Phase B	
TEGO® Carbomer 341 ER	1.08%
Water	59.22%
Phase C	
Sodium Hydroxide (25% in water)	0.7%
Preservative	q.s.
Preparation:	
Mix the ingredients of phase A in the given order. Dissolve TEGO® Carbomer 341 ER in water. Stir phase B into phase A homogeneously and then adjust the pH value with Sodium Hydroxide to approximately 6. Add further ingredients.	

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