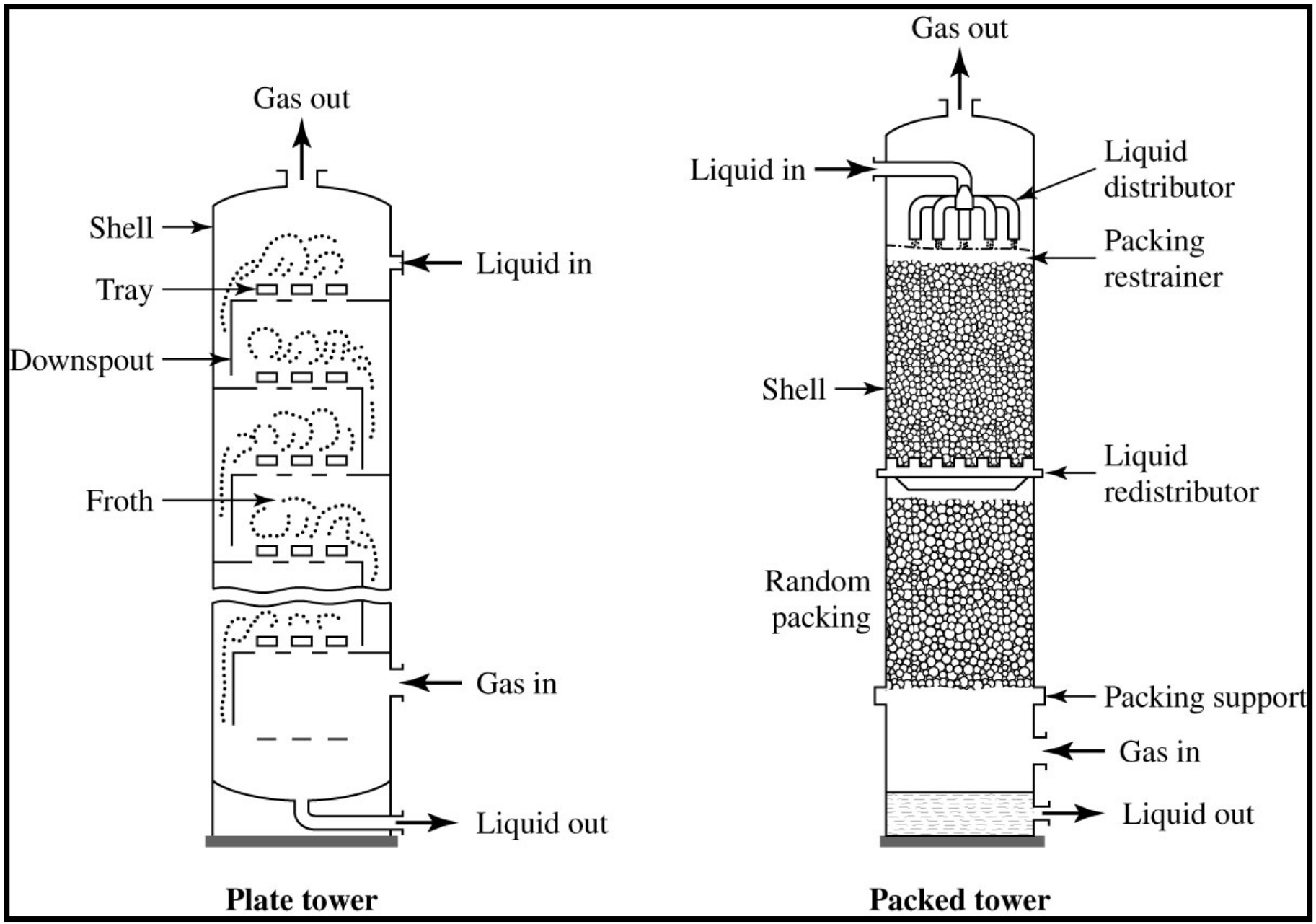
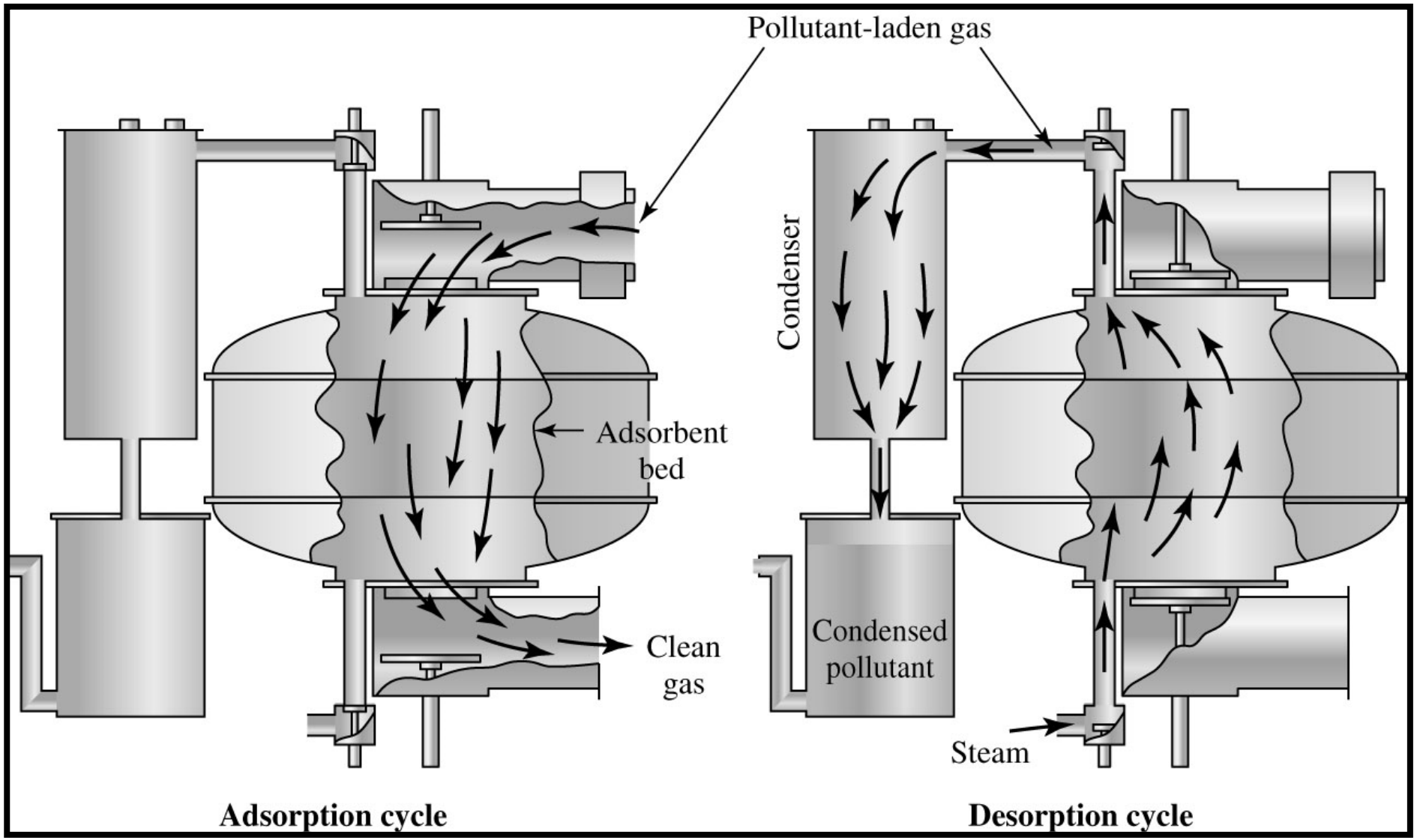
Air pollution control – gaseous pollutants

