GLOSSARY - GEOTEXTILE AND GEOMEMBRANE TERMS

(Abridged from R. Koerner, *Designing with Geosynthetics*. Third Edition, 1994 and ASTM Designation D4439-98 Standard Terminology for Geosynthetics)

Apparent opening size	A property which indicates the approximate largest particle that would effectively pass through the geotextile.
Clogging	The movement by mechanical action or hydraulic flow of soil particles into the voids of a fabric and retention therein, thereby reducing the hydraulic conductivity of a geotextile.
Direction, cross-machine	The direction perpendicular to the long, machine, or manufactured direction (synonyms: *woven geotextiles, weft direction*).
Direction, machine	In textiles, the direction in a machine-made fabric parallel to the direction of movement the fabric followed in the manufacturing process (synonym: *lengthwise*, or *long direction*, and for woven geotextiles, *warp direction*).
Elongation	The increase in length produced in the gage length of the test specimen by a tensile load.
Elongation, percent	For geosynthetics, the increase in length of a specimen expressed as a percentage of the original gage length (i.e. engineering strain).
Extruder	A machine with a driver screw for continuous forming of polymeric compounds by forcing through a die; regularly used to manufacture geomembranes.
Fabric	Term used interchangeable with geotextile.
Fabric, composite	A textile structure produced by combining non-woven, woven, or knit manufacturing methods.
Fabric, non-woven	For geotextiles, a planar and essentially random textile structure produced by bonding, interlocking of fibers, or both, accomplished by mechanical, chemical, thermal, or solvent means and combinations thereof.
Fabric, woven	A planar textile structure produced by interlacing two or more sets of elements, such as yarns, fibers, rovings, or filaments, where the elements pass each other, usually at right angles, and one set of elements are parallel to the fabric axis.
Filter cloth	A deprecated term for *geotextile*.

Geocell	A three-dimensional structure filled with soil, thereby forming a mattress for increased stability when used with loose or compressible subsoils.
Geocomposite	A manufactured material using geotextiles, geogrids, geonets, and/or geomembranes in laminated or composite form.
Geogrid	A deformed or non-deformed gridlike polymeric material formed by intersecting ribs joined at the junctions used for reinforcement with foundation, soil, rock, earth, or any other geotechnical engineering-related material as an integral part of the human-made project structure or system.
Geonet	A geosynthetic consisting of integrally connected parallel sets of ribs overlying similar sets at various angles for planar drainage of liquids or gases.
Geomembrane	An essentially impermeable membrane used as a liquid or vapor barrier with foundation, soil, rock, earth, or any other geotechnical engineering-related material as an integral part of a human-made project, structure, or system.
Geopipe	Any plastic pipe used with foundation, soil, rock, earth, or any other subsurface related material as an integral part of a human-made project, structure, or system.
Geosynthetic clay liner	Factory-manufactured hydraulic barriers consisting of a layer of bentonite clay or other very low permeability material supported by geotextiles and/or geomembranes, and mechanically held together by needling, stitching, or chemical adhesive.
Geosynthetics	The generic terms for ally synthetic materials used in geotechnical engineering applications; it includes geotextiles, geogrids, geonets, geomembranes and geocomposites.
Geotextile	Any permeable textile used with foundation, soil, rock, earth, or any other geotechnical engineering-related material as an integral part of a human-made project, structure, or system.
Grab test	A tension test in which only a part of the width of the specimen is gripped in the clamps.
Hydraulic conductivity	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 temperatures (20ºC)
Needle-punched	Mechanically bonded by needling with barbed needles.

Permeability	A generic term for the property that reflects the ability of a material to conduct a fluid or vapor through a porous media such as soil or geotextiles. Properly called *hydraulic conductivity.*
Permittivity	For a geotextile, the volumetric flow rate of water per unit cross-section area, per unit head, under laminar flow conditions, in the normal direction through the fabric.
pH	A measure of the acidity or alkalinity of a material, liquid, or solid. pH is represented on a scale of 0 to 14; 7 represents a neutral state; 0 represents the most acid, and 14 the most alkaline.
Polymer	A macromolecular material formed by the chemical combination of monomers having either the same or different chemical composition. Plastics, rubbers, and textile fibres are all high-molecular-weight polymers.
Polyolefin	A family of polymeric materials that includes polypropylene and polyethylene, the former being very common in geotextiles, the latter in geomembranes. Many variations of each exist.
Polypropylene	A polyolefin formed by solution polymerization as was described for high-density polyethylene.
Polyvinyl chloride (PVC)	A synthetic thermoplastic polymer prepared from vinylchloride. PVC can be compounded into flexible and rigid forms through the use of plasticizers, stabilizers, fillers, and other modifiers; rigid forms used in pipes and well screens; flexible forms used in manufacture of geomembranes.
Resin bonded	The joining of fibers at their intersection points by resin in the formation of a non-woven geotextile or geocomposite.
Seam strength	Strength of a seam of geomembrane material measured either in shear or peel modes. Strength of the seams is reported either in absolute units (e.g. pounds per inch of width) or as a percent of the strength of the sheet.
Tear strength	The maximum force required to tear a specified specimen, the force acting substantially parallel to the major axis of the test specimen.
Tensile strength	The maximum force required to cause tension failure in a given test specimen.
Transmissivity	For a geotextile, the volumetric flow rate per unit thickness under laminar flow conditions, within the in-plane direction of the fabric.
Transverse direction	A deprecated term for *cross-machine direction*.

Ultraviolet degradation The breakdown of polymeric structure when exposed to natural light.

Voids The open spaces in a geosynthetic material through which flow can occur.

Warp The yarn running the length of the fabric in the machine direction when manufacturing woven fabrics.

Warp direction *See* Direction, machine. *Note*: For use with woven fabrics only.

Water table (1) The upper limit of the part of the soil or underlying rock material that is wholly saturated with water. (2) The upper surface of the zone of saturation in ground water in which the hydrostatic pressure is equal to atmospheric pressure.

Weft The cross-machine direction when manufacturing woven geotextiles.

Yarn A generic term for continuous strands of textile fibers or filaments in a form suitable for knitting weaving, or otherwise intertwining to form a textile fabric. *Yarn* may refer to (1) a number of fibers twisted together, (2) a number of filaments laid together without twist (a zero-twist yarn), (3) a number of filaments laid together with more or less twist, or (4) a single filament with or without twist (a monofilament).