



Standard Terminology for Geosynthetics¹

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- absorption**, *n*—the process by which a liquid is drawn into and tends to fill permeable pores in a porous solid body, also, the increase in mass of a porous solid body resulting from penetration of a liquid into its permeable pores. **D 125**
- aerobic**, *n*—a condition in which a measurable volume of air is present in the incubation chamber or system. **D 1987**
- anaerobic**, *n*—a condition in which no measurable volume of air is present in the incubation chamber or system. **D 1987**
- apparent opening size (AOS)**, O_{95} , *n*—for a geotextile, a property which indicates the approximate largest particle that would effectively pass through the geotextile. **D 4751**
- atmosphere for testing geosynthetics**, *n*—air maintained at a relative humidity between 50 to 70 % and a temperature of $21 \pm 2^\circ\text{C}$ ($70^\circ \pm 4^\circ\text{F}$). **D 4439, D 4751, D 5494**
- back flushing**, *n*—a process by which liquid is forced in the reverse direction to the flow direction. **D 1987**
- basis weight**—deprecated term (do not use in the sense of mass per unit area). **D 4439**
- bend**, *vt*—in mechanics, to force an object from its natural or manufactured shape into a curve or into increased curvature. **D 4439**
- blinding**, *n*—for geotextiles, the condition where soil particles block the surface openings of the fabric, thereby reducing the hydraulic conductivity of the system. **D 4439**
- biocide**, *n*—a chemical used to kill bacteria and other microorganisms. **D 1987**
- breaking force**, (*F*), *J*, *n*—the force at failure. **D 4885**
- breaking load**, *n*—the maximum force applied to a specimen in a tensile test carried to rupture. **D 4632**
- breaking toughness**, *T*, (FL^{-1}), Jm^{-2} , *n*—for geotextiles, the actual work-to-break per unit surface area of material. **D 4595, D 4885**
- chemical resistance**, *n*—the ability to resist chemical attack. **D 5322**
- clogging**, *n*—for geotextiles, the condition where soil particles move into and are retained in the openings of the fabric, thereby reducing the hydraulic conductivity. **D 4439**
- clogging potential**, *n*—in geotextiles, the tendency for a given geotextile to decrease permeability due to soil particles that have either lodged in the geotextile openings or have built up a restrictive layer on the surface of the geotextile. **D 5101**
- compressed thickness** (*t*, (*L*), mm), *n*—thickness under a specified stress applied normal to the material. **D 4439**
- constant-rate-of-load tensile testing machine (CRL)**, *n*—a testing machine in which the rate of increase of the load being applied to the specimen is uniform with time after the first 3 s. **D 4439**
- corresponding force**, *n*—synonym for force at specified elongation. **D 4885**
- coupon**, *n*—a portion of a material or laboratory sample from which multiple specimens can be taken for testing. **D 5747**
- creep**, *n*—the time-dependent increase in accumulative strain in a material resulting from an applied constant force. **D 5262**
- critical height** (*ch*), *n*—the maximum exposed height of a cone or pyramid that will not cause a puncture failure of a geosynthetic at a specified hydrostatic pressure for a given period of time. **D 5514**
- cross-machine direction**, *n*—the direction in the plane of the fabric perpendicular to the direction of manufacture. **D 4632**
- density** (ρ , (ML^{-3}), kg/m^3), *n*—mass per unit volume. **D 4439**
- design load**—the load at which the geosynthetic is required to operate in order to perform its intended function. **D 5262**
- elastic limit**, *n*—in mechanics, the stress intensity at which stress and deformation of a material subjected to an increasing force cease to be proportional; the limit of stress within which a material will return to its original size and shape when the force is removed, and hence, not a permanent set. **D 4885**
- elongation at break**, *n*—the elongation corresponding to the breaking load, that is, the maximum load. **D 4632**
- failure**, *n*—an arbitrary point beyond which a material ceases to be functionally capable of its intended use. **D 4885, D 5262**
- failure**, *n*—in testing geosynthetics, water or air pressure in the test vessel at failure of the geosynthetic. **D 5514**
- flexible polypropylene**, *n*—a material having a 2 % secant modulus of less than 300 MPa (40,000 psi) as determined by Test Method D 5323 produced by polymerization of propylene with or without other alpha olefin monomers.
- field testing**, *n*—testing performed in the field under actual conditions of temperature and exposure to the fluids for which the immersion testing is being performed. **D 5496**
- fill**—deprecated term, see **filling**.

