Technical Information

ISOLAN<sup>®</sup> GO 33

# The natural choice emulsifier for W/O creams

#### **Intended use**

W/O Emulsifier

#### Benefits at a glance

- Low usage concentration of 2.5 4.0%
- Emulsifier for W/O creams with a brilliant appearance and pleasant application properties
- Formulations of W/O creams with and without paraffin oils
- Emulsions with good heat and freeze stability
- Emulsifier based on natural based raw materials

## **INCI (PCPC name)**

Polyglyceryl-3 Oleate

Chemical and physical properties (not part of specifications)		
Form	liquid	
Color	yellow	
HLB value	approx. 5	

## Application

- ISOLAN® GO 33 is a lipophilic oleic acid ester of a selected polyglycerol. The molecular structure of this emulsifier is similar to natural fats.
- ISOLAN® GO 33 belongs to the group of polyglycerol esters of edible fatty acids, a class of substances which is also used in the food industry.

- ISOLAN® GO 33 is distinguished by its light colour and low odour.
- It is especially suitable for W/O creams which are to contain mostly natural raw materials.
- The amount used, referred to the emulsion, is 2.5 4.0%.
- Depending on the formulation, it may be necessary to add consistency-providing or emulsion-stabilizing waxes. Amongst others, hydrogenated castor oil in combination with high-melting carbohydrate waxes or beeswax are suitable.
- The optimum range for the content of the oil phase is between 25 35%.
- Different esters of natural fatty acids such as decyl oleate, octyl stearate, hexyldecyl palmitate or caprylic/capric triglyceride may be used without restriction.
- Also vegetable oils may be emulsified to produce a stable cream, but their portion of the oil phase should not be more than the half.
- Paraffins generally have a positive influence on the stability of the emulsions. However, it is also possible to produce stable creams, which do not contain any paraffins.
- As stabilizing additives, 2 5% of glycerol and approx. 0.5% of magnesiumsulfate (heptahydrate) should be added to the water phase.
- Depending on the formulation, creams based on ISOLAN<sup>®</sup> GO 33 are stable in a temperature range from -10 °C/-25 °C up to +45 °C.

• The creams are very compatible with active ingredients, such as UV-filters, plant extracts, moisturizers etc.

## Preparation

A pre-requisite is the careful adjustment of the formulation (phase ratio, viscosity of the oil phase) and optimum emulsification. The particle size for creams which are stable over a long period of time is below 1 m. More coarsely dispersed emulsions tend to separate.

Thorough, but not too intensive homogenization is required. Extreme energy input frequently causes the formation of highly viscous, metastable secondary structures which break down on storage. Optimum manufacturing conditions correspond to the principles of normal production processes for

W/O emulsions. The water phase is incorporated slowly into the oil phase which contains the emulsifier while stirring intensively.

The coarsely dispersed pre-emulsion is then homogenized. The final homogenization should be performed below 30  $^{\circ}$ C in order to ensure that the waxes are largely recrystallized.

The temperature programme is variable. In addition to the traditional hot/hot procedure (both phases 80 - 90 °C) the hot/cold procedure can be used. The decisive criterion for production is the viscosity. Mechanical processing is discontinued when the viscosity is equal to that of the standard emulsion developed and tested in the laboratory.

## **Emulsifying machines**

Stirring equipment or planetary mixers with high sheering force are very suitable for the manufacture of creams and lotions on the laboratory and production scale, provided that they guarantee uniform work-up of the emulsion. Machines predominately used in the cosmetic industry, which are equipped with stirrer, stripper and rotor-stator homogenizer, fulfil all requirements for optimum emulsification. However, utilization of their maximum capacity may result in over-emulsification. High-pressure emulsifiers may cause problems because of the danger of over-emulsification and liberation of water due to cavitation.

## **Recommended usage concentration**

2.5 - 4.0%

## Packaging

760 kg pallet (4 x 190 kg)

## 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**

W/O Hand Cream F 86/96		
Phase A		
ISOLAN <sup>®</sup> GO 33	4.0%	
Hydrogenated Castor Oil	1.5%	
Beeswax	1.5%	
TEGOSOFT <sup>®</sup> OS	10.5%	
TEGOSOFT <sup>®</sup> liquid	10.5%	
ABIL° Wax 9801	2.0%	
Phase B		
Glycerin	2.5%	
Panthenol	0.5%	
Magnesium Sulfate Heptahydrate	0.5%	
Water	66.5%	
Perfume, Preservative	q.s.	

W/O Night Cream F 20/96		
Phase A		
ISOLAN <sup>®</sup> GO 33	4.0%	
Hydrogenated Castor Oil	1.5%	
Beeswax	1.5%	
TEGOSOFT <sup>®</sup> CT	11.5%	
Avocado Oil	11.5%	
Phase B		
Glycerin	2.5%	
Magnesium Sulfate Heptahydrate	0.5%	
Panthenol	0.5%	
Water	66.5%	
Perfume, Preservative	q.s.	

W/O Caring Cream F 87/96	
Phase A	
ISOLAN° GO 33	4.0%
Hydrogenated Castor Oil	1.5%
Beeswax	1.5%
TEGOSOFT <sup>®</sup> OS	6.5%
TEGOSOFT <sup>®</sup> CT	6.5%
Jojoba Oil	6.0%
Almond Oil	3.0%
Phase B	
Glycerin	3.0%
Magnesium Sulfate Heptahydrate	0.5%
Water	67.5%
Perfume, Preservative	q.s.

W/O Cream with Urea F 24/96		
Phase A		
ISOLAN <sup>®</sup> GO 33	4.0%	
Hydrogenated Castor Oil	1.5%	
Beeswax	1.5%	
TEGOSOFT <sup>®</sup> OS	11.5%	
TEGOSOFT <sup>®</sup> liquid	11.5%	
Phase B		
Glycerin	3.0%	
Urea	4.0%	
Panthenol	0.5%	
Magnesium Sulfate Heptahydrate	0.5%	
Water	62.0%	
Perfume, Preservative	q.s.	

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