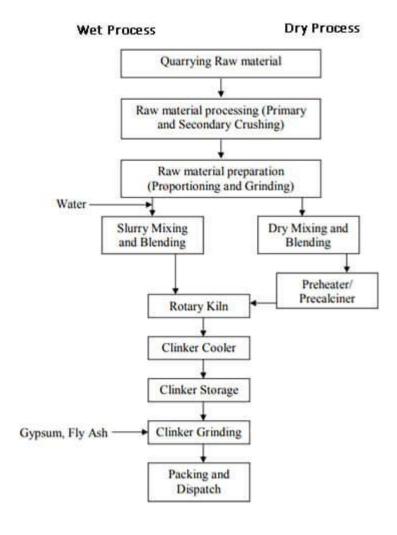
### **Portland Cement**

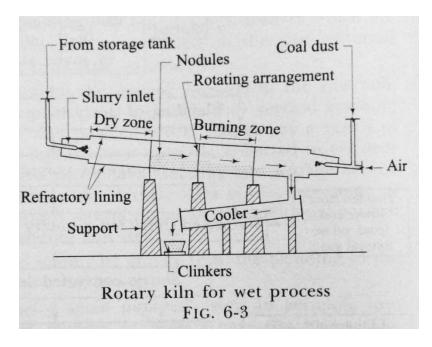
The manufacturing of normal setting or Portland ordinary cement:

- 1. Mixing of raw materials
- 2. Burning
- 3. Grinding
- 4. Packing

## (1) MIXING OF RAW MATERIALS

The raw materials such as limestone or chalk and shale or clay may be mixed either in dry conditioner or in wet condition. The process is accordingly known as the *dry process* and *wet process* of mixing.





#### (2) BURNING

In the preheated, the kiln feed is preheated by hot gas coming from the combustion chamber and rotary kiln. Then the preheated kiln feed is partially calcined then completely calcined in a rotary kiln as well as heated to approximately 1450 C to form clinker components C3A, C4AF, C2S, and C3S.Hot clinker discharge from the kiln drops onto the cooler for cooling from approximately 1350-1450 C to approximately 100 C.

$$2\text{CaO} + \text{SiO}_2 \rightarrow 2\text{CaO} \cdot \text{SiO}_2$$

$$3\text{CaO} + \text{SiO}_2 \rightarrow 3\text{CaO} \cdot \text{SiO}_2$$

$$3\text{CaO} + \text{SiO}_2 \rightarrow 3\text{CaO} \cdot \text{SiO}_2$$

$$3\text{CaO} + \text{Al}_2\text{O}_3 \rightarrow 3\text{CaO} \cdot \text{Al}_2\text{O}_3$$

$$4\text{CaO} + \text{Al}_2\text{O}_3 + \text{Fe}_2\text{O}_3 \rightarrow 4\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$$

$$\text{Tetracalcium aluminoferrite } (\text{C}_4\text{AF})$$

### (3) GRINDING

The clinker is taken from the clinker storage to cement ball mill hoppers for cement grinding. Clinker and gypsum for OPC, limestone for limestone cement, and slag for slag cement are all extracted from their respective hoppers and fed to the cement mills.6.

# (4) PACKING

Cement extracted from silos is conveyed to the automatic electronic packers where it is packed in 50 kg bags and dispatched in trucks.