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filling, *n*—yarn running from selvage to selvage at right angles to the warp in a woven fabric. **D 4439**

force at specific elongation, FASE, *n*—the force associated with a specific elongation on the force-elongation curve. **D 4439**

force-elongation curve, *n*—in a tensile test, a graphical representation of the relationship between the magnitude of an externally applied force and the change in length of the specimen in the direction of the applied force. (*Synonym* for stress-strain curve.) **D 4885**

geocomposite, *n*—a product composed of two or more materials, at least one of which is a geosynthetic.

geofoam, *n*—block or planar rigid cellular foamed polymeric material used in geotechnical engineering applications.

geogrid, *n*—a geosynthetic formed by a regular network of integrally connected elements with apertures greater than 6.35 mm (1/4 in.) to allow interlocking with surrounding soil, rock, earth, and other surrounding materials to function primarily as reinforcement. **D 5262**

geonet, *n*—a geosynthetic consisting of integrally connected parallel sets of ribs overlying similar sets at various angles for planar drainage of liquids or gases. **D 4439**

geomembrane, *n*—an essentially impermeable geosynthetic composed of one or more synthetic sheets. **D 4439, D 4873, D 4885, D 5994, D 5820**

geosynthetic, *n*—a planar product manufactured from polymeric material used with soil, rock, earth, or other geotechnical engineering related material as an integral part of a man-made project, structure, or system. **D 4354, D 4759, D 4873, D 5617, D 5818**

geosynthetic clay liner, *n*—a manufactured hydraulic barrier consisting of clay bonded to a layer or layers of geosynthetic materials.

geotechnical engineering, *n*—the engineering application of geotechnics. **D 4439, D 4595**

geotechnics, *n*—the application of scientific methods and engineering principles to the acquisition, interpretation, and use of knowledge of materials of the earth's crust to the solution of engineering problems. **D 4439, D 4491, D 4595, D 4716, D 4751**

geotextile, *n*—a permeable geosynthetic comprised solely of textiles.

DISCUSSION—Geotextiles perform several functions in geotechnical engineering applications, including: separation; filtration; drainage; reinforcement; and protection. **D 1987, D 4439, D 5594**

grab test, *n*—in fabric testing, a tension test in which only a part of the width of the specimen is gripped in the clamps. **D 4632**

gradient ratio, *n*—in geotextiles, the ratio of the hydraulic gradient through a soil-geotextile system to the hydraulic gradient through the soil alone. **D 5101**

gravity flow, *n*—flow in a direction parallel to the plane of a geotextile or related product driven predominately by a difference in elevation between the inlet and outflow points of a specimen. **D 4716**

head, *n*—pressure at a point in a liquid, expressed in terms of the vertical distance of the point below the surface of the liquid. **D 4716**

hydraulic conductivity (*k*), *n*—the rate of discharge of water under laminar flow conditions through a unit cross-sectional area of a porous medium under a unit hydraulic gradient and standard temperature conditions (20°C). **D 5567**

hydraulic conductivity ratio (HCR), *n*—the ratio of the hydraulic conductivity of the soil/geotextile system, k_{sg} , at any time during the test, to the initial hydraulic conductivity, k_{sg0} , measured at the beginning of the test (new).

hydraulic gradient, *i*, *s* (*D*)—the loss of hydraulic head per unit distance of flow, dH/dL . **D 5101**

hydraulic transmissivity, θ ($L^2 T^{-1}$), *n*—for a geotextile or related product, the volumetric flow rate of water per unit width of specimen per unit gradient in a direction parallel to the plane of the specimen. **D 4716**

hydrostatic pressure, *n*—a state of stress in which all the principal stresses are equal (and there is no shear stress), as in a liquid at rest; induced artificially by means of a gaged pressure system; the product of the unit weight of the liquid and the difference in elevation between the given point and the free water elevation. **D 5514**

index test, *n*—a test procedure which may contain a known bias but which may be used to establish an order for a set of specimens with respect to the property of interest. **D 4833, D 4885**

inflection point, *n*—the first point of the force-elongation curve at which the second derivative equals zero. **D 4885**

initial tensile modulus, J_p (FL^{-1}), Nm^{-1} , *n*—for geosynthetics, the ratio of the change in force per unit width to the change in elongation of the initial portion of a force-elongation curve. **D 4885**

in-plane flow, *n*—fluid flow confined to a direction parallel to the plane of a geotextile or related product. **D 4716**

integral, *adj*—in geosynthetics, forming a necessary part of the whole; constituent. **D 4439**

laboratory sample, *n*—a portion of material taken to represent the lot sample, or the original material, and used in the laboratory as a source of test specimens. **D 4354**

laminar flow, *n*—flow in which the head loss is proportional to the first power of the velocity. **D 4716**

linear density, *n*—mass per unit length; the quotient obtained by dividing the mass of a fiber or yarn by its length.

lot, *n*—a unit of production, or a group of other units or packages, taken for sampling or statistical examination, having one or more common properties and being readily separable from other similar units. **D 4354**

lot sample, *n*—one or more shipping units taken at random to represent an acceptance sampling lot and used as a source of laboratory samples. **D 4354**

minimum test value, *n*—for geosynthetics, the lowest sample value from documented manufacturing quality control test results for a defined population from one test method associated with one specific property.

machine direction, *n*—the direction in the plane of the fabric parallel to the direction of manufacture. **D 4632**

modulus of elasticity, MPa (FL^{-2}), *n*—the ratio of stress (nominal) to corresponding strain below the proportional limit of a material, expressed in force per unit area, such as megapascals (pounds-force per square inch). **D 5323**