

"Extraction material and powder technology"

1-Introduction to extraction metallurgy

- 1- Source of metal
- 2- Flow sheet of process
- 3- Method of beneficiation
 - Comminution
 - Classification and concentration
 - Sizing and sorting equipment
 - Magnetic separation
 - Electrostatic separation
 - Flotation (froth flotation)

2-General method of extraction

- Pyrometallurgy
- Electrometallurgy
- Hydrometallurgy

3-Extraction of metal s from oxides

- Extraction of Magnesium, Aluminum, Tin
- Ferroalloying element (Chromium, Manganese, Silicon)
- Extraction of metals from Sulphide ores
- Extraction of Copper, Lead, Zinc
- Extraction of Nickel, Cobalt, Cadmium

4-Extraction of metals from Halides

- Extraction of nuclear reaction metals (Uranium, Plutonium, Thorium)
- Extraction of Zirconium, Beryllium, Titanium)

5- Precious metals

- Extraction of Gold, Silver, Platinum

6-Powder technology

- Atomization
- Milling of brittle and ductile material
- Powder metallurgy
- Coating powder