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# Homogenization

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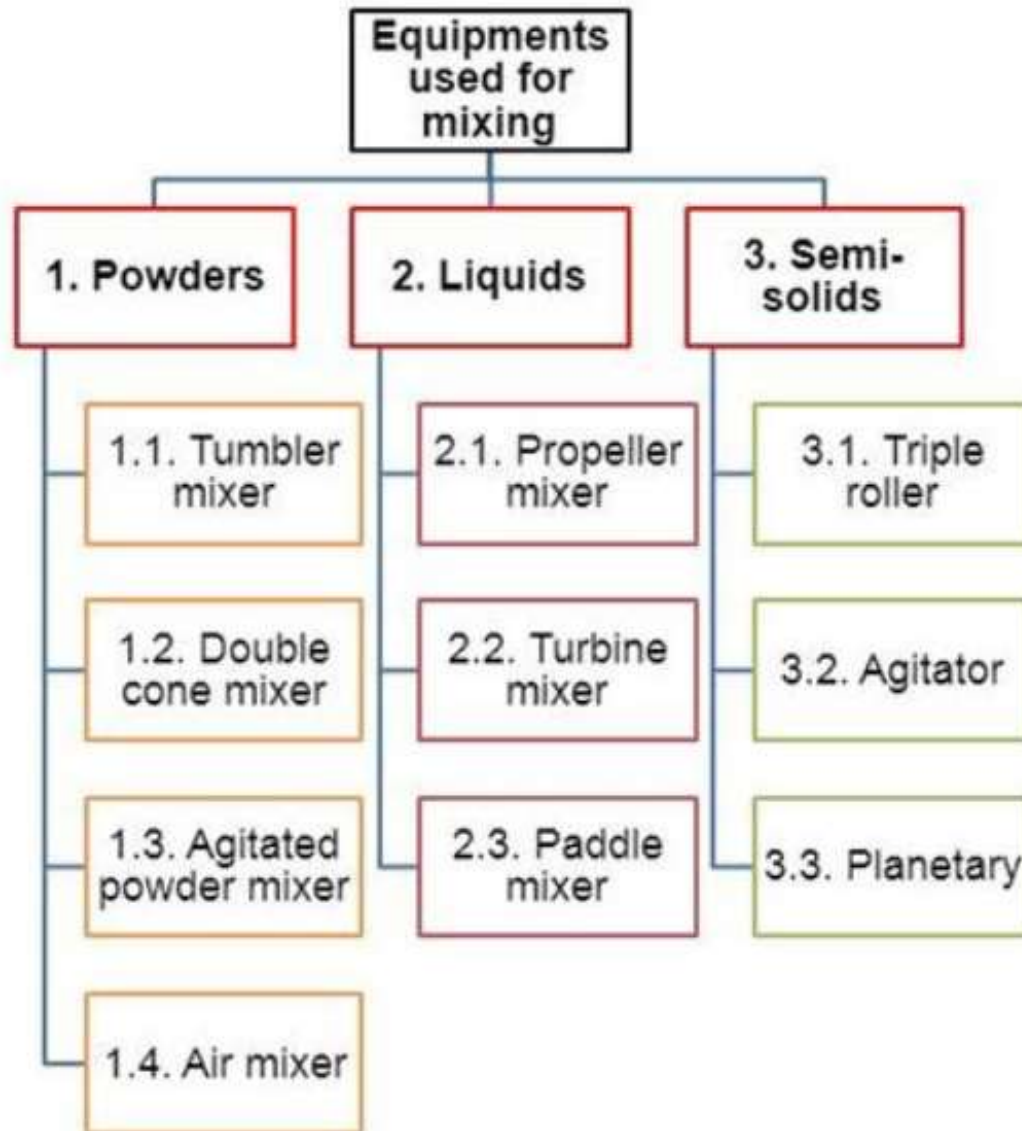
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**4. Homogenization** (Mixing of immiscible Liquids)

- 4.1. Hand homogenizer
- 4.2. Silverson homogenizer
- 4.3. Colloidal mill

**5. Viscosity**



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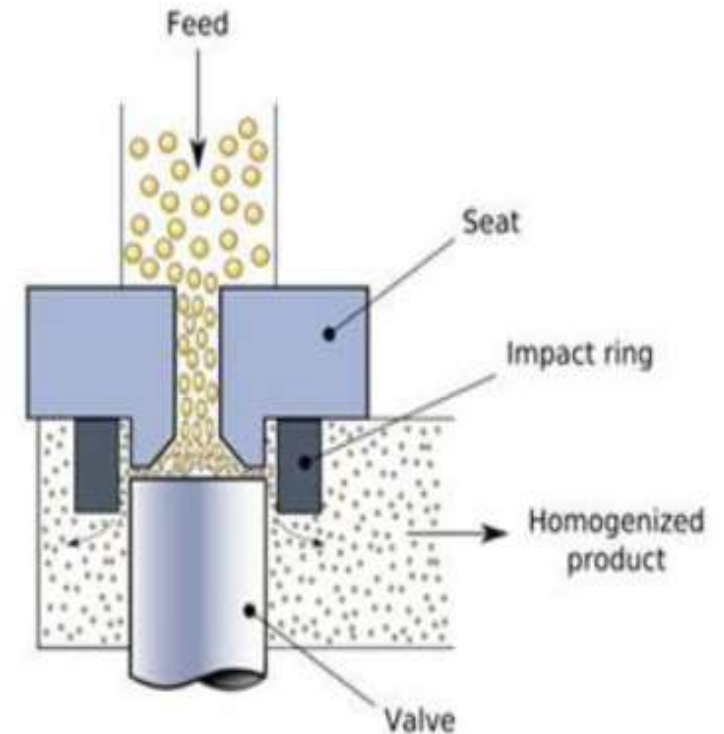
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## 4. Homogenization (Mixing of immiscible Liquids)

It is the process of preparing **fine emulsion** from a **coarse emulsion** by converting the **larger globules** in to **smaller globules**.

