

**IS 12928: 1990**

**PRECIPITATED BARIUM CARBONATE FOR CERAMIC AND GLASS INDUSTRY**  
**– SPECIFICATION**

Barium Carbonate ( $\text{BaCO}_3$ ), in its precipitated form, is a chemical compound generally obtained through a precipitation process. This method entails the chemical reaction between a soluble barium salt and a carbonate source, resulting in the formation of a solid barium carbonate precipitate. The compound appears as a white, fine powder and exhibits low solubility in water. It finds extensive use across various industrial sectors, notably in the glass, ceramic, and chemical industries

Precipitated barium carbonate must adhere to stringent purity standards, including specifications for particle size and distribution, insolubility in hydrochloric acid, and the absence of other contaminants. It is essential that the product contains minimal impurities to maintain the quality of the final products, such as glass, ceramic glazes, or other applications. Typical impurities to be controlled include water-soluble sulphides, alkali, and various metal sulphates. The presence of contaminants like water-soluble sulphides, sodium oxide ( $\text{Na}_2\text{O}$ ), and alkali or metal sulphates should be kept to a minimum, as they can result in defects such as discoloration, bubbles, surface flaws, or compromised mechanical properties in ceramics and glass. Iron (Fe) impurities, known to cause discoloration in glass, must be maintained at very low levels. A threshold of 0.1% for alkali and metal sulphates is generally deemed acceptable to prevent interference with the product's characteristics. The particle size of precipitated barium carbonate is vital for its role as a fluxing agent in glass and ceramics. Finer particles typically offer enhanced surface area and reactivity. Additionally, a uniform distribution of particle sizes is necessary to prevent inconsistencies in the final product. The moisture content of the precipitated barium carbonate should be minimal to ensure the material remains dry and free from excess water, which could adversely affect the quality of the final product or complicate manufacturing processes. Excess moisture may lead to handling difficulties and potential contamination.

Consumers of Precipitated Barium Carbonate anticipate a product of superior quality that is chemically pure, uniform in particle size, and devoid of contaminants such as sulphides, alkalis, and various metal sulphates. Additionally, it should exhibit controlled reactivity during industrial applications. Adhering to these specifications guarantees that Precipitated Barium Carbonate will function effectively in applications such as ceramic glazes, glass production, and other industrial processes, ultimately enhancing the quality, aesthetic appeal, and durability of the final products.