Olivatis® 20

Applicative guidelines

Introduction

Olivatis® 20 is a liquid, O/W emulsifier designed for cold process applications. It generates stable emulsions but requires a correct applicative procedure. The aim of these guidelines is to help formulators to use Olivatis® 20 successfully.

Olivatis® 20 is compatible with all kinds of oil-soluble ingredients such as esters, triglycerides and silicones.

General emulsification procedure

1. Use with high-shear mixer

If a high-shear mixer is available, Olivatis® 20 can be mixed with oils and the achieved phase can be added to the water phase under high shear.

2. Use without high-shear mixer

Olivatis® 20 must be pre-dispersed in water before the addition of fats and the required amount of water is usually 5 times the amount of Olivatis® 20 (e.g. a formulation containing 2,5% of Olivatis® 20 should be dispersed in 15% of water). The dispersion can be slightly rheopectic (viscosity increases increasing the speed of stirrer) therefore speed must be reduced in case of thickening.

After the dispersion of Olivatis® 20, add fats and oils under stirring and make a primary emulsion.

Once the emulsion is homogenous, add the rest of water containing stabilizers, preservatives and other water-soluble ingredients.

MEDOLLA SPECIALITY CHEMICALS
di Federico Medolla

Via dei Tigli, 28/D
06083 Bastia Umbra (PG)
Italy

Tel. +39.075.8626826
info@medollaspecialitychem.com
www.medollaspecialitychem.com
www.olivatis.life

Required concentration

Usually, better results are achieved with a ratio of 1 part of **Olivatis® 20** with 2 parts of oil phase. The ratio may change depending on the nature of the oil used in the formulation.

Stabilizers

Fluid emulsions can be stabilized with ordinary thickening agents such as xanthan gum, hydroxypropyl guar, sclerotium gum, etc. Inorganic thickeners such as magnesium aluminum silicate are compatible and useful as stabilizers too. It is recommended to disperse gums into the water phase

The addition of slight amounts (0,5-1%) of Sorbitan Monoleate increase the emulsion stability. Long- chain fatty alcohols, such as Octyldodecanol, also increase the emulsion stability.

Incompatibilities

Large amounts of electrolytes (>1% of NaCl) can interfere with the emulsification while large amounts of glycols (> 5%, propylene glycol, butylene glycol, etc.) can affect emulsion stability.

The quaternary ammonium compounds are generally compatible. However, given the large number of available compounds and the difference in the chemical structure, compatibility must be assessed case by case.

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Formulation example with high-shear mixer

BODY MILK base formulation

Ingredients	%	Phase
Olivatis® 20	2,5	I
Octil Stearate	3,0	I
Dicaprylyl Ether	3,0	I
Tocopheryl Acetate	0,5	I
Phenoxyethanol, Ethylhexylglycerin	1,0	II
Glycerin	1,0	II
Xanthan Gum	0,2	II
Water	g.s. to 100,0	II

Procedure

- **Phase I**
  Mix all ingredients in a separate vessel.

- **Phase II**
  Disperse Xanthan Gum in the rest of water, add the preservative (Phenoxyethanol, Ethylexylglycerin) and Glycerin, stir until all ingredients are dissolved.

- Under high-shear mixer add phase I to phase II, homogenize for at least 30 minutes.

- **Results**
  White fluid milk
  pH 7,0

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FORMULATION EXAMPLE WITHOUT HIGH-SHEAR MIXER

BODY MILK BASE FORMULATION

INGREDIENTS	%	PHASE
Olivatis® 20	2,5	I
Octil Stearate	3,0	I
Dicaprylyl Ether	3,0	I
Tocopheryl Acetate	0,5	I
Phenoxyethanol, Ethylhexylglycerin	1,0	II
Glycerin	1,0	II
Xanthan Gum	0,2	II
Water for primary emulsion	15,0	I
Water	q.s. to 100,0	II

PROCEDURE

- **Phase I**
  Disperse Olivatis® 20 in water for primary emulsion, stir until it is completely dispersed.
  Separately, mix Octyl Stearate, Dicaprylyl Ether, Tocopheryl Acetate and add to the Olivatis® 20 emulsion, keep stirring

- **Phase II**
  Disperse Xanthan Gum in the rest of water, add the preservative (Phenoxyethanol, Ethylexylglycerin) and Glycerin, stir until all ingredients are dissolved.

- Mix phase I and phase II under stirring, check Ph.

- **Results**
  White fluid milk
  pH 7,0

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