

## Application Note

### /// Development of ointment formulation

#### PRODUCT

LR-2.ST laboratory reactor (Ident. no.: 0020013293)

T 25 digital LR disperser (Ident. no.: 0020008820)

CBC 5 control circulator (Ident. no.: 004167000)

#### INDUSTRY

Pharmaceutical / Cosmetics

#### OVERVIEW

The requirement was to process the ointment ingredients into a uniform paste.

Ointment is a homogeneous, viscous, semi-solid substance, usually a greasy, thick oil with high viscosity, intended for external use on skin, eyes and mucous membranes. It is often used as medicine, moisturizer or cosmetic.

It contains a variety of ingredients, generally composed of friction agents, moisturizers, thickeners, foaming agents, water and other additives (such as preservatives, colorants, flavors and fragrances, etc.). In the process of research and development, it involves mixing, dissolving, heating, cooling, homogenizing, emulsification, degassing and other multi-step processes. Each of these steps affects the quality of the final product.

#### SAMPLE MATERIAL

White soft paraffin, Lanolin, Hard paraffin,  
Sorbitan sesquioleate, Propylene glycol

#### EXPERIMENTAL SETUP / SETTINGS

Laboratory reactor	LR-2.ST + LR 2000.1 reactor vessel
Stirrer	LR 2000.10 anchor stirrer
Disperser	T 25 digital LR
Dispersing tool	S 25 KV – 25 G
Temperature control	CBC 5 control
Sample size	2 kg



## EXPERIMENT STEPS

1. Add white soft paraffin and lanolin to the reactor vessel, switch on the stirrer and stir until the components have completely dissolved at a temperature of 65 °C.
2. Once dissolved add hard paraffin and sorbitan sesquioleate and stir until evenly mixed.
3. Start the disperser to homogenize the sample at 5000 rpm for 10 minutes while the stirrer continues to stir.
4. The sample is then cooled to 45 °C with further stirring.
5. After the sample has reached 45 °C, add propylene glycol and continue stirring. Start the disperser to homogenize the sample at 5000 rpm for 10 minutes.
6. Cool down the sample to room temperature (25 °C) and discharge.

## RESULTS

The laboratory reactor was successful in producing the homogenous ointment with appealing texture.



## RECOMMENDATION

There is a possibility of foam forming during the dispersing process. It is therefore recommended to use the vacuum pump for degassing.

The disperser helps with deagglomeration during formulation. It ensures that the product is free of agglomerates, stable and requires a shorter mixing time.