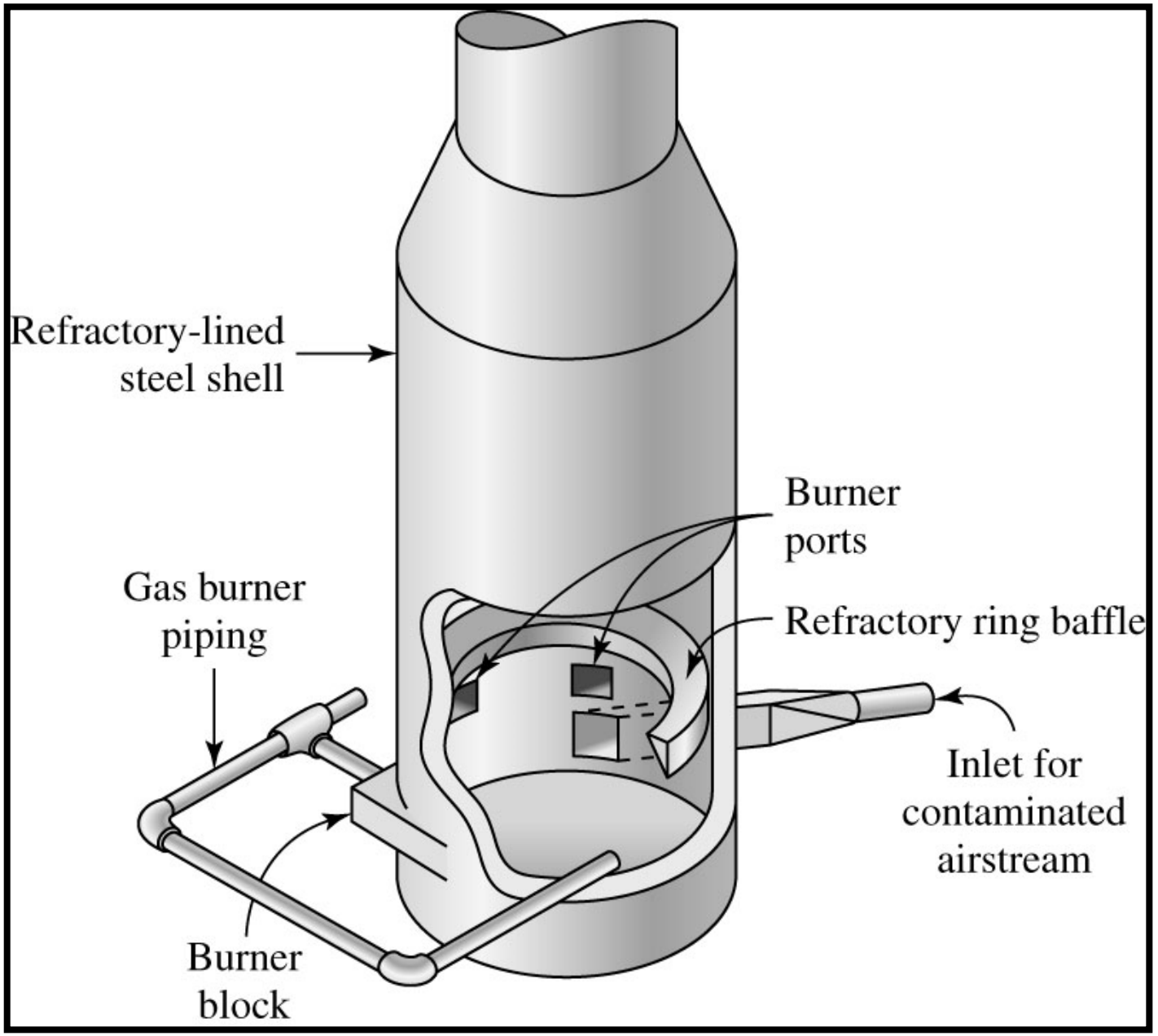
- **Absorption**
  - Dissolution of pollutant gas into a liquid
  - If water is used, only applicable to gases having high water solubility such as NH_3, Cl_2, and SO_2
- **Adsorption**
  - Binding of pollutant gas to a solid
  - Common adsorbents: activated carbon, zeolites, silica gel, and activated aluminum oxide
- **Combustion**
  - Applicable when the pollutant gas can be oxidized to inert gas such as CO_2
  - Can be applied to CO and organic pollutants



