

STANDARDS AUSTRALIA

Australian Standard

Geosynthetics—Glossary of terms

1 DEFINITIONS

Term	Definition
abnormal test result	A result that lies more than three standard deviations from the mean.
abrasion	The wearing away of any part of a material by the action of friction or rubbing.
abrasion resistance	The ability of a material to resist wear due to friction or rubbing.
absorption	A mechanism by which a fluid is assimilated by or taken up into a material or its constituents or both.
anisotropic	Having directionally variable physical properties.
antioxidant	A substance designed to retard or prevent oxidative degradation of a material.
apparent opening size	<i>See</i> opening size.
basecloth	A textile fabric, normally woven, which may be included in a needle felt to provide dimensional stability and strength and in some cases to facilitate the needle-punching operation.
batch	A defined quantity of a geosynthetic manufactured, produced, or stored under conditions presumed to be uniform, or a quantity purchased or offered for sale or for sampling at the one time. (<i>See also</i> order and sample.)
batt	Single or multiple sheets of fibre used in non-woven fabric production.
binder	An additive used to bind fibres together. A binder may be of a chemical, adhesive, resinous, or fibrous nature.
binder content	The mass of binder added as a percentage of the total mass of the geotextile.
bonding	The process by means of which one or more sheets, webs, or batts of fibre are held together. Bonding may be accomplished by mechanical, chemical, thermal, or solvent means, or combinations thereof.
chemical bonding	A process that uses suitable chemical products to achieve bonding.
mechanical bonding	A process that uses suitable mechanical methods to achieve bonding.
needle bonding	A mechanical process that uses barbed needles mounted in a needle loom to entangle the fibres of a web or batt by reorientation of some of the fibres within its structure.
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continuous filament	A fibre of indefinite length.
continuous filament yarn	A yarn of one or more filaments that run essentially the whole length of the yarn. (<i>See also</i> filament.) NOTE: Yarns of one or more filaments are usually referred to as monofilaments or multifilaments respectively.
course	A term applied to knitted fabrics describing a succession or row of knitted loops or stitches across the width of the fabric, usually perpendicular to the wales. (<i>See also</i> wales.)
creep	The time-dependent deformation of a material due to the application of a continuing and constant force.
cross-machine direction	<i>See</i> direction.
CRE testing machine	<i>See</i> constant-rate-of-extension tensile testing machine.
degradation	The reduction, over a period of time, in one or more physical properties of a geotextile due to external agencies. Such agencies may include abrasion, weathering, sunlight, ultraviolet light, chemicals, pollutants, soil burial, and various combinations thereof.
accelerated degradation	Degradation induced for testing purposes at a rate faster than that applying in normal in-service conditions.
actinic degradation	Degradation of fibres or fabrics due to exposure to solar radiation.
ultraviolet degradation	Degradation of fibres or fabrics due to exposure to ultraviolet radiation.
denier	A unit of linear density, equal to the mass, in grams, of 9000 m of a filament or yarn. (<i>See also</i> linear density and text.)
direction	
cross-machine direction	The direction in a machine-made fabric, perpendicular to the direction of motion of the material through the processing machine.
machine direction	The direction in a machine-made fabric, parallel to the direction of motion of the material through the processing machine.
normal direction	The direction perpendicular to the plane of the geotextile.
planar direction	Any direction in the plane of the geotextile.
drainage	The collecting and transporting of precipitation, ground water and/or other fluids.
durability	The ability of a geotextile to retain its original properties over a period of time. (<i>See also</i> degradation.)
electrokinetic geosynthetic	A composite material that may provide filtration, drainage and reinforcement, in addition to electrical conduction.
elongation	Extension expressed as a percentage of the original gauge length.
elongation at break	The elongation at the breaking point.
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wide strip tensile test	A uniaxial tensile test in which the entire width of the specimen is gripped in the jaws and in which the specimen width is greater than the gauge length.
tensile modulus	The ratio of the change in tensile force per unit width of the geotextile to the change in corresponding elongation. Unit: kilonewton per metre (kN/m)
initial tensile modulus	The slope of the initial portion of a force per unit width/elongation curve. (<i>See</i> line AG in Figure A1, Appendix A.)
offset tensile modulus	The maximum value of the tangent modulus. (<i>See</i> line BD in Figure A1, Appendix A.)
secant tensile modulus	The ratio of change in force per unit width to change in elongation between two points on a force per unit width/elongation curve, particularly the points of zero force and a specified percent elongation. (<i>See</i> lines QR and AM in Figure A3, Appendix A.)
tangent tensile modulus	The slope of the force/elongation curve at any given elongation.
tensile strength	<i>See</i> strength.
test result	The result from a single measurement on one specimen.
test sample	<i>See</i> sample.
test specimen	<i>See</i> specimen.
tex	The unit of linear density used in the textile industry. $1 \text{ tex} = 10^{-6} \text{ kg/m} = 1 \text{ g/km}$ (<i>See</i> also linear density.)
textile	Man-made fabric, produced by either weaving, needle punching or bonding fibres or filaments. NOTE: Examples of textiles are threads, cords, ropes, braids, lace, embroidery, nets, and fabrics made by weaving, knitting, felting, bonding, and tufting are all textiles.
thermal bonding	<i>See</i> bonding.
thickness	The distance between the upper and lower surfaces of a geotextile, measured normal to the surfaces and under a specified pressure.
toughness	The property of a geotextile by virtue of which it can absorb energy. It is expressed as the actual work-to-break per unit surface area and is proportional to the area under the force/elongation curve from origin to rupture point.
transmissivity	The ability of a geotextile to conduct a fluid within the plane of the fabric. It is expressed as the product of the coefficient of permeability in the fabric plane and the thickness of the geotextile. (<i>See</i> also permittivity.) Unit: square metre per second (m ² /s)

