IS 16627 : 2017 Agro Textiles - High density polyethylene (HDPE) laminated woven lay flat tube for use in mains and submains of drip irrigation system— specification

Agro Textiles High-Density Polyethylene (HDPE) Laminated Woven Lay Flat Tube, specifically designed for use in the mains and submains of drip irrigation systems facilitates efficient water distribution in agricultural applications, promoting optimal irrigation practices while conserving water resources.

For effective drip irrigation, the HDPE laminated woven lay flat tube must feature appropriate lamination and internal dimensions tailored for hydraulic efficiency. Key quality parameters include the Hydrostatic Burst Pressure Test to handle internal water pressure, breaking strength, elongation at break, and minimum retention of breaking strength after 500 hours of UV exposure. Additionally, it should demonstrate required abrasion resistance, trapezoid tear strength, puncture strength, environmental stress cracking resistance, and cold cracking resistance.

According to IS 16627, two types of laminated fabric are specified: one with a minimum mass of 400 g/m² and the other with a minimum mass of 550 g/m². Both types must adhere to internal diameter tolerances and undergo rigorous testing, including Hydrostatic Burst Pressure Tests and breaking strength assessments on 5 cm × 20 cm strips before and after UV exposure (with specified strength requirements in warp and weft direction). The strength must not decrease by more than 15% after abrasion resistance testing. The trapezoid tear strength must meet specific values for both types, while puncture strength should be at least 700 N for Type 1 and 1100 N for Type 2. No specimens should sustain damage during the cold cracking resistance test at –5°C, and an accelerated aging test at 70 ± 1°C for 72 hours is required to ensure product durability.

Additionally, the standard specifies requirements for welded seam strength, pressure impulse testing (withstanding at least 10,000 cycles), and kink testing. Acknowledging the significance of this standards, the Government of India issued a quality control order for IS 16627, which will take effect on July 1, 2024.