Technical Information

symbio®muls GC MB

Natural & easy-to-use emulsifier blend

Intended use

O/W emulsifier

Benefits at a glance

- 100% naturally derived, PEG-free, anionic emulsifier
- Innovative ready-to-use emulsifier blend
- For emulsion viscosities from low viscous lotions to cream and butter
- Provides basic antimicrobial activity
- Neutral sensorial profile
- Tolerates processing at reduced temperatures

INCI (PCPC name)

Glyceryl Stearate Citrate; Cetearyl Alcohol; Glyceryl Caprylate

symbio®muls GC MB is CFDA registered.

Properties

It is offered as white to off-white pellets and has an HLB value of approx. 11.

Application characteristics

- **symbio®muls GC MB** is optimized for stabilizing emulsions without using additional co-emulsifiers or consistency enhancers.
- Use of gelling agents in the water phase is recommended.
- **symbio®muls GC MB** can be used for stabilizing emulsion viscosities from 5.000 to 70.000 mPas. The viscosity can be adjusted by the usage level of the emulsifier, by varying the oil phase or by using additional consistency enhancers or gelling agents.
- It provides a neutral skin feel which can be flexibly adjusted according to the specific formulation needs.
- The emulsifier can tolerate lower processing temperatures down to 50°C. In this case, longer homogenization time is required to ensure proper oil droplet size.
- **symbio®muls GC MB** is compatible with many kinds of emollients and oils. It can be used for oil phases from 15 – 40%.
- Emulsions over a pH range of 5.0 – 7.5 can be formulated.
- The emulsifier is compatible with typical amounts of ethanol and electrolytes. It can also be used in combination with organic or physical UV filters, pigments and active ingredients.
- It is incompatible with cationic substances.

Storage information

- Store dry and tightly closed.

Suggested usage concentration

3.0 – 6.0% as main-emulsifier

Preparation

symbio®muls GC MB can be used for the preparation of low to high viscous emulsions. The processing temperature can be between 50 and 85 °C. If processing temperatures between 50 and 70 °C are used, longer homogenization time is required.

We recommend to add the emulsifier into the oil phase. Furthermore, we recommend adding 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, we recommend to combine the hot water and oil phase without stirring (to avoid the formation of a water-in-oil emulsion) and to start afterwards with the homogenization.

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.

The viscosity of the liquid emulsion increases in dependence of the amounts of consistency enhancers, as these components solidify within the first 2 – 3 days after manufacturing.

Perfume, temperature-sensitive substances or electrolyte-containing ingredients are preferably added after formation of the pre-emulsion and below 40 °C to the emulsion. 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 to 5.5. Neutralization of the emulsion is done at approx. 35 °C. 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 reorganization process of the stabilizing structures. Thus, it is recommended to determine the final viscosity of a formula not directly after preparation.

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport of chemicals
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicological and ecotoxicological effects

is given in our safety data sheets.

Guideline formulations

Natural Sebum Control Cream (D056-11.5-1017)

- **Sebum control with dermosoft® decalacat sebum MB**
- **Mattifying effect due to the eco-friendly alternative to microplastics in leave-on applications – TEGO Feel C 10**

Phase A	
Water	79.30%
Glycerin	2.00%
dermofeel® PA-3 (Sodium Phytate; Aqua; Alcohol)	0.10%
Phase A1	
Xanthan Gum (Keltrol CG-SFT, CP Kelco)[1]	0.30%
Phase B	
TEGO® Feel C 10 (Cellulose)	1.00%
symbio®muls GC MB	6.00%
dermofeel®sensolv MB (Isoamyl Laurate)	6.00%
dermosoft® decalact sebum MB (Polyglyceryl-10 Laurate; Sodium Caproyl/Lauroyl Lactylate; Glycerin, Serenoa Serrulata Fruit Extract; Juniperus Communis Fruit Extract)	2.00%
dermosoft® GMCY MB (Glyceryl Caprylate)	0.20%
dermofeel® Toco 70 non GMO (Tocopherol; Helianthus Annuus Seed Oil)	0.10%
Phase C	
dermosoft® 1388 eco (Glycerin; Aqua; Sodium Levulinate; Sodium Anisate)	3.00%
Parfum[1]	q.s.

