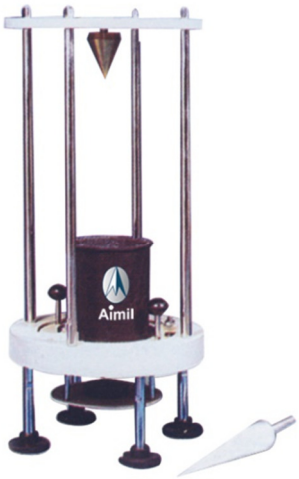
Thickness Gauge

Thickness is one of the basic physical properties used to control the quality of many geotextiles and geosynthetics. This equipment is simple to operate and thickness of the geosynthetics/ reinforcing material can be measured with an accuracy of 0.002 mm for thickness upto 10 mm. Accuracy is 0.01 mm for thickness greater than 10 mm. Simple mechanism is provided to apply desired foot pressure varying from 1 to 10kPa as per various international standards. Surface plate is grounded and is rust free to enable reproducible results.

Dry Sieves Test Apparatus

Soil retention is a predominant function of geotextiles in drainage and filtering applications. Pore size is the key parameter that controls the ability of the geotextile to retain the soil. The Apparent Opening Size (AOS) also called the Equivalent Opening Size (EOS) was developed by US Army Corps of Engineers for evaluating this property. AOS is the size of the holes in the geotextiles and it provides an index to the size of the largest opening through the geotextile. In conducting this test, the geotextile fabric is placed (instead of a wire mesh) in a sieving frame by using a special clamping arrangement. The test involves sieving rounded particle sizes for which 5% or less by weight, pass through the geotextile. The AOS is defined as 'Retained On' size of that fraction expressed as a standard sieve number (size). The test is widely used for relative comparison amongst the geotextiles. Thus AOS is a means of correlating geotextile pore structure to an equivalent screen mesh size. This test is standardised by ASTM, ISO, IGS (International Geotextile Society).The apparatus consists of a 20 cm dia brass frame with clamp, a receiver and a lid.

Cone Drop Test Apparatus



This test was developed by the Norwegian Road Research Laboratory (NRRL) and is widely used in Europe in evaluating the resistance of geosynthetics / geotextiles to damage during installation due to dropping of sharp edged or sharp pointed stones on a geosynthetic/geotextile directly.In this test, a geosynthetic or geotextile is clamped to yield a clear diameter of 150 mm and a brass cone of 45 degree angle included, having a weight of 1 kg, is dropped through a height of 500 mm. The diameter of the resultant hole is measured with a graduated conical device. The smaller the hole, the greater the resistance of geosynthetic/ geotextile to damage. When used in combination with other direct tensile test results, it provides a convenient means of qualitative comparison.

Permeability Test Apparatus

Permeability of a geotextile must be substantially greater than that of the protected soil, so that water can pass freely from the soil through the fabric without build-up of hydrostatic pressure. A high value of the permeability of the geotextile also infers that partial clogging will not reduce the permeability. Both Constant and Falling Head Permeameters are

generally used for measuring normal permeability known as permittivity. Permeability is defined as the volumetric rate of flow of water per unit cross sectional area under unit hydraulic head across the plain of the geotextile. ASTM D 4491 specifies permeability test using Constant Head and Falling Head Permeameters. The constant head test is carried out using a head of 50 mm of water. Specimen diameter is 100 mm.

Geotextile Permeameter

The Geotextile Permeameter has been designed to meet the test requirements of water permeablity of Geotextile. It has been made keeping in view the growing requirement of testing of coir geotextile. The geotextile is tested in the uncompressed state for permittivity. The determination of permittivity of geotextile is carried out, either by using constant head or falling head test procedures. The equipment can be used for performing tests as per ASTM-D4491-92. The equipment comprises of specimen holder assembly suitable for 73mm & 100mm dia sample, complete with interconnecting tubes houses inside a metal housing & mounted on a table alongwith a pump for delivering dearied water from de-airing below the specimen holder assembly unit. A water tank of 60 ltrs. capacity is placed alongside the main equipment on a steel stand to store & supply de-aired water continuously, as required, during the test. Geotextile permeameter comprises of specimen holder assembly for holding specimen of dia 73mm.Housing for specimen holder complete with inlet & outlet valves, Head differential measurement arrangement mounted on a stand and a Water Tank, complete with water level gauges suitable for falling head and constant head tests.

Long Term Flow Test Apparatus

The tests for permittivity and transmissivity help in comparing one fabric to another, but gives no indication of the hydraulic behaviour of the composite soil-fabric system. Under steady state and reversing flow conditions, fabric clogging or binding causes a decrease in water flow rate and corresponding increase in hydraulic head loss through the geotextile. When the potential for fabric clogging is significant, clogging resistance of filter fabrics should be evaluated to ensure adequate long term filter performance. As the clogging is highly soil dependent, soil fabric permeability test is suggested to determine the long term flow capability of a geotextile.

Gradient Ratio Test Apparatus

The US Army Corps of Engineers established a direct measure of geotextile clogging potential. They defined it as gradient ratio which is the ratio of hydraulic gradient through the geotextile plus 25.4 mm of the soil to that of hydraulic gradient through the adjacent 50.8 mm of the soil. It is determined after 24 hours of flow.