

## **IS 17442 : 2020 Vinyl Chloride Monomer-Specification**

**Vinyl chloride monomer (VCM)** is a colourless, flammable gas (at room temperature) with sweet odour **used primarily in the manufacture of poly-vinyl chloride (PVC)** which is a lightweight resin used to manufacture durable plastic products like pipes, wire, packaging materials etc.

The Indian Standard, IS 17442:2020, prescribes the requirements, methods of sampling and test for Vinyl chloride monomer (VCM). This standard helps manufacturers produce high-quality PVC by providing consistent VCM standards and **offers a standardized benchmark**, making it easier for suppliers and buyers to agree on quality specifications. VCM should be **Clear and colourless with no suspended matter**. The minimum **purity of the monomer** should be **99.80 %** when tested as per **ASTM D 5507** or **Gas Chromatographic method** as mentioned in the standard. Specifications for other contaminants (in ppm) like Water content, Acidity, non-volatile matter and Total Iron are also prescribed.

As VCM is highly **toxic, flammable gas** at room temperature, it is **packed, stored and transported as a liquid under pressure**. It presents the same risks as transporting other flammable gases such as propane, butane (LPG) or natural gas (for which same safety standards apply). **Exposure to vinyl chloride via** inhalation, has been shown to increase the **risk of liver cancer in humans**. Containers of VCM need clear labels with product information, such as its purity, batch number, and other details, to ensure traceability and proper handling.

Specific guidelines for collecting representative samples using stainless steel sampling cylinders are provided to ensure accurate testing. **ASTM A 213** standard can be used for **testing the material of construction (MoC)** of the containers.

Detailed test procedures are provided as annexures in the standard for characteristics like water content, acidity, non-volatile matter, iron content, and overall purity.