

Technical Information

symbio®prot V MB

Natural O/W emulsifier for sprays and lotions with light skin feel

Intended use

O/W emulsifier

Benefits at a glance

- 100% naturally derived, PEG-free emulsifier
- Innovative plant-based protein technology
- For fluid and sprayable emulsions
- Provides a light and silky sensorial profile
- Low whitening effect of natural cosmetics
- Flexible processing

INCI (PCPC name)

Hydrolyzed Vegetable Protein; Sodium Citrate;
Magnesium Stearate; Xanthan Gum

symbio®prot V MB is CFDA registered.

Properties

It is an off-white to yellowish powder and has an HLB value of approx. 13. symbio®prot V MB is made from hydrolyzed vegetable protein from pea (*Pisum sativum*). The protein is sourced in the European Union.

Application characteristics

- symbio®prot V MB is optimized for stabilizing low to medium viscous emulsions.
- It can be used for different application forms such as after sun, men care, body sprays, face serums or natural cosmetics.
- symbio®prot V MB provides a refreshing light and silky skin feel.
- The emulsifier forms a gel-like network structure which is different to the lamellar structure formed by classical emulsifiers. This results in a light, silky and non-caring skin feel.
- It provides high skin friendliness (*in vivo* proven).
- The emulsion viscosity can be adjusted by the dosage of symbio®prot V MB. Higher usage levels lead to higher viscosities due to the Xanthan Gum which is part of the composition.

- symbio®prot V MB typically does not require additional polymeric thickeners.
- symbio®prot V MB is compatible with many kinds of emollients and oils. It can be used for oil phases from 10 – 30%. The ideal oil phase composition is based on vegetable oils or oils of medium polarity. For very polar or unipolar oil phases addition of consistency enhancers (e.g. 0.5 – 2.0% TEGIN® M Pellets MB or TEGO® Alkanol 1618) is recommended.
- Emulsions over a pH range of 4.5 – 7.0 can be formulated.
- The emulsifier is compatible with up to 10% of ethanol and typical amounts of electrolytes. If higher amounts of ethanol or electrolytes have to be tolerated, combine symbio®prot V MB with emulsifiers such as TEGO® Care PBS 6 MB.
- It is incompatible with cationic substances and Zinc PCA.

Storage information

- The product might demix due to vibrations. Please remix prior to use.
- Store dry and tightly closed.

Suggested usage concentration

2.0 – 4.0% as main-emulsifier

Preparation

symbio®prot V MB can be used in cold- cold, hot- cold or hot-hot processes for the preparation of low to medium viscous emulsions. It can also be used for one-pot processes. It can be dispersed either in the water or in the oil phase.

Addition to the water phase:

Add symbio®prot V MB to the hot (up to 78°C) or cold water phase under stirring. Stir for 1–2 minutes until the product jellifies the water phase. Add the hot (up to 78°C) or cold oil phase and homogenize for 1–2 minutes. If hot processing was applied, cool down the emulsion while stirring. Finally adjust the pH with diluted acidic solution (up to 10% solution) slowly and while stirring.

Addition to the oil phase:

Add symbio®prot V MB to the hot (up to 78°C) or cold oil phase and disperse it by stirring. Note: the product will be dispersed, but not be dissolved in the hot or cold oil phase. Thus, it will settle at the bottom of the beaker without stirring. Add the hot (up to 78°C) or cold oil phase to the hot (up to 78°C) or cold water phase under stirring. Stir for 1–2 minutes until the product jellifies the water phase. Homogenize for 1–2 minutes. If hot processing was applied, cool down the emulsion while stirring. Finally adjust the pH with diluted acidic solution (up to 10% solution) slowly and while stirring.

Important manufacturing advice:

- Without adjustment, the pH of the final emulsion will be around 8
- For pH adjustment, it is important to avoid high punctual acid levels which lead to the denaturation of the protein derivatives. Thus, use diluted acidic solution for pH adjustment and add it slowly while stirring.
- For obtaining proper homogenization high shear forces are recommended. The use of a classical homogenizer (e.g. Ultra Turrax) will not damage the protein derivatives. Higher shear forces are recommended when applying cold processing

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 reorganisation 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

If you are interested in guideline formulations please visit our homepage <https://personal-care.evonik.com>.

B 09/19

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could be used.

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