

TEGO® Carbomer 140 G TEGO® Carbomer 141 G

Convenient granulated viscosity adjusters and builders, emulsion stabilizers

- Granulated Carbomers with numerous advantages: lower dusting, easier to process, higher bulk density
- First Carbomers for cosmetic application based on : n-Heptane and Ethyl acetate (class 3 solvents according to Pharmacopoe's) with lower toxic potential
- Especially suitable for cosmetic and pharmaceutical emulsions or gels

Personal Care

INCI name (CTFA name)

Carbomer

TEGO® Carbomer 140 G and 141 G correspond to the quality requirements according to Pharmacopoe Européenne.

| Chemical and physical properties (not part of the specification) | TEGO® Carbomer 140 G | TEGO® Carbomer 141 G |
|--|----------------------|----------------------|
| Appearance | granules | granules |
| Viscosity, 0.5%, neutralized | 40,000 – 60,000 mPas | 5,400 – 11,400 mPas |
| Electrolyte tolerance | low | medium |
| Easy dispersibility | ✓ | ✓ |
| Emulsion stabilization | | ✓ |

Properties

- excellent viscosity adjuster, viscosity builder and emulsion stabilizer
- first Carbomers on the market based on class 3 solvent according to Pharmacopoe's (US and European; solvents with low toxic potential to man, no health-based exposure limit is needed):
n-Heptane and Ethyl acetate are used as solvents in the polymerization step (max. 0.5 % residual content)
- soluble in water and alcohol
- can be used over a wide pH range

As granulated quality, TEGO® Carbomer 140 G and 141 G offer numerous advantages:

- Handling advantages:
 - Low dusting
 - High flowability
 - Bulk density 3.5 times higher than powder: less shipping volume
- Performance advantages:
 - Same performance as powder products
 - Easy dispersion
 - easier handling of the material (no lumps formation during dosage)

Countertypes:

| | Countertype |
|----------------------|---------------------------|
| TEGO® Carbomer 140 G | Carbopol 980/990 (Noveon) |
| TEGO® Carbomer 141 G | Carbopol 981 (Noveon) |

Application

| | Application | TEGO® Carbomer 140 G | TEGO® Carbomer 141 G |
|-----------|--------------------|----------------------|----------------------|
| rinse-off | Clear gels | ✓✓ | |
| | Surfactant systems | ✓ | ✓ |
| leave-on | Lotions | ✓ | ✓✓ |
| | Creams | ✓ | |
| | Sprays | | ✓ |

The electrolyte compatibility of TEGO® Carbomer 141 G is relatively high.

Preparation

TEGO® Carbomer 140 G and 141 G are very fast dispersible in water without formation of lumps. Add TEGO® Carbomer 140 G or 141 G into the Vortex of the agitating liquid. Use dissolver or propeller stirrer or rotor-stator-homogenizer. Intensive shear may lead to a viscosity reduction of the final product and should be avoided. Neutralize with triethanolamine, tetrahydropropylethylenediamine, sodium hydroxide or other inorganic base.

Leave-on applications:

- It is in general recommended to use TEGO® Carbomer 140 G and 141 G for hot processed emulsions.
- TEGO® Carbomer 140 G and 141 G have to be dissolved completely in the hot water phase. It is therefore suggested to dissolve the granules of carbomer under stirring at 70 – 80 °C in the water phase.
- Alternatively, TEGO® Carbomer 140 G and 141 G can be dispersed in the oil phase. Subsequently the oil phase should be heated to 70 – 80 °C.
- Combine oil and water phase and homogenize.
- Avoid prolonged high shear mixing (may lead to a viscosity reduction of the final product).
- Neutralization is typically done at temperatures below 40 °C.
- In case of cold processed O/W lotions and creams the use of TEGO® Carbomer 140 and TEGO® Carbomer 141 (powder version) is preferred.

Recommended usage concentration

0.05 – 1.00 % TEGO® Carbomer 140 G / 141 G

Packaging

480 kg CP3 pallet (24 x 20 kg boxes)

Storage

TEGO® Carbomer 140 G and 141 G are hygroscopic. The material should be stored dry and in the dark. Open bags should be used immediately or sealed properly.

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.

Guide Line Formulations

| Conditioning hair gel UW 49/1 | |
|---|--------|
| Phase A | |
| PEG-20 Glyceryl Laurate | 3.0 % |
| Perfume | 0.5 % |
| ABIL® B 88183 (PEG/PPG-20/6 Dimethicone) | 2.0 % |
| Phase B | |
| TEGO® Carbomer 140 G | 1.5 % |
| Water | 90.8 % |
| Phase C | |
| NaOH, 25% | 2.2 % |
| Preservatives | q.s. |
| Preparation: Mix phases A and B separately in the given order until the solutions are homogeneous. Add B to A. After adding the TEGO® Carbomer 140 G solution a precipitate appears, which disappears after neutralizing with NaOH. This hair gel is very susceptible to microbial contamination, it must be carefully preserved. | |

"Hair Repair" leave-in Conditioner UW 49/2

Phase A

| | |
|---|--------|
| TEGINACID® C (Cetareth-25) | 4.0 % |
| ABIL® OSW 5 (Cyclopentasiloxane; Dimethiconol) | 20.0 % |
| ABIL® Soft AF 100 (Methoxy PEG/PPG-7/3 Aminopropyl Dimethicone) | 1.0 % |
| TEGO® Alkanol L4 (Laureth-4) | 0.5 % |

Phase B

| | |
|----------------------|--------|
| TEGO® Carbomer 140 G | 0.5 % |
| Water | 69.0 % |
| Propylene Glycol | 5.0 % |

