

Chapter 11

Principles of Metallurgy

Metal activity series:

- The minerals of the given element may be available in the form of their oxides or their sulphides.
- As most of the metals in the earth crust are available in the form of their oxides or sulphides, oxygen and sulphur are called as chalcogens.
- Chalcogens means ore. It means ore forming elements.
- Metals are arranged in their decreasing order of reactivity, which is called as metal activity series.
- In metal activity series, we can slot the metals as more reactive metals, moderately reactive metals and less reactive metals.
- More reactive metals like sodium, potassium, aluminium, calcium etc. are very reactive and mostly available in the form of their oxides and never be found in their free state i.e. elemental state.
- Moderately reactive metals are available in the form of oxides, sulphides, carbonates etc. These are less reactive than metals like aluminium, calcium etc.
- These metals may react with oxygen and very less reactive towards water.
- Less reactive metals are available in the earth crust in their elemental form and they do not form any compounds.

Ex. Silver, Gold, Platinum etc.

- Reactivity towards oxygen decreases from more reactive metals to moderately reactive metals and then to less reactive metals.
- More reactive metals react readily with water, so that reaction goes explosive.
- Moderately reactive metals react only at very high temperature.
- Less reactive metals doesn't react with water.
- With acids, also more reactive metals displace hydrogen from their compounds readily.
- Less reactive metals do not displace hydrogen from their compounds.

