

IS 12084: 2018 Morpholine — Specification

Morpholine is tetrahydro-1,4-oxazine, an amino ether with the molecular formula C_4H_9NO and mass of 87.12 g/mol. It exists as a mobile liquid with a characteristic amine odour. Morpholine serves as a solvent for various organic solids and exhibits mild base properties. In boiler water applications, it functions as a corrosion inhibitor.

This Indian Standard (IS 12084:2018) outlines the requirements for morpholine intended for use as a corrosion inhibitor in boiler water systems. Morpholine as a corrosion inhibitor expect a product that effectively protects boiler systems from corrosion and meets specified quality standards. This includes expectations of:

- **High Purity:** A minimum of 99.0 percent morpholine content ensures the effectiveness and consistency of the product.
- **Controlled Physical Properties:** Specific relative density (minimum 1.001 at 20/20°C) and a defined boiling range (125 to 129°C for 90% recovery) are crucial for proper application and performance.
- **Low Impurities:** Stringent limits on impurities like residue on evaporation, ash content, and various metal ions (iron, copper, nickel, silica, chloride) minimize potential detrimental effects on the boiler system.
- **Safety:** Clear labelling and cautionary notes regarding potential health hazards associated with morpholine are expected to ensure safe handling and use.

By establishing these comprehensive requirements and procedures, the Indian Standard IS 12084:2018 ensures that morpholine used as a corrosion inhibitor in boiler water meets the quality and safety expectations of consumers, promoting reliable and efficient operation of boiler systems.