Preparation

1. Heat phase A and phase B separately to 78 °C. Disperse phase A1 in phase A.
2. Dissolve B1 in phase B prior to emulsification.
3. Emulsify phase B/B1 into phase A/A1. Homogenize for 1 – 2 min. using an Ultra-Turrax.
4. Cool down to 35 °C under stirring and phase C. Adjust pH value, if necessary.

Remarks

Viscosity: 30 000 – 50 000 mPa*s (Brookfield (21 °C): TF; speed 10 rpm)
pH value: 5.0 – 5.5
Microbiological safety: challenge test passed
Natural content c_n (incl. water, ISO 16128): 81.6%
Natural origin content c_{no} (incl. water, ISO 16128): 100%

Natural Green Body Mask (L098-8.5-1218)

- Rich cream formulation
- Possible for DIY conept: add peeling particles as you like & create a scrub

Phase A	
Glycerin	4.50%
Water	57.40%
dermofeel® PA-3 (Sodium Phytate; Aqua; Alcohol)	0.10%
Phase A1	
Xanthan Gum (Xanthan FF, Jungbunzlauer)	0.60%
Phase B	
Squalane (Phytosqualan refined, Olive based, Henry Lamotte)	5.00%
Phytosphingosine	0.20%
Phase B1	
symbio®muls GC MB	8.00%
TEGIN® M Pellets MB (Glyceryl Stearate)	2.00%
Cera Alba	2.00%
Camellia Sinensis Leaf Extract	2.00%
Butyrospermum Parkii (Shea) Butter	2.00%
Prunus Amygdalus (Sweet Almond) Dulcis Oil	5.00%
Persea Gratissima (Avocado) Oil	3.00%
Prunus Armeniaca (Apricot) Kernel Oil	2.00%
dermofeel® Toco 70 non GMO (Tocopherol; Helianthus Annuus Seed Oil)	0.20%
dermofeel® TocoSkin (Tocopherol; Helianthus Annuus Seed Oil)	1.00%
Phase C	
TEGO® Turmerone (Curcuma Longa Root Extract)	0.50%
Helianthus Annuus Hybrid Oil, Cucurbita Pepo Seed Extract, Rosmarinus Officinalis Leaf Extract (Pumpkin seed organic extract P-0025487, Botanica)	0.50%
dermosoft® 1388 eco (Glycerin; Aqua; Sodium Levulinate; Sodium Anisate)	3.50%
TEGO® Stemlastin (Aqua; Cyanidium Caldarium Extract; Sodium Benzoate; Potassium Sorbate)	0.50%

Preparation

1. Mix phase A and heat up to 78 °C. Disperse phase A1.
2. Mix phase B and heat up to 90 °C until a clear solution is obtained.
3. Add components of phase B1 to B and heat up to 78 °C.
4. Add phase B/B1 into phase A/A1 while stirring. Homogenize for 1 – 2 min using an Ultra Turrax.
5. Start to cool down under medium stirring. Add phase C below 40 °C. Adjust pH value to 5.0 to 5.5, if necessary.

Remarks

Viscosity: 150 000 – 200 000 mPa*s (Brookfield (21 °C): TD94; speed 5 rpm/helip)
pH value: 5.0 – 5.5
Microbiological safety: challenge test passed
Natural content c_n (incl. water, ISO 16128): 77.4%
Natural origin content c_{no} (incl. water, ISO 16128): 100%

Natural Orange Lime Body Butter (L014-37.7B-0618)

- Soft body butter with velvet skin feel supported by rich essential oils
- Long-lasting moisturization activity