Phase Z

| | |
|-----------------------|-----------|
| NaOH | ad pH 5-6 |
| Preservative, Perfume | q.s. |

Preparation:

Dissolve the TEGO® Carbomer 140 G in the water. Heat phases A and B separately to approx 65 °C. Combine both phases and homogenize. Cool down while stirring. Add perfume below 45 °C. Adjust the pH value with NaOH to 5-6.

| Humectant facial cleansing gel UW 49/3 | |
|--|---------|
| Phase A | |
| Sodium Laureth Sulfate, 28% | 4.30 % |
| Perfume | 0.20 % |
| TEGOSOFT® GC (PEG-7 Glyceryl Cocoate) | 0.50 % |
| Glycerin | 30.00 % |
| LACTIL® (Sodium Benzoate; Sodium PCA; Glycine; Fructose; Urea; Niacinamide; Inositol; Sodium Benzoate; Lactic Acid) | 1.00 % |
| TEGO® Betain 810 (Capryl/Capramidopropyl Betaine) | 3.20 % |
| Phase B | |
| Xanthan Gum (Keltrol F, Lubrizol) | 0.10 % |
| TEGO® Carbomer 140 G | 1.08 % |
| Water | 54.92 % |
| Phase C | |
| Sodium Hydroxide (10 % in water) | 4.70 % |
| Preservative | q.s. |
| Processing | |
| Phase A: Mix the ingredients in the given order. | |
| Phase B: Dissolve TEGO® Carbomer 140 G and the Xanthan Gum in the water. | |
| Add Phase B to A homogeneously and then adjust the pH value with NaOH. | |

| O/W Moisturizing Soft Cream FU 03/10-6 | |
|---|---------|
| Phase A | |
| AXOL® C 62 Pellets (Glyceryl Stearate Citrate) | 1.50 % |
| TEGO® Alkanol 1618 (Cetearyl Alcohol) | 1.00 % |
| TEGOSOFT® CT (Caprylic/Capric Triglyceride) | 10.30 % |
| TEGOSOFT® MM (Myristyl Myristate) | 4.00 % |
| Tocopheryl Acetate | 1.00 % |
| Phase B | |
| Water | 74.00 % |
| Glycerin | 5.00 % |
| TEGO® Carbomer 140 G | 0.20 % |
| Phase C | |
| Sodium Hydroxide (10 % in water) | q.s. |
| Phase D | |
| Alcohol | 3.00 % |
| Phase Z | |
| Preservative, Perfume | q. s. |
| Preparation: | |
| 1. Dissolve TEGO® Carbomer 140 G in the water phase at 70 – 75 °C. | |
| 2. Heat phase A 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 and D below 40 °C. | |
| ¹⁾ Important: If phase A has to be charged into the vessel first, phase B must be added without stirring . | |

| O/W Caring Body Lotion BR 7/10-3 | |
|--|---------|
| Phase A | |
| TEGIN® 4100 Pellets (Glyceryl Stearate) | 0.50 % |
| Stearic Acid | 0.50 % |
| TEGOSOFT® OP (Ethylhexyl Palmitate) | 5.00 % |
| TEGOSOFT® P (Isopropyl Palmitate) | 6.00 % |
| TEGOSOFT® DC (Decyl Cocoate) | 3.00 % |
| TEGOSOFT® CR (Cetyl Ricinoleate) | 2.00 % |
| Phase B | |
| Water | 74.30 % |
| TEGO® Care CG 90 (Cetearyl Glucoside) | 1.00 % |
| TEGO® Carbomer 141 G | 0.20 % |
| Glycerin | 2.00 % |
| Panthenol | 0.50 % |
| Phase C | |
| Sodium Hydroxide (10 % in water) | q.s. |
| Phase D | |
| Alcohol | 5.00 % |
| Phase Z | |
| Preservative, Perfume | q. s. |
| Preparation: | |
| <ol style="list-style-type: none"> 1. Combine ingredients of phase B and heat to approx. 80°C. Homogenize in order to dissolve the TEGO® Carbomer 141 G. 2. Heat phase A to approx. 80 °C. 3. Add phase A to phase B with stirring¹⁾. 4. Homogenize. 5. Cool with gentle stirring and add phase C and D below 40 °C. | |
| ¹⁾ Important: | |
| If phase A has to be charged into the vessel first, phase B must be added without stirring . | |

| O/W Skin Care Lotion SZ 11/10-1 | |
|---|---------|
| Phase A | |
| TEGO® Care PSC 3 (Polyglyceryl-3 Dicitrate/Stearate) | 2.00 % |
| TEGOSOFT® CT (Caprylic/Capric Triglyceride) | 6.50 % |
| TEGOSOFT® OP (Ethylhexyl Palmitate) | 7.30 % |
| TEGO® Carbomer 141 G | 0.20 % |
| Phase B | |
| Water | 81.00 % |
| Glycerin | 3.00 % |
| Phase C | |
| Sodium Hydroxide (10 % in water) | q.s. |
| Phase Z | |
| Preservative, Perfume | q. s. |
| Preparation: | |
| <ol style="list-style-type: none"> 1. Disperse TEGO® Carbomer 141 G in the oil phase at approx 80 °C. 2. Heat phase B to approx. 80 °C. 3. Add phase A to phase B with stirring¹⁾. 4. Homogenize. 5. Cool with gentle stirring and add phase C below 40 °C. | |
| ¹⁾ Important: | |
| If phase A has to be charged into the vessel first, phase B must be added without stirring . | |

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