



IS 265:2021 Hydrochloric Acid -Specification (Fifth Revision)

Hydrochloric acid, classified as strong acid, is used for acidification (activation) of petroleum well, as chemical intermediate in ore reduction, food processing, pickling and metal cleaning, cleaning of membrane in the desalination plants, as alcohol denaturant, in boiler water plants, production of chemicals, and as a reagent in laboratories. It is mainly produced by chlor-alkali process which produces hydroxide, hydrogen, and chlorine, the latter of which can be combined to produce HCl.

IS 265:2021 characterizes hydrochloric acid into five grades -a) Technical grade, b) Chemical pure grade, c) Food grade, d) Analytical Reagent Grade, e) Boiler Water Grade and addresses the industrial expectations through a set of detailed guidelines and test methods:

Composition and Purity Requirements: The standard defines the acceptable chemical composition of hydrochloric acid, ensuring that the acid meets the required concentration and purity levels for industrial and laboratory use. Specific limits on impurities such as iron, arsenic, sulfate, and chloride ions are set to guarantee that the product is of high quality and free from contaminants that could interfere with its intended use.

Testing and Analysis: The standard provides methods for testing specific gravity, acidity, pH, and purity of hydrochloric acid to ensure compliance with the specifications. These tests help determine whether the acid is of the required strength and free from harmful impurities.

Appearance and Clarity: The standard mandates that hydrochloric acid should be a clear, colorless solution, and provides testing methods to ensure it meets this requirement. Cloudiness or discoloration may indicate contamination or improper manufacturing.

Packaging and Labeling: The standard outlines appropriate packaging methods (such as corrosion-resistant containers) and labeling to ensure safe handling and transport. It specifies safety instructions for handling concentrated hydrochloric acid, which is a corrosive and hazardous substance.

Storage and Stability: The standard provides guidelines on the storage conditions to maintain the stability and strength of the acid over time. Recommendations include the use of appropriate containers and storage environments to prevent contamination and degradation.

In essence, IS 265:2021 ensures that hydrochloric acid is produced and supplied with consistent quality, adhering to the required concentration and purity levels, free from harmful impurities, and suitable for safe industrial and laboratory use.