Indian Standard — IS 361 : 2009 Normal Butyl Alcohol – Specification

Normal butyl alcohol, also known as *n-butanol* or *1-butanol*, is an alcohol with the chemical formula C_4H_9OH. It is a four-carbon, straight-chain alcohol and one of the four isomers of butanol, along with iso-butanol, sec-butanol, and tert-butanol. It is a ***clear, colourless liquid*** free from sediment and matter in suspension having ***mild, characteristic alcohol smell***. It is **HIGHLY FLAMMABLE** and should be handled with caution, keeping it **away from sources of ignition** like sparks, flames, or electrical equipment.

Normal butyl alcohol can be **synthesized** through various methods like **fermentation** and **petrochemical process**. In the ***fermentation method***, ***bacterial strains convert sugars*** to produce *n*-butanol, while in the petrochemical method, it is derived from ***propylene*** through ***hydroformylation*** and ***hydrogenation***.

n-butanol properties make it valuable in several industrial applications. It is widely used as a solvent, e.g. for ***dissolving nitrocellulose for varnishes, paints,*** *and* ***coatings***, and is also an important ingredient in ***plasticizer production***.

Consumers of normal butyl alcohol expect the product to meet specific quality parameters to ensure its safety, consistency, and performance in applications.

n-butyl alcohol is highly flammable

To ensure the quality of n-butanol, Bureau of Indian Standards (BIS) has published **IS 361: 2009 Normal Butyl Alcohol – Specification**. It was originally published in 1953, with subsequent revision in 1962 and 1973. It outlines various requirements of normal butyl alcohols, such as ***purity, colour, impurities like sulfuric acid, aldehyde, ketone, water content***. The document also prescribes **methods of sampling**, and **testing procedures** including ***gas chromatography, titration, comparison of opalescence for colour and sulfates***.

Due to its **flammable nature**, the standard mandate that *n*-butanol containers must be clearly

labelled as **FLAMMABLE** and display the appropriate symbol, to ensure safe storage and handling.