Absorption processes



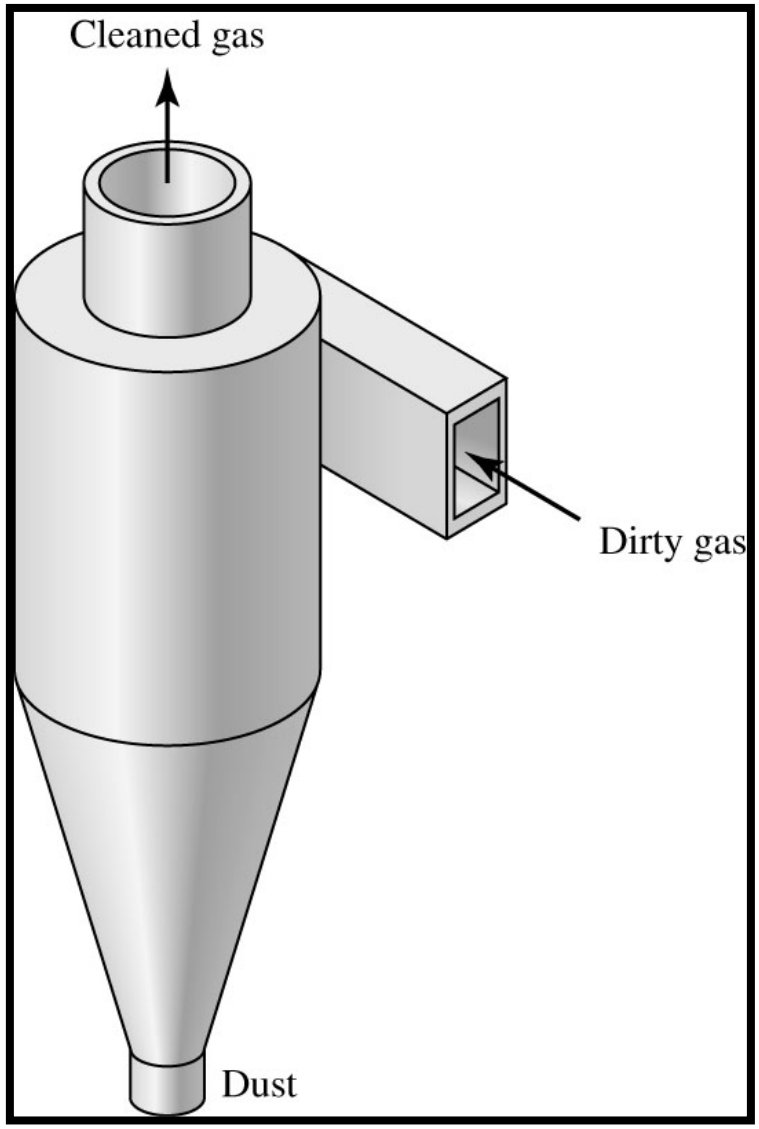
Adsorption processes



Combustion process: direct incinerator

