



IS 16481 : 2022

**Textiles — Synthetic Micro Fibres for Use in Cement Based
Matrix — Specification
(First Revision)**

Infrastructure plays a vital role in the development of any country, requiring strong and durable structures that can endure with minimal maintenance over long periods. However, traditional concrete is inherently brittle and lacks sufficient ductility. This limitation can be mitigated by incorporating fibres, which help enhance the material's performance under tension. The addition of synthetic fibres not only improves the concrete's behaviour after cracking but also reduces issues such as plastic shrinkage cracking, temperature-related cracks, and fire damage.

Synthetic microfibres serve as **secondary reinforcement** in cement-based materials, improving the durability and longevity of infrastructure projects. Their applications are widespread, including in concrete roads, pavements, industrial and commercial flooring, residential and commercial buildings, bridges, elevated structures, water-retaining structures, dams, ports, undersea concrete structures, plaster, shotcrete, precast elements, and mortar.

The benefits of fibre-reinforced concrete include increased tensile and flexural strength, improved toughness, crack resistance, reduced drying shrinkage, minimized water seepage, enhanced fatigue life, higher ductility, and improved abrasion and impact resistance.

The Indian Standard IS 16481:2022 outlines the physical properties required for synthetic microfibres, such as tensile strength, elongation, melting point, and glass transition temperature. It also specifies application criteria like diameter and length, as well as functional parameters such as drying shrinkage, for fibres made from polyester, nylon, and polypropylene.