



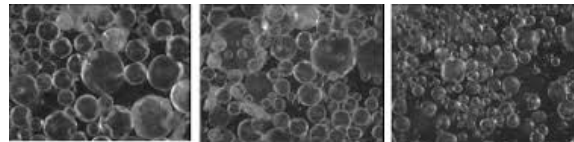
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Emulsification

- Define chemistry
- Process to create the right type of emulsion O/W vs W/O
- Determine particle size which delivers the consumer benefit & stable product



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



$Re=7500 - \alpha/w 13\%$

$Re=10000 - \alpha/w 15\%$

$Re=15000 - \alpha/w 5\%$

Scale-up

- Compare equipment and process conditions
- Define target to at the right cost, quality, and rate

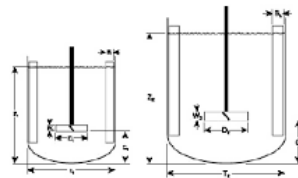
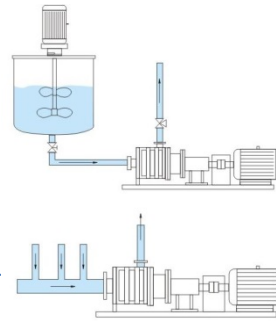


Figure 1 Geometric Similarity

Supply Chain Analysis

- Product & RM constraints
- Business continuity & flexibility

