

IS 17450:2020 1,3 PHENYLENEDIAMINE — SPECIFICATION

1,3-Phenylenediamine, also called 1,3-diaminobenzene, is an **organic compound** with the formula $C_2H_4(NH_2)_2$. It is an isomer of 1,2-Phenylenediamine and 1,4-Phenylenediamine. This aromatic diamine is a **colourless solid** that **appears as needles**, but turns red or purple on exposure to air due to formation of oxidation products. Samples often come as colourless flakes and may **darken in storage**. 1,3-Phenylenediamine is **used in aramid fibre manufacture, as a polymer additive, dye manufacturing, as a laboratory reagent, and in photography**.

The Indian Standard, IS 17450:2020, sets limits for impurities to prevent defects in products and also provides methods to test and confirm the material characteristics for 1,3-Phenylenediamine so that it **guarantees uniform quality for industries**, supports safety and reliability in chemical usage and facilitates trade **by providing a recognized benchmark**.

1,3-diaminobenzene shall be in the form of **cream solid material**. It shall have a **minimum purity of 99.5%** when tested by Gas Chromatography. As 1,2-Phenylenediamine and 1,4-Phenylenediamine are isomers to 1,3-diaminobenzene, they will be found in trace quantities in pure 1,3-diaminobenzene. The **limits for trace quantities of 1,2-Phenylenediamine and 1,4-Phenylenediamine is given as 0.10 and 0.15 %** respectively when measured by Gas Chromatography. The crystallizing or **freezing point** should be a minimum of **65° C** and **Moisture content** when measured by Karl Fischer method should be a maximum of **0.5%** as per IS 5299.

1,3-diaminobenzene shall be **packed in steel drums** (*see* IS 2552) lined with suitable polyethylene film or as agreed to between the purchaser and the supplier. Each container shall be securely closed and marked. This standard is beneficial for industries relying on consistent and safe chemical inputs, ensuring compliance and product reliability.