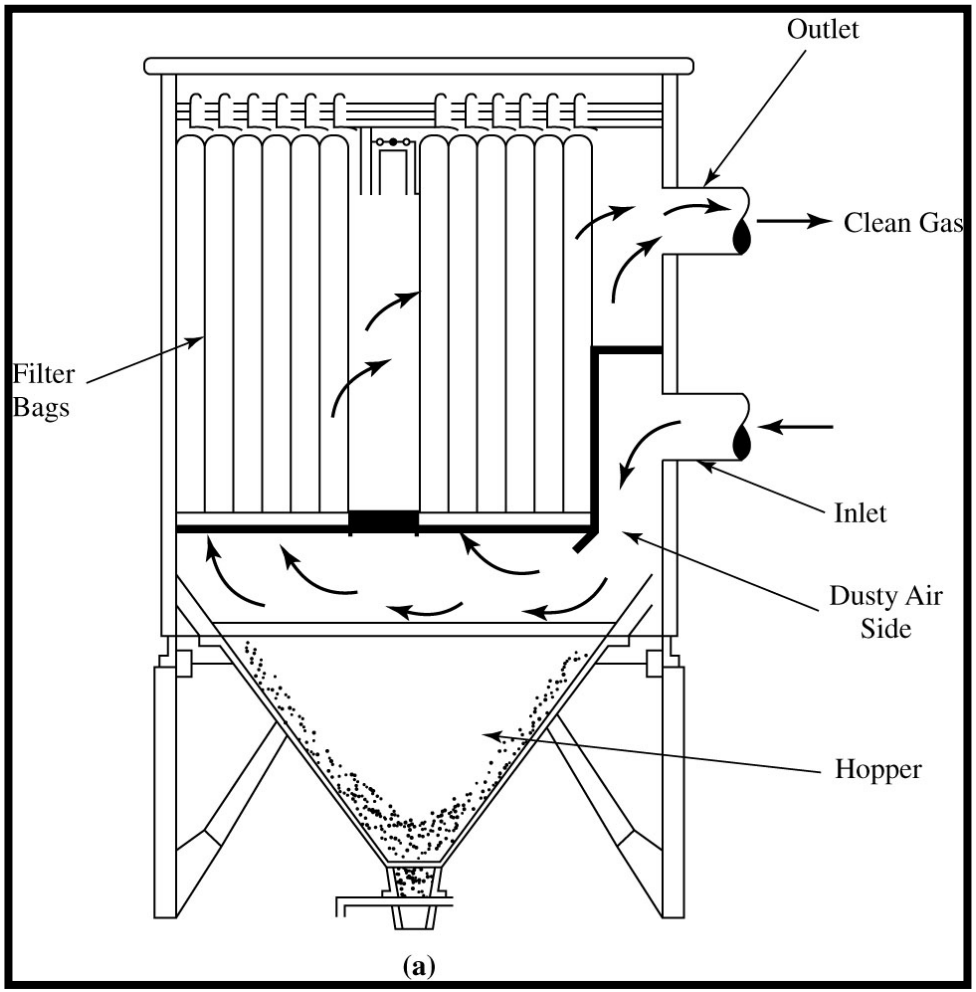
Air pollution control – particulates

- Cyclones: good for large particles (>10 µm)



