

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.

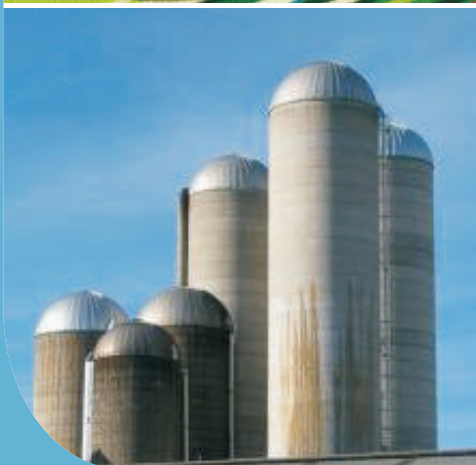
► APPLICATION AND BENEFITS

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

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|------------------|---|
| Product Name | Colemanite Powder |
| Chemical Name | Di Calcium Hexaborate Pentahydrate |
| Chemical Formula | $\text{Ca}_2\text{B}_6\text{O}_{11}\cdot 5\text{H}_2\text{O}$ |
| 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 ₂ O ₃) | 35.00 - 40.00% |
| Calcium Content (as CaO) | 25.00% Min |
| Na ₂ O | 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.

NOTICE:

Before using these products, please read the Product Specifications, the Safety Data Sheets and any other applicable product literature. The descriptions of potential uses for these products are provided only by way of example. The products are not intended or recommended for any unlawful or prohibited use including, without limitation, any use that would constitute infringement of any applicable patents. Nor is it intended or recommended that the products be used for any described purposes without verification by the user of the products' safety and efficacy for such purposes, as well as ensuring compliance with all applicable laws, regulations and registration requirements. Suggestions for use of these products are based on data believed to be reliable. The seller shall have no liability resulting from misuse of the products and provides no guarantee, whether expressed or implied, as to the results obtained if the products are not used in accordance with directions or safe practices. The buyer assumes all responsibility, including any injury or damage, resulting from misuse of the product, whether used alone or in combination with other materials. THE SELLER MAKES NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE SELLER SHALL HAVE NO LIABILITY FOR CONSEQUENTIAL DAMAGES.



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