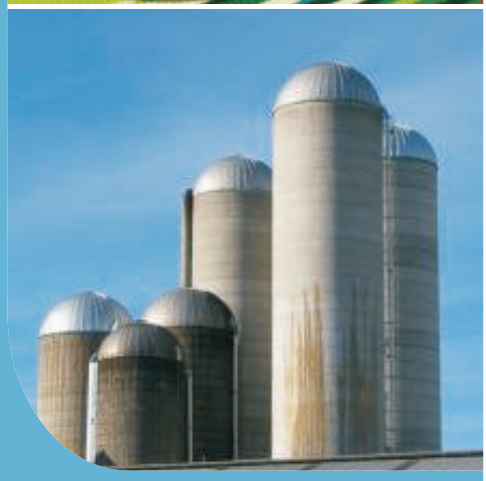
Colemanite Powder



BACKGROUND

Colemanite is a natural calcium borate mineral. **Colemanite** along with Tincal (Sodium Borate) is by far the most important borate mineral of commercial importance. The main constituents of **Colemanite** are Di Calcium Hexaborate Pentahydrate and Dolomitic Limestone or Calcite. **Colemanite** is used in several direct applications where the presence of sodium is undesirable. The most notable of these is in the manufacture of textile grade fiberglass, ceramic glaze formulations, tile and sanitaryware, body formulations, steel etc.

APPLICATION AND BENEFITS

Colemanite finds application in glaze formulations and tile and sanitary ware, body formulations. Depending on the characteristics of the local raw materials used, Colemanite has the following advantages:

- Colemanite can lower the melting temperature of glaze up to 100°C.
- Colemanite can be used in glaze formulations to replace Na-Feldspar.
- About 15% Colemanite can replace upto 40% of Na-Feldspar in glaze composition.
- Colemanite can be added up to 5% in tile body formulations resulting a decrease in firing temperature and good mechanical properties.
- Colemanite added up to 2% in sanitary ware formulations results a decrease in maturing temperature up to 50°C and widens the range of vitrification.

In the 70's, the first commercial tests involving the use of borate minerals in the manufacture of steel by the basic oxygen process had been successful in USA. The cost improvement to steel manufacturers could be significant. Subsequently it was learned that this method consisted of replacing fluorspar by borates as a fluxing agent.

Colemanite was considered the best of the borates tested and superior to fluorspar as it causes much less pollution. It was found that Colemanite could be used successfully in basic oxygen furnaces but not in electric arc furnaces. Fluorspar can decompose to toxic hydrogen fluoride at high temperatures in the steel furnaces and be emitted to the outside air. The emissions from Colemanite at steel furnace temperatures are particulate boron oxides that can be recovered as dust and the amounts that escape the dust collector are too dilute to be toxic. Other advantages consisted in a better lime stabilization, thus reducing the “blow time”, and also in a reduction of the acidity thereby increase the life of refractories.

GENERAL INFORMATION

Product Name	Colemanite Powder
Chemical Name	Di Calcium Hexaborate Pentahydrate
Chemical Formula	$Ca_2B_6O_{11}.5H_2O$
CAS No	12291-65-5

PHYSICAL PROPERTIES

Molecular Weight	411.09
Appearance	Homogenized Powder light to dark grey in colour
Bulk Density (Typical)	1.46-1.52 MT / m^3
Particle Size	150 mesh, 85% Min

CHEMICAL PROPERTIES

Boron Content (as B_2O_3)	35.00 - 40.00%
Calcium Content (as CaO)	25.00% Min
Na_2O	1.00% Max
Pb	0.003% Max
Cu	0.1% Max
As	0.01% Max
Cd	0.0025% Max
Moisture	1.00% Max
Size	150 mesh, 85% Min / 0.2-3mm

SOLUBILITY AND pH

Colemanite has alkaline pH of 9.5 and has a low solubility of 0.81 % at 25° C in distilled water.

PACKAGING

50 Kg PP Bags with Inner Liner.

*All data above are determined by Raj Borax Private Ltd analytical methods.

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leading innovation in boron

ISO 9001:2008
Quality Management System
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