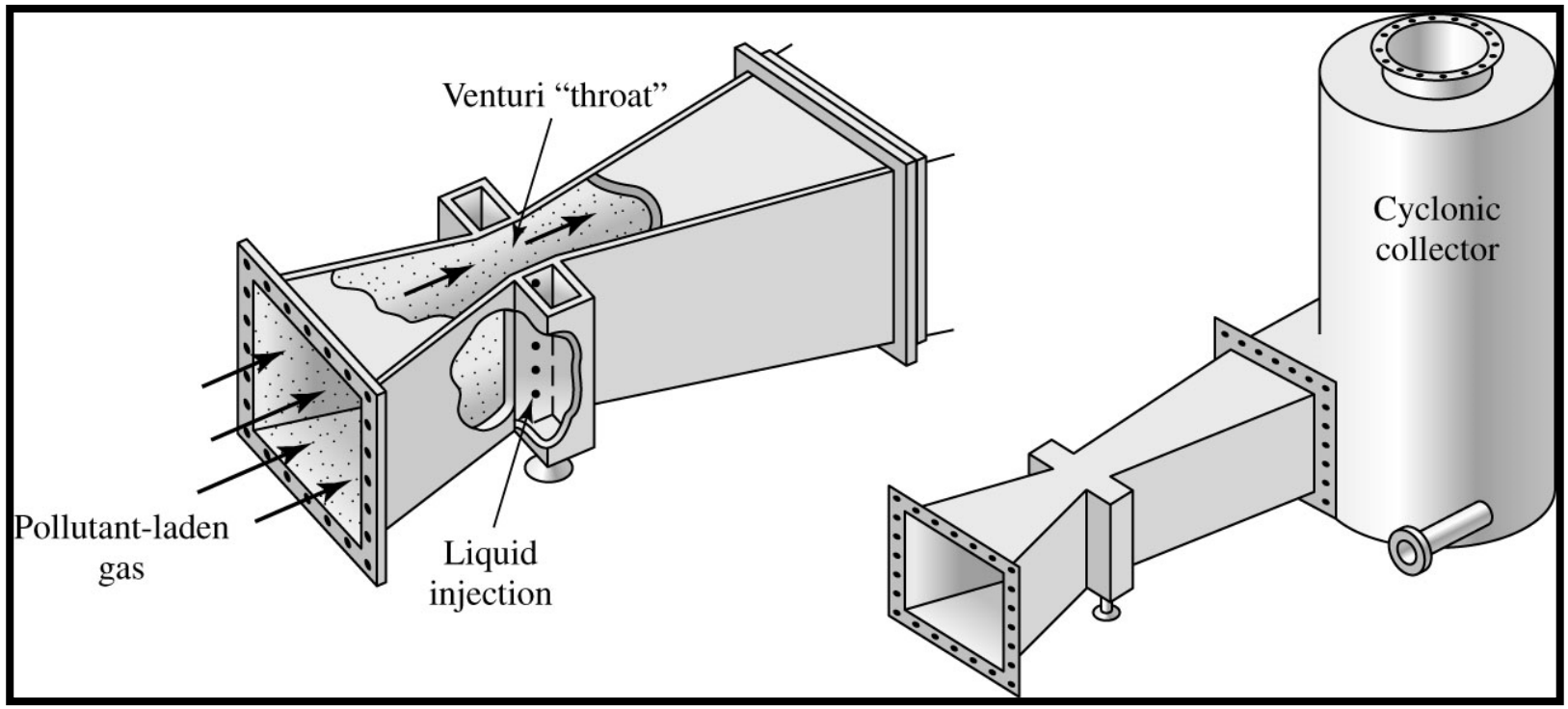
Air pollution control – particulates

- Filter: good for small particles (<5 µm)



