IS 16090:2013 Geo-Synthetics —Geotextiles used as Protection (or cushioning) Materials— Specification

Needle-punched non-woven geo-textiles, specifically designed to serve as protective or cushioning materials for geo-membranes in various civil engineering applications, including solid waste landfills and liquid impoundments. These geo-textiles play a crucial role in preventing damage to geo-membranes from construction activities and environmental factors, ensuring the longevity and effectiveness of hydraulic barriers.

Key quality parameters of these geo-textiles, are high tensile strength, adequate puncture resistance, and durability against environmental factors such as UV exposure and chemical degradation. Tensile strength is essential for withstanding mechanical stresses during installation and operation, while puncture resistance is critical for protecting the underlying geo-membrane from sharp objects and heavy loads. Additionally, consumers look for materials that are resistant to rot and mildew, ensuring long-term performance in various conditions.

The Indian Standard IS 16090:2013 specifies six types of needle punched non-woven geo-textiles based on GSM such as 300, 400, 600, 800, 1100, 1200. Minimum requirements for the geo-textiles, including a minimum tensile strength of 16 to 45 kN/m, depending on the application, and a minimum puncture resistance ranging from 3.0 to 11.0 kN. The standard also mandates that the geo-textiles be made from polymers that are resistant to commonly encountered chemicals and UV light, enhancing their durability. IS 16090 outlines rigorous testing methods to verify compliance with these specifications, ensuring that manufacturers produce geo-textiles that meet or exceed consumer expectations. Understanding the significance of Geotextiles, the Government of India has also issued a Quality Control Order that mandates BIS certification for these Geotextiles in accordance with IS 16090, effective from 1st January 2024.