



## **Indian Standard IS 16392 : 2015 Geotextiles for Permanent Erosion Control in Hard Armor Systems**

Geotextiles are **permeable synthetic fabrics** used in civil engineering and construction to **stabilize soil, prevent erosion, and manage water flow** in the environment. Geotextiles are mainly made from **polyester (PET) or polypropylene (PP)**. PP is lighter than water, strong and very durable. PET is heavier than water, has excellent strength and creep properties, and is compatible with most common soil environments. Geotextiles are mainly of two types, namely, **woven and non-woven geotextiles**.

For geotextiles used in permanent erosion control **within hard armor systems**, customers prioritize features that ensure long-term durability and stability, maintain erosion control, support the armor system's integrity, and **withstand environmental stresses** over time.

Geotextiles with specific hydraulic and **soil retention properties** to complement the soil needing protection can be used as standard filter layers for hard armor systems as these can be installed **with ease on slopes even under water** and are cost effective. Depending upon the gradation of the bank soil, either a non-woven or a woven geotextile can be selected and used beneath hard armor system in an erosive environment.

This standard covers general and performance requirements for geotextiles used between energy absorbing armor systems and the in-situ soil to prevent soil loss resulting in excessive scour and to prevent hydraulic uplift pressures causing instability of the permanent erosion control system. In this standard two classes of geotextiles i.e **Class 1 (having elongation < or  $\geq$  50 percent) and class 2** have been covered.

Key requirements include

- **Index properties and strength parameters** like grab strength, seam strength, abrasion resistance, CBR puncture strength to support heavy materials in high-flow areas,
- **Structural integrity properties** for optimal permeability for effective water flow without soil loss, and excellent filtration to retain soil particles while allowing water passage.
- **Durability properties like** Resistance to installation damage, Ultraviolet stability to prevent degradation in exposed environments, along with chemical resistance particularly for installations near saltwater.

The **Ministry of Textiles**, Govt of India, issued **Quality Control Order** which mandates that all **Geotextiles for Permanent Erosion Control in Hard Armor Systems** - sold, manufactured, or imported in India shall comply with **IS 16392** and display the **BIS Standard Mark**, ensuring quality of the product.