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# **Powder Mixing**

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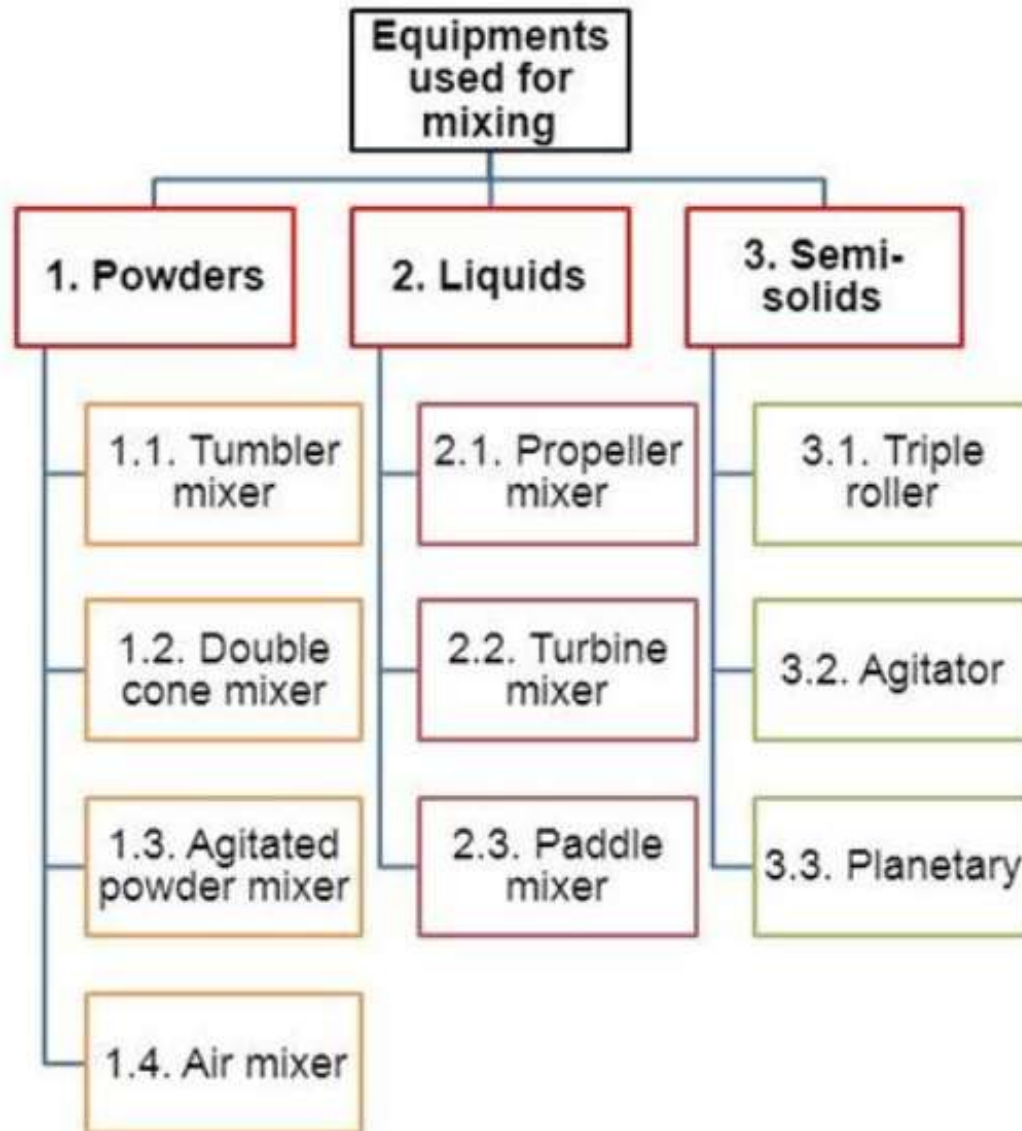
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**4. Homogenization** (Mixing of immiscible Liquids)

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

**5. Viscosity**



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# 1. Mixing of powders





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## 1.1. Tumbler mixer

- Consist of **stainless steel vessel** (various designs V shape, Y Shape, cylindrical shape etc.,) in which powders are mixed at slow motion.
- Due to rotation **ingredients** are **come over one another**.
- The rotation of the vessel should be **slow enough** so that the **powders** does not remain stationary against the side of the vessel.