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T	temperature
W	width
—	dimensionless

2.1.2 Units

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m ²	square metre
m ³	cubic metre
mm	millimetre = 10 ⁻³ m
µm	micrometre or micron = 10 ⁻⁶ m
g	gram
mg	milligram = 10 ⁻³ g
kg	kilogram = 10 ³ g
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s	second
N	Newton
kN	kilonewton = 10 ³ N
Pa	pascal = N/m ²
kPa	kilopascal = kN/m ²
MPa	megapascal = MN/m ²
j	joule = Nm
tex	tex = 10 ⁻⁶ kg/m = mg/m
j/kg	tenacity = 10 ⁻⁶ N/tex
°	degree
%	percent
-	pure number

2.1.3 Prefixes for units

G	giga = 10 ⁹
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k	kilo = 10 ³
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2.1.4 Recommended subscripts

a	air or active (earth pressure)
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2.5.2 External applied loads

F_h	MLt^{-2} or Mt^{-2}	(kN or kN/m)	external applied concentrated horizontal force
F_v	MLt^{-2} or Mt^{-2}	(kN or kN/m)	external applied concentrated vertical force
q_s	$ML^{-1}t^{-2}$	(kN/m ² , kPa)	external applied surcharge load

2.5.3 Earth pressures

K	—	—	ratio of horizontal to vertical stress
K_a	—	—	active earth pressure coefficient
K_o	—	—	at-rest earth pressure coefficient
K_p	—	—	passive earth pressure coefficient
α	$ML^{-1}t^{-2}$	(kN/m ² , kPa)	wall adhesion (adhesion between wall and adjacent soil)
δ	—	(°)	angle of wall friction (angle of friction between wall and adjacent soil)

2.5.4 Factors of safety and partial factors

FS	—	—	global factor of safety (normally derived from limit equilibrium methods)
f_f	—	—	partial factor associated with dead loads in a structure
f_q	—	—	partial factor associated with live loads in a structure
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f_n	—	—	partial factor associated with the economic ramifications of structural failure
f_p	—	—	partial factor associated with the pull-out resistance of geosynthetic reinforcements
f_s	—	—	partial factor associated with the sliding resistance of geosynthetic reinforcements

3 GRAPHICAL SYMBOLS

3.1 Products

GTX		geotextile (generic)
GMB		geomembrane (generic)
GCD		geocomposite drain (generic)—with geotextile on both sides
GCE		geocell (generic)
GCL		geocomposite clay liner (generic)
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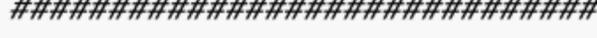
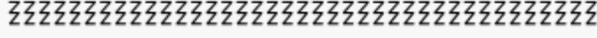
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