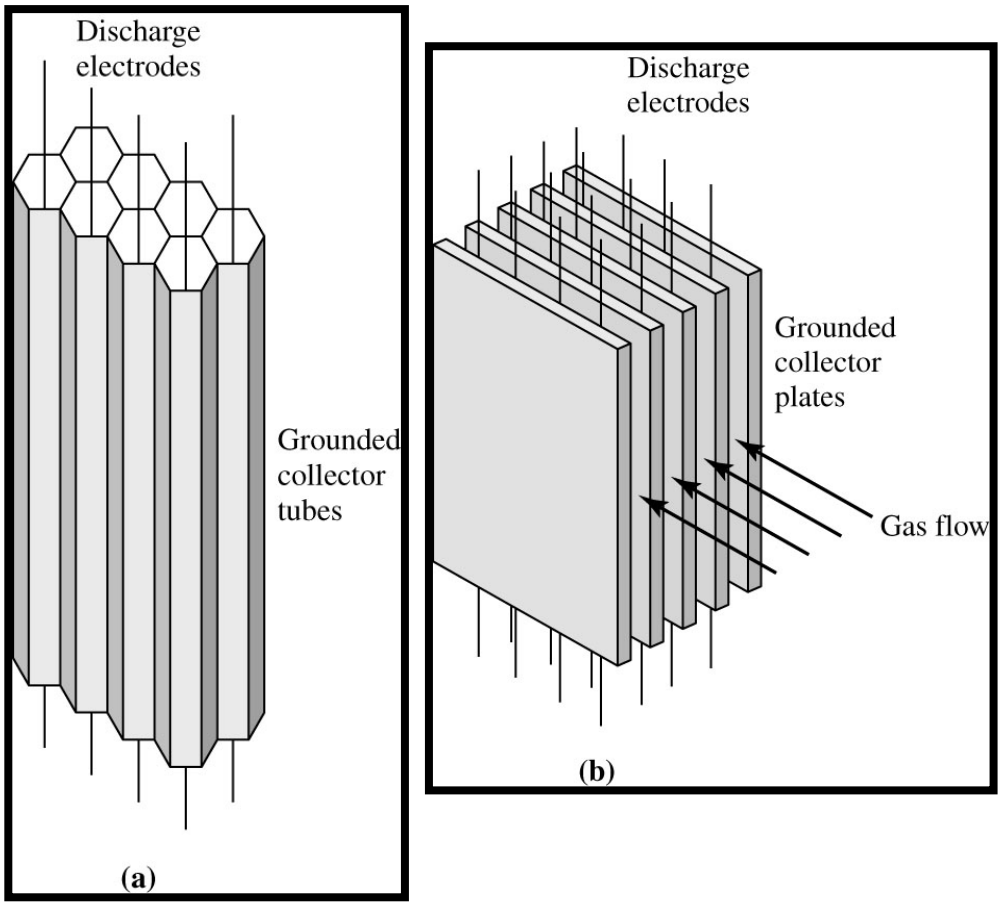
Air pollution control – particulates

- Liquid scrubbing: good for wet, corrosive, or very hot particulates



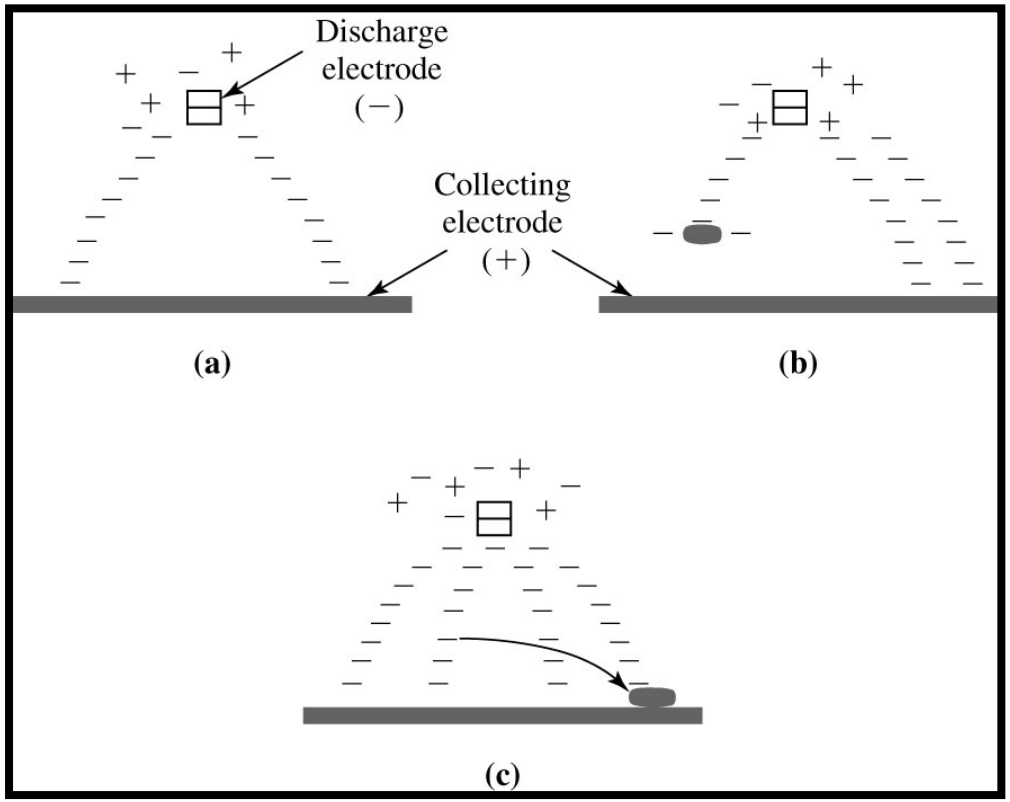
Air pollution control – particulates

- Electrostatic precipitation: high-efficiency, dry collection of particles from hot gas streams



Air pollution control – particulates

- Electrostatic precipitation



Reading assignment

Textbook Ch 12 p. 631-640