

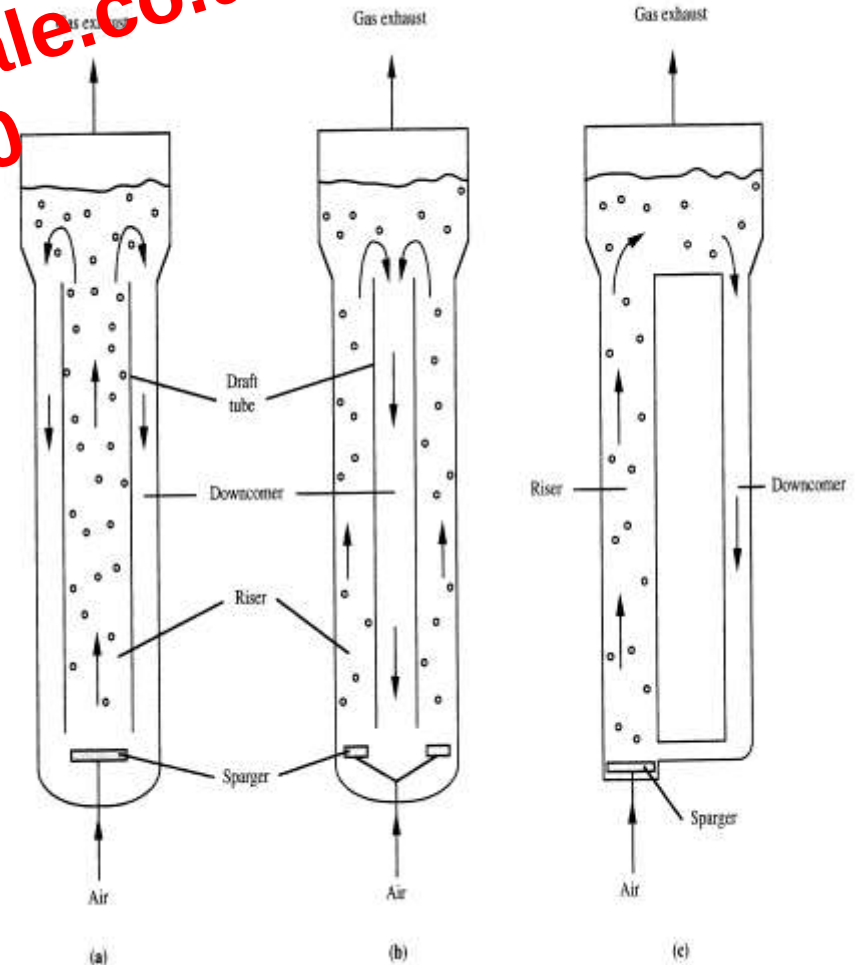
3. Air lift reactor

Mixing method: airlift

As compared to bubble column reactors, in an airlift reactors, there are two liquid streams:

up-flowing and down-flowing streams.

Liquid circulates in an airlift reactor as a result of density difference between riser and downcomer.



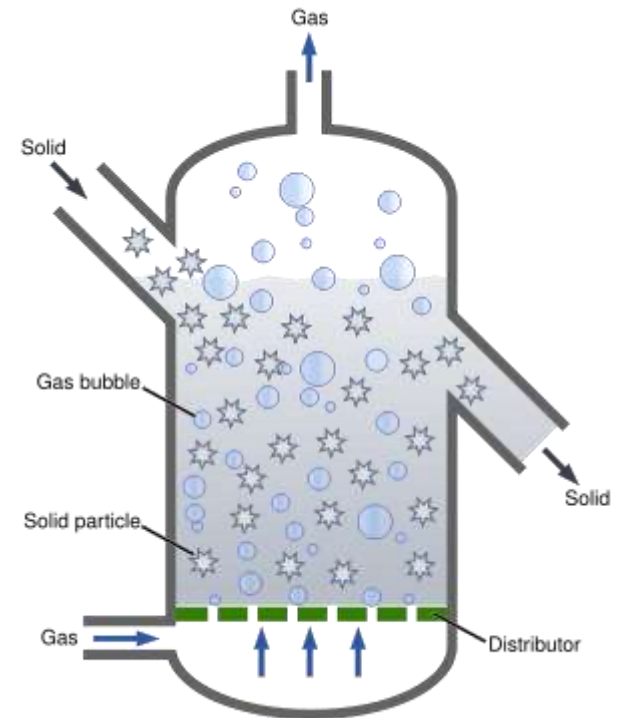
Advantages & Disadvantages

Advantages:

- Uniform particle mixing.
- Uniform temperature gradients.
- Ability to operate reactor in continuous state.

Disadvantages:

- Increase reactor vessel size.
- Pumping requirement and pressure drop.
- Particle entrainment.
- Erosion of internal components.
- Lack of current understanding.



9. Rotary drum Bioreactor

- A moving drum is used to cultivate the reaction mixture (culture).
- High pressure gas is used.
- It is used for solid surface materials.
- For semi-liquid material.
- To separate organic & inorganic compounds.
- Also used for water treatment.

