

IS 702 : 2022 – Industrial Bitumen

Industrial Bitumen is a petroleum residue modified by the oxidation process. Its consistency ranges from highly viscous to solid. Industrial Bitumen is a safe and inexpensive material which has multiple uses in industry and a wide range of applications and has characteristics of Waterproofing, Plasticity, Adhesion and resistance towards acid and alkalis. It also makes an efficient electrical insulator, because it has excellent dielectric strength.

This Indian Standard specifies requirements for various parameters of Industrial Bitumen. Each parameter serves a distinct purpose to ensure that the bitumen will perform effectively and safely under various conditions. The key test parameters include:

- **Specific Gravity:** This measures bitumen density, ensuring it aligns with the required standards. Consistent density is vital for applications needing load-bearing materials, as it indicates material stability.
- **Flash Point:** The flash point is the temperature at which bitumen vapors can ignite. A higher flash point (225°C minimum in IS 702:2022) is crucial for safety, particularly in transportation and storage, reducing the risk of fire.
- **Softening Point:** This parameter determines the temperature at which bitumen starts to soften. A higher softening point is necessary for bitumen used in high-temperature environments to prevent melting or deformation, ensuring longevity in applications like roofing and insulation.
- **Penetration:** This measures how hard or soft the bitumen is by gauging how deeply a needle can penetrate it under controlled conditions. Penetration is significant for tailoring bitumen to specific applications, balancing flexibility with strength.
- **Loss on Heating:** This measures how much bitumen mass is lost when heated, indicating the material's stability and resistance to temperature. Lower values (0.3% maximum) imply greater stability, meaning the bitumen is less likely to degrade with heat exposure.
- **Ductility:** This is a measure of bitumen's flexibility or stretchability, which is particularly important for applications like sealing joints. Higher ductility ensures the bitumen can expand and contract without cracking.
- **Solubility:** Solubility in trichloroethylene, which must be 99% or higher, indicates the purity of the bitumen. High solubility ensures minimal contamination from other substances, leading to consistent performance and effectiveness.

Each of these tests verifies a different aspect of bitumen's quality, ensuring that it will perform reliably in various industrial applications. By adhering to these parameters, manufacturers provide a consistent product that meets both industry and safety standards. The standard also specifies packaging and marking requirements to ensure safe transport, storage, and traceability