



Indian Standard IS 5295:2023 Ethylene Glycol-Specification

Ethylene glycol, also known as monoethylene glycol (MEG), is a widely used industrial chemical with applications spanning antifreeze formulations, explosives, polyester fibers, and as an intermediate in organic synthesis. Renowned for its high water solubility, purity, and stability, ethylene glycol performs exceptionally in cold environments, making it indispensable for products requiring consistent performance under extreme conditions.

For optimal functionality in industrial and textile applications, ethylene glycol must meet rigorous quality standards. It is expected to be colorless, free of impurities, fully miscible with water, and achieve specific purity levels depending on its intended use. The general grade, with a minimum purity of 99%, is suitable for various industrial purposes, while the fiber grade, with at least 99.7% purity, meets the stringent requirements for applications like polyester fiber production. Additionally, low levels of moisture, acidity, and chlorides are essential for product stability, while UV transparency and absence of suspended particles enhance reliability and longevity.

IS 5295 provides a comprehensive quality assurance framework for ethylene glycol, specifying strict parameters for physical and chemical properties, including precise boiling and freezing points, purity, and control over impurities such as iron and chlorides. Advanced testing methods, including spectrophotometry, gas chromatography, and ion chromatography, are incorporated to assess aldehyde content, impurities, and chloride levels, ensuring accuracy across applications.

IS 5295 also outlines stringent sampling guidelines to protect ethylene glycol from atmospheric humidity, as it can absorb up to twice its weight in water vapor. The standard includes detailed packing and marking instructions to facilitate safe handling and transport, maintaining product integrity from production to end use.

In support of these quality standards, the Department of Chemicals and Petrochemicals has issued a Quality Control Order for ethylene glycol, reinforcing its compliance with IS 5295 to meet high performance and safety standards across industrial applications.