Question #61134, Chemistry / Physical Chemistry

Question:

What are emulsions? Give their types. How can these be distinguished?

Answer:

An emulsion is a mixture of two or more liquids that are normally immiscible (unmixable or unblendable). Emulsions are part of a more general class of two-phase systems of matter called colloids. Term *emulsion* should be used when both phases, dispersed and continuous, are liquids. Examples of emulsions include vinaigrettes, milk, mayonnaise, and some cutting fluids for metal working.

Two liquids can form different types of emulsions. As an example, oil and water can form, first, an oil-in-water emulsion, wherein the oil is the dispersed phase, and water is the dispersion medium. (Lipoproteins, as implemented by all complex living organisms, is one example of this.) Second, they can form a water-in-oil emulsion, wherein water is the dispersed phase and oil is the external phase. Multiple emulsions are also possible, including a "water-in-oil-in-water" emulsion and an "oil-in-water-in-oil" emulsion.

Cream: Oil-in-Water **Butter: Water-in-Oil**

Cream and butter are literally the same thing. To make butter, you simply mix cream until the emulsion reverses; that is, it transforms from a oil-in-water emulsion into a water-in-oil emulsion. But despite this being the only difference between cream and butter, the effect on taste and texture are significant.