Summary on Geocells

Defining the Product-

IS 17483 Part 2:2020 specifies the use of geocells—three-dimensional, permeable, honeycomb-like structures made of High-Density Polyethylene (HDPE). Geocells are utilized for slope erosion protection in applications like highway and railway embankments, landfill closures, and earth slopes. These structures are filled with materials such as soil, aggregates, or cement to create a semi-rigid mat that effectively reduces erosion and distributes loads.

Good Quality Parameters Expected by Consumers-Consumers and engineers expect

Geocells to meet high-quality standards that ensure durability, safety, and efficiency, including:

1.Virgin HDPE material with a minimum of 2% carbon black to resist UV radiation and degradation.

2.Tolerances of ±3% for depth and pocket size to maintain geometric accuracy.

3.Resistance to environmental stress, UV exposure, and chemical degradation.

4.High seam weld strength and effective texturing for enhanced friction between the infill material and geocell walls.

5.Friction efficiency of at least 85%, ensuring stability against sliding forces.

How the Standard Addresses These Expectations-

IS 17483 Part 2:2020 ensures that the quality expectations are met by

1.It provides clear guidelines on material composition, dimensions, and physical properties, ensuring consistency and reliability.

2.The standard mandates rigorous tests for UV resistance, seam weld strength, oxidation resistance, and environmental stress cracking.It provides clear guidelines on material composition, dimensions, and physical properties, ensuring consistency and reliability.

3.The document aligns with international benchmarks like ASTM standards, enhancing acceptance and applicability.

4.Comprehensive labelling requirements ensure traceability, including manufacturer details, batch numbers, and certifications.

5.Specific instructions for protecting geocells from UV, moisture, and contaminants during transport and storage maintain their quality until use.