### Principle:

Homogenisers works on the principle that the large globules in a coarse emulsion are broken in to smaller globules by passing them **under pressure** through a narrow orifice.



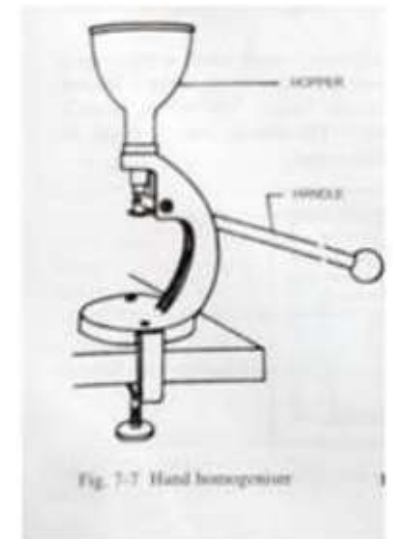
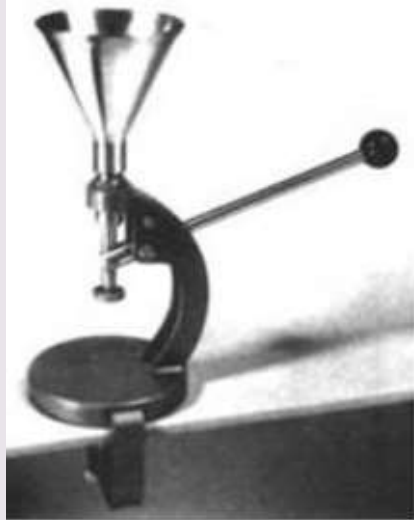


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## 4.1. Hand homogeniser

- Coarse emulsion is passed through fine orifice.
- The **emulsion** is placed in the **hopper** of the homogenizer.
- The **up and down movement of the handle** causes **coarse emulsion to draw in through inlet valve** and pass through homogenizing valve.







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## 4.2. Silverson homogeniser

**Construction:** Emulsifier head (with blades), shaft, stand and electric mortar.

### Working:

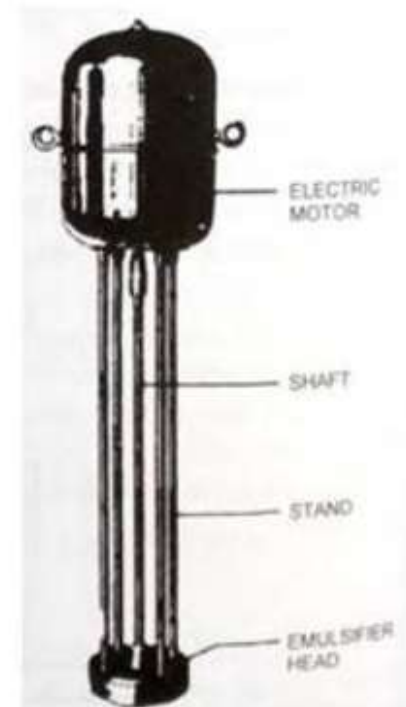
Emulsifier head is placed in vessel containing **immiscible liquids**



When the mortar started, the liquids **are sucked through the fine holes** and **oil is reduced into fine globules** due to the rotation of the blades



**Fine emulsion** is expelled out



Silverson mixer homogeniser



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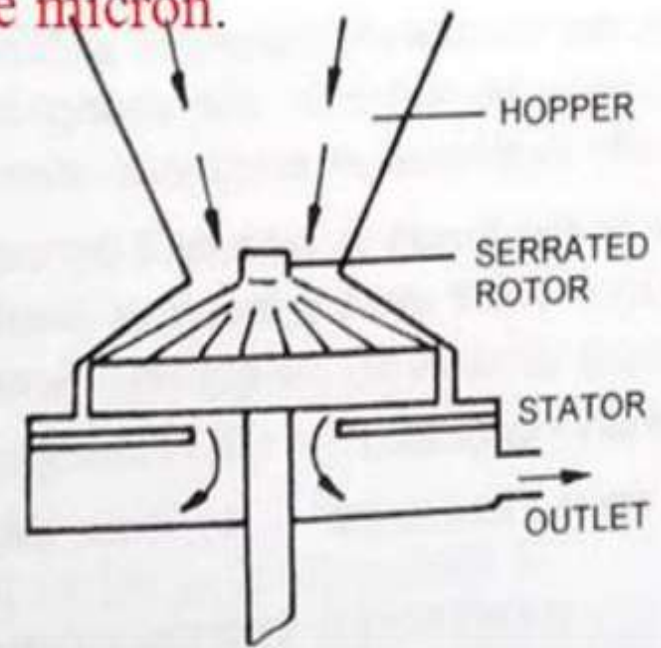
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## 4.3. Colloidal mill

**Principle:** Size reduction occur due **shearing** when the material passed b/w narrow gap of **rotor** and **stator**

**Construction:** Rotor and stator (Speed: 3,000-20,000 rpm)

**Use:** To prepare pharmaceutical suspensions and emulsions having particle size **less than one micron**.





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Thank you

