

2002-07-26

**Subject : Typical Composition of the Process By-product of the Extraction of Alumina from Bauxite, often called Red Mud or Bayer Process Residue.**

It is worth to mention that this composition varies with the source and the composition of the bauxite itself.

1. Elementary composition expressed as the oxide by XRF :

	<u>%</u>
Al <sub>2</sub> O <sub>3</sub>	15-25
Fe <sub>2</sub> O <sub>3</sub>	30-40
SiO <sub>2</sub>	10-20
TiO <sub>2</sub>	3-8
CaO	1-6
Na <sub>2</sub> O	5-10
H <sub>2</sub> O (chemical)	10

2. Phases identified :

Hematite	Fe <sub>2</sub> O <sub>3</sub>
Goethite	FeO(OH)
Bayer Sodalite	sodium aluminium silicate
Anatase	TiO <sub>2</sub>
Rutile	TiO <sub>2</sub>
Gibbsite	Al <sub>2</sub> O <sub>3</sub> .3H <sub>2</sub> O
Boehmite	Al <sub>2</sub> O <sub>3</sub> .H <sub>2</sub> O
Katoite	calcium aluminium silicate
Quartz	SiO <sub>2</sub>

3. Particle size distribution :

	<u>%</u>
+ 250 microns(sand)	10-15
10-250 microns	10-30
-10 microns	70
median	about 5 microns with sand
median	about 1 micron without sand

4. Other physical properties (when completely washed) :

Dried solid, inert, non toxic, slightly alkaline  
Specific density : 3.0-3.5 g/cc  
Specific surface area : 10-40 m<sup>2</sup>/g