

removed by washing the china clay, the fusing point will be some 35 (1785°C). The admixture with other fluxes such as lime, magnesia, iron and the alkalis, may cause the fusion point to drop as low as even 2 or about 1165°C.

Classification of important types of clays

Kaolin: The mineral form of Kaolin is Kaolinite and its chemical formula is $Al_2O_3 \cdot 2SiO_2 \cdot 2H_2O$, having a crystalline and a definite composition. Kaolin is a word derived from a Chinese word called "Kau-ling". It is also called "China Clay" because its first use was in China. It has the composition (by weight): Alumina 39.56%, Silica 46.54% and water 13.90%. It generally belongs to residuary type of clays as most of the mines in the world are near its original sources. Residuary Kaolins are usually coarser grained and have less plasticity than the transported Kaolins. Secondary Kaolins are also there and they are in purer forms. Kaolin is the amorphous variety of clay available in its purest forms. They are less plastic compared to either red burning clay or ball clays. They have generally the following impurities.

- (1) Quartz grains
- (2) Undecomposed feldspar
- (3) Free iron
- (4) Organic matter, if any.
- (5) Mica.

These impurities are to be removed by washing.

The colour of Kaolins vary from white, cream, to pale black and these colours are due to the presence of organic matters which burn off during firing. To the naked eye, China clay look structureless but under a microscope, it is observed that they consist of small flakes and scales.

Causes of the plasticity of clays: Plasticity is that property which enables material to be deformed continuously and permanently without rupture during the application of force which exceeds the yield value of the materials. In clay there should be enough moisture to obtain this property. There are two types of theories concerning plasticity. (1) Fundamental theories: (a) Molecular attraction and (b) Surface tension. (2) Secondary influences: (a) Colloidal condition, (b) Organic or bacterial action, (c) Shape, size and distribution of sides of non-plastic grains and comparative amount of non-plastic material present.

Not only does the plasticity of a clay depends upon the kind of clay, but it is also effected by fineness of grinding, amount of water added.