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## 1.2. Double cone mixer

**Principle:** Mixing is due to **tumbling (rotate)** and **shearing (break)** action with blade.

**Construction:** Made of **stainless steel** and available in capacity ranging from 5 to 200 kg. The rate of rotation range is **30-100 rpm**.

**Working:** The material to be blended is loaded approx. **50-60% of the total capacity** of the blender. As the blender rotates the material mixes by tumbling motion and shear action.

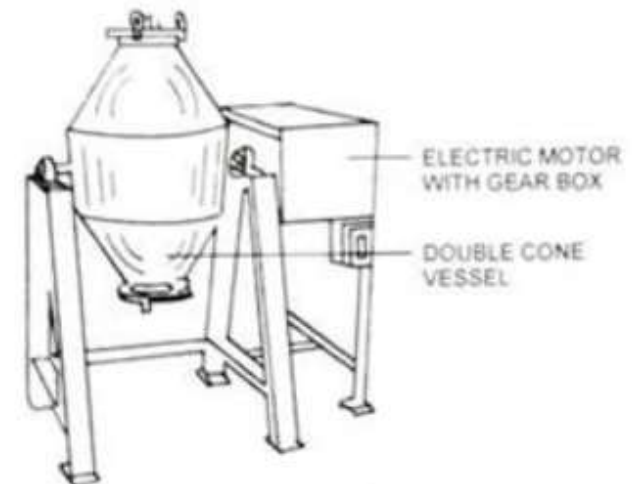
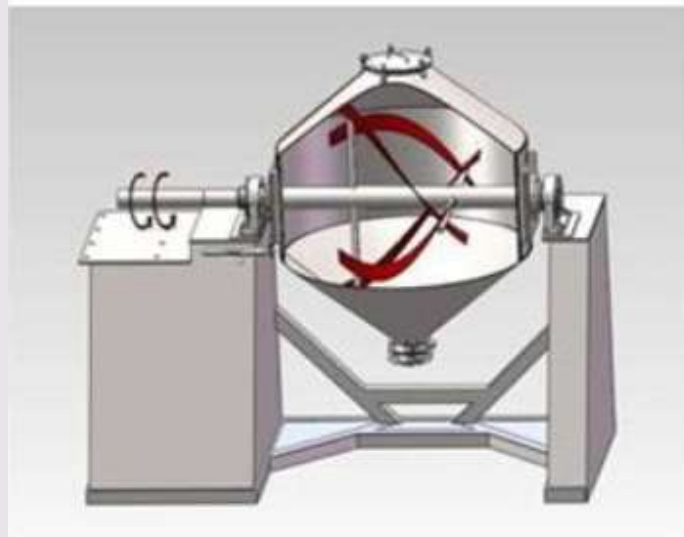


Fig. 7-1 Double cone blender



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## 1.3. Agitated powder mixer

1. Consists of stationary vessel/trough inside which **arms rotates** and **transmits shear** (break) action.
2. The **end-to-end movement** is required for general mixing which can be achieved by **fitting helical blades** to the agitator.

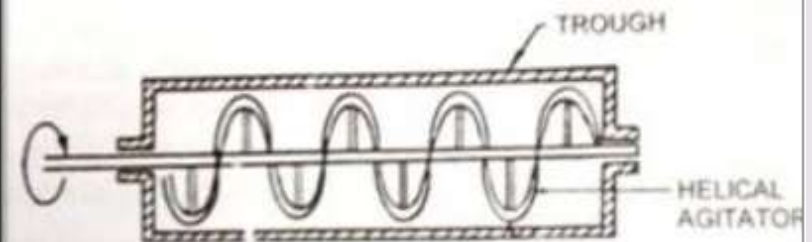


Fig. 7-2 Agitated powder mixer



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## 1.4. Air mixer

1. The powders to be mixed are taken in a vertical cylindrical vessel and **air is admitted at its base.**
2. The **air movement is used for mixing of powders.**
3. The **air should be admitted at shorter intervals but not continuously.**





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Thank you