Phase A	
Water	58.00%
Glycerin	3.00%
dermofeel® PA-3 (Sodium Phytate; Aqua; Alcohol)	0.10%
dermosoft® 1388 eco (Glycerin; Aqua; Sodium Levulinate; Sodium Anisate)	3.50%
Phase A1	
Xanthan Gum (Keltrol CG-RD, CP Kelco)	0.40%
Phase B	
symbio®muls GC MB	6.00%
TEGO® Alkanol 1618 (Cetearyl Alcohol)	2.00%
Olus Oil (Softigen Pura, IOI Oelo)	3.00%
Cera Alba	2.00%
Pistacia Vera Seed Oil (Pistachio Nut Oil, refined, Henry Lamotte)	5.00%
dermofeel®sensolv MB (Isoamyl Laurate)	11.00%
Theobroma Cacao Seed Butter	5.00%
Hippophae Rhamnoides (Sea Buckthorn) Oil	0.20%
dermofeel® Toco 70 non GMO (Tocopherol; Helianthus Annuus Seed Oil)	0.50%
Phase C	
Parfum[1]	0.30%

Preparation

1. Mix phase A and phase B separately and heat up to78 °C. Disperse phase A1 in phase A until completely dissolved.
2. Emulsify phase B into phase A/A1 while stirring. Homogenize for approx. 1 min using an Ultra Turrax.
3. Start to cool down under medium stirring. Add phase C below 30 °C.
4. Adjust pH value if necessary.

Remarks

Viscosity: 80 000 – 100 000 mPa*s (Brookfield TF, speed 10 rpm)
pH value: 5.0 – 5.5
Microbiological safety: challenge test passed
Natural content c_n (incl. water, ISO 16128): 67.1%
Natural origin content c_{no} (incl. water, ISO 16128): 100%

[1]Not considered for calculation of c_n and c_{no}.

Natural Fitness Foot Cream (L099-4.1-0218)

- Moisturizing and rich cream for feet with rough and chapped skin
- Prevention of athlete's foot and unpleasant odor
- dermosoft® decalact MB and dermofeel® TEC eco as proven actives

Phase A	
Water	68.70%
dermofeel® PA-3 (Sodium Phytate; Aqua; Alcohol)	0.10%
Glycerin	3.00%
dermosoft® 688 eco (P-Anisic Acid)	0.20%
Phase A1	
Xanthan Gum[1]	0.30%
Galactoarabinan (LaraCare A200, Lonza)[1]	0.20%
Phase B	
symbio®muls GC MB	5.00%
dermosoft® decalact MB (Sodium Caproyl/Lauroyl Lactylate)	1.00%
dermofeel® Toco 70 non GMO (Tocopherol; Helianthus Annuus Seed Oil)	0.20%
TEGO® Alkanol 1618 (Cetearyl Alcohol)	3.00%
Olea Europaea (Olive) Fruit Oil	3.00%
Cera Alba	1.00%
Theobroma Grandiflorum Seed Butter; Tocopherol; Helianthus Annuus Seed Oil (Cupuacu Butter, Berarca)	2.00%
Helianthus Annuus (Sunflower) Seed Oil	2.00%
dermofeel®sensolv MB (Isoamyl Laurate)	3.00%
dermofeel® TEC eco (Triethyl Citrate)	3.00%
Phase B1	
Menthyl Lactate (Frescolat ML nat, Symrise)[1]	0.30%
Phase C	
Herbapurifine® (Aqua; Butylene Glycol; Lecithin; Salix Alba Bark Extract; Bakuchiol; Magnolia Grandiflora Leaf Extract) [1]	4.00%

Preparation

1. Heat phase A and phase B separately and heat up to78 °C. Disperse phase A1 in phase A.
2. Dissolve B1 in phase B prior to emulsification.
3. Emulsify phase B/B1 into phase A/A1. Homogenize for 1-2 min using an Ultra-Turrax.
4. Cool down to 35 °C under stirring and add phase C. Adjust pH-value if necessary.

Remarks

Viscosity: 30 000 – 50 000 mPa*s (Brookfield TF, speed 10 rpm)
pH value: 5.0 – 5.5
Microbiological safety: challenge test passed
Natural content c_n (incl. water, ISO 16128): 80.8%
Natural origin content c_{no} (incl. water, ISO 16128): 100%

[1]Not considered for calculation of c_n and c_{no}.

A 04/19

Evonik Nutrition & Care GmbH
Goldschmidtstraße 100
45127 Essen, Germany
Phone +49 201 173 2546
Fax +49 201 173 712546
personal-care@evonik.com
www.evonik.com/personal-care

EVONIK
POWER TO CREATE