

IS: 7809 (Part 3/sec 1) - (1986)

The Indian Standard IS: 7809 (Part 3/sec 1) - (1986) specifies requirements for pressure-sensitive adhesive insulating tapes used for electrical purposes, specifically plasticized polyvinyl chloride (PVC) tapes with non-thermosetting adhesive. This standard, outlines specifications for these tapes, emphasizing durability, safety, and reliability in electrical insulation applications.

The standard classifies tapes into two main types based on application temperature. The General-Purpose Type, suitable for use above 0°C, is designated as F-PVC/90/0/Tp and has a temperature index of 90. The Low-Temperature Application Type, designed for conditions as low as -18°C, is designated as F-PVC/75/18/T, with a temperature index of 75.

The materials used for these tapes must comply with IS 7809 (Part 1) for general requirements, including temperature and humidity conditions. Specifications cover dimensions like width, length, and thickness. Preferred thickness values are listed for both types, with tolerances and optional ranges specified. The adhesive and backing properties are critical to performance, and testing methods from IS 7809 (Part 2) are referenced.

The standard specifies performance metrics such as tensile strength (minimum 150 N/10 mm per mm thickness), adhesion to steel and backing (minimum values of 1.6 N/10 mm and 1.3 N/10 mm, respectively), and electric strength at room temperature (at least 40 kV/mm). For humid conditions, the electric strength requirement drops to 35 kV/mm. The standard addresses the flammability requirements, which must be met according to IS 7809 (Part 2) provisions.

The tapes must exhibit stability to accelerated aging, maintaining their adhesive and backing properties under controlled conditions of temperature and humidity. Flammability tests determine if the tape can be classified as flame-retardant (FR), and resistance to electrolytic corrosion is checked using visual or wire tensile methods. An insulation resistance test, ensuring performance in high-humidity environments, is also mandated.

Overall, IS 7809-3-1 (1986) defines comprehensive criteria for ensuring that plasticized PVC adhesive tapes meet high standards of insulation and safety, supporting their use in varied electrical applications.