



IS 2630:2021 NITROBENZENE — SPECIFICATION

Nitrobenzene is a yellow aromatic liquid with the chemical formula $C_6H_5NO_2$. It is primarily used in the **dye industry**, where it serves as a key raw material for the production of **aniline**. It is critical for producing intermediates for **azo dyes**, such as benzidine, metanilic acid, *m*-dinitrobenzene, and *m*-nitrochlorobenzene. It is also involved in the manufacture of various organic compounds like induline, quinoline, magenta, and nigrosine. Additionally, nitrobenzene functions as a selective solvent in the **petroleum industry** and acts as a mild oxidizing agent in certain chemical reactions, including fuchsin fusion and quinoline synthesis.

The Indian Standard, **IS 2630:2021**, defines the quality requirements for **nitrobenzene**, covering **chemical properties, purity levels, testing methods, packing, and marking standards** to meet industrial demands.

Consumers and industries expect nitrobenzene to fulfil certain key quality parameters:

- **Purity:** Nitrobenzene must meet a minimum purity level to ensure reliable performance in applications.
- **Impurities:** The presence of impurities, such as dinitrobenzene, benzene, *o/p*-nitrotoluene, *p*-nitrochlorobenzene, and *m*-dinitrobenzene, must be controlled to minimize safety and performance issues in industrial use.
- **Stability and Safety:** Nitrobenzene should remain stable under standard storage and handling conditions to prevent degradation. Given its high toxicity, appropriate safeguards are necessary, including robust packaging and clear marking to mitigate risks during storage and handling.

IS 2630:2021 addresses these needs by specifying rigorous purity standards for nitrobenzene, including a **minimum purity of 99.5%** (as assay percentage), along with parameters such as **crystallization point, pH, distillation range, and relative density**. The standard also sets **maximum limits for various impurities** including moisture. It outlines detailed **sampling and testing** procedures to verify nitrobenzene's purity, density, and other essential properties.

Packing guidelines ensure that nitrobenzene is supplied in robust, leak-proof containers with **marking**, including the manufacturer's details, safety information, and the BIS certification mark, **ensuring compliance with quality and safety standards**. These packaging requirements help maintain product stability, while the marking and cautionary notices provide vital safety information for proper handling, particularly given its toxic nature.

In summary, **IS 2630:2021** ensures that nitrobenzene meets required purity, safety, and reliability standards, making it suitable for a wide range of industrial applications.