

Factors to consider for the design and development of emulsion

[Science](#), [Chemistry](#)



ADMINISTRATION Academia-Research ORDER # 293930 FACTORS TO CONSIDER FOR THE DESIGN AND DEVELOPMENT OF EMULSION. EMULSION is the process of dispersing the mixture of two or more immiscible liquids

while EMULSIONS is the mixture of the immiscible liquids wherein the first liquid is

suspended to the second liquid. A very common example of this mixture is oil-in-water

or water-in-oil. It is very important to know the identity of the chemicals you are dealing

with when applying emulsion. Physically, the mixture of two immiscible liquids is very

visible to the eyes because of the phase interfaces of scattered light passing through the

emulsion. System of immiscible liquids are understood by integration of models at

different length scales.

The ultimate goal of emulsion is to know and understand the main factors of dispersion

of the mixture. STABILITY is one factor to consider because Emulsions are unstable and

thus do not form spontaneously. Energy input are needed to form emulsion.

To develop

emulsion is through shaking of the mixture, or stirring, or homogenizing and lastly, or by

spraying. Addition of surfactants can also stable the formed emulsion even if the mixture

is stored for a long time. Coalescence is another form wherein the small droplets recom-

to form bigger ones. Lastly, Emulsion will also take place under the influence of

buoyancy or centripetal force with the use of centrifuge.

Another factor to consider is DENSITY, wherein particles form clumps or creaming and

tends to concentrate towards the surface or bottom of the mixture depending on the

relative density of the two phases. While staying separated or coagulated, the particles

will form a layer of liquid.

Last factor to consider is VISCOSITY of the liquid. It will simply explained here, where

both the emulsifier and emulsifying particles will promote emulsion of the phases of the

liquid which both will not dissolve quickly, thus forming oil-in-water emulsions.

Emulsify the water so to distort color and this promotes the dispersion of oil droplets.

Another class of surfactants are detergents which will interact both to oil or

water and

Stabilizes the interface between oil or water droplets in suspension.

Colloidal stability is a factor in design of an emulsion polymerization process.

Polymer

dispersion is isolated and converted to solid form. Heat is applied to this process wherein

the water evaporates, and the polymer will be isolated. Dispersion are also designed to a

very high degree of stability. Colloidal property of particle size, viscosity are critical

importance to the performance of dispersion.

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Source / Source

1. Recent research developments in agricultural & food chemistry: (Vol. 3
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<https://assignbuster.com/factors-to-consider-for-the-design-and-development-of-emulsion/>

2. Whitby, G. S.; Katz, M. *Ind. Eng. Chem.*, (1933), 25, 1338