Perlite

Perlite is an amorphous volcanic glass which has a relatively high water content and occurs naturally. It has one of the most unusual property, i.e. it greatly expands when sufficiently heated.

Properties and Uses of Perlite

Perlite becomes soft, as it is a glass, at a temperature of 850-900°C. The trapped water in the structure of perlite escapes and makes the material to expand 7 - 15 times of its original volume. The expanded material is brilliant white in color because of the reflectivity of the trapped bubbles.

The density of raw perlite or the unexpanded perlite is around 1100 kg/m3 (1.1 g/cm3). The density of typically expanded perlite is 30 - 150 kg/m3.

Since perlite has low density and is relatively economical, it is used commercially in following ways:

- Construction and manufacturing fields.
- Lightweight plasters and mortars, insulation, ceiling tiles and filter aids.
- In horticulture, it makes composts more open to air, while having still a good water-retention properties.

- It makes a good medium for hydroponics.
- It is also used in foundries and cryogenic insulations.

Analysis of Perlite

- 70-75% silicon dioxide: SiO_2
- 12-15% aluminum oxide: Al_2O_3
- 3-4% sodium oxide: Na_2O
- 3-5% potassium oxide: K_2O
- 0.5-2% iron oxide: Fe_2O_3
- 0.2-0.7% magnesium oxide: MgO
- 0.5-1.5% calcium oxide: CaO
- 3-5% loss on ignition (chemical / combined water)