

**PART R85****SUPPLY OF GEOTEXTILES****CONTENTS**

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**1. GENERAL**

- .1 This Part specifies the requirements for supply of:
  - (a) geotextiles used as separation, filtration, or drainage elements in earthworks and pavement construction; and
  - (b) paving fabrics used in bituminous spray sealing applications.
- .2 Any project specific requirements will be shown on the drawings or the **Contract Specific Requirements**.
- .3 Document(s) referenced in this Part are listed below:
 

AS 3706	Geotextiles – Methods of Test
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**2. PROPERTIES OF GEOTEXTILE MATERIAL**

- .1 Geotextiles must consist of woven or non-woven fabric manufactured from synthetic fibres of a long chain polymer such as polypropylene, polyethylene, polyester or similar. After forming, geotextiles must be processed so that the fibres retain their relative positions with respect to each other.
- .2 Geotextiles must be free from defects or flaws which significantly affect its physical and/or filtering properties.
- .3 If geotextiles are to be joined, the thread used for joining must be high strength polyolefin, polyester or Kevlar.
- .4 Non-woven geotextiles must have filaments bonded by needle punching, heat or chemical bonding processes.
- .5 Woven geotextiles must have filaments interlaced in two sets, mutually at right angles. One set must be parallel to the longitudinal direction of the geotextile.
- .6 Geotextiles must be stabilised against deterioration due to ultraviolet radiation.

**3. PROPERTIES OF GEOTEXTILES****Geotextiles Used for Filtration, Drainage and Separation**

- .1 The Geotextile Strength Rating "G" must be calculated as follows:

$$G = \sqrt{(L \times h50)}$$

Where:

- |     |   |  |
|-----|---|--|
| L   | = | Plunger failure load (N) as determined by AS 3706.4 "Determination of Burst Strength; CBR Plunger Method".       |
| h50 | = | Normalised drop height (mm) as determined by AS 3706.5 "Determination of Puncture Resistance; Drop Cone Method". |

Type 1 geotextiles must have a G rating greater than 2 000.

Type 2 geotextiles: must have a G rating greater than 3 000.

#### **Geotextiles Used in Spray Seals (Paving Fabrics)**

- .2 The minimum melt temperature of the fabric must be greater than 195°C. At least 28 days prior to use, the Contractor must provide the Bitumen Retention rate. Provision of this information shall constitute a **HOLD POINT**.
- .3 In addition to the requirements of Clause 5 "Storage, Packaging and Identification", the Contractor must prevent the contamination of geotextiles used in sealing applications from precipitation and any other source of moisture.

#### **4. SAMPLING AND TESTING**

- .1 Geotextiles must be tested by a NATA certified testing authority in accordance with AS 3706.1 "General Requirements, Sampling, Conditioning, Basic Physical Properties and Statistical Analysis".
- .2 The Contractor must provide test results for each of the properties listed in Clause 9 "Verification Requirements" to demonstrate conformance with this Specification.
- .3 The sampling and testing frequency must be in accordance with the following:

<b>Batch or order size (sq. m) defined as the lot size</b>	<b>Number of rolls to be sampled representing the lot</b>
Initial 10 000 or part thereof	1
Each subsequent 10 000 (maximum)	1

- .4 Prior to use, the Contractor must provide a certificate of compliance, certifying that the geotextile complies with all requirements of this Specification for each type of geotextile. All test results reported on NATA endorsed test documents must accompany the certificate.
- .5 Control testing must be carried out for each batch of geotextile in accordance with the Geotextile Supplier's quality system.
- .6 Submission of the above certificate shall constitute a **HOLD POINT**.

#### **5. STORAGE, PACKAGING AND IDENTIFICATION**

- .1 Geotextiles must be stored under protective cover or wrapped with a waterproof, opaque UV protective sheeting to avoid any UV damage prior to installation.
- .2 Geotextiles must not be stored directly on the ground or in any manner in which they may be affected by heat. The method of storage must be in accordance with any other recommendations set by the manufacturer.
- .3 The geotextile rolls must be clearly labelled showing manufacturer, type of geotextile and batch identification number.

**6. TEST PROCEDURES**

- .1 The Contractor must use the following test procedures (refer [http://www.dpti.sa.gov.au/contractor\\_documents](http://www.dpti.sa.gov.au/contractor_documents)) to verify conformance with the Specification:

TEST	TEST PROCEDURE
General Requirements, Sampling, Conditioning, Basic Physical Properties and Statistical Analysis.	AS 3706.1
Determination of Burst Strength - California Bearing Ratio (Cbr) Plunger Method	AS 3706.4
Determination of Puncture Resistance - Drop Cone Method	AS 3706.5
Determination of Pore Size Distribution – Dry Sieving Method	AS 3706.7
Determination of Tensile Properties—Wide-Strip Method	AS 3706.2
Determination of Durability – Resistance to Degradation by Heat, Light and Moisture	AS 3706.11
Mass Per Unit Area	AS 3706.1
Bitumen Retention	ASTM D6140-00

**7. HOLD POINTS**

- .1 The following is a summary of Hold Points, vide Part G20 "Quality System Requirements", referenced in this Part:

CLAUSE REF.	HOLD POINT	RESPONSE TIME
3.2	Provision of Bitumen Retention Rate	7 working days
4.	Prior to use of geotextile – verification requirements	7 working days

**8. MEASUREMENT**

- .1 If measurement is required for the purpose of payment, the measurement must be based on the final surface area covered, with no allowance for the specified overlaps.

**9. VERIFICATION REQUIREMENTS AND RECORDS**

.1 The Contractor must supply written verification that the following requirements have been complied with and supply the verification with the lot package.

CLAUSE REF.	SUBJECT	PROPERTY	TEST PROCEDURE	TEST FREQUENCY	ACCEPTANCE LIMITS
<b>ALL GEOTEXTILES</b>					
2.	Stabilisation against UV radiation.	Retained Strength	AS 3706.11: Determination of Durability – Resistance to Degradation by Light and Heat	Refer Clause 4	At least 50% after 672 hours of test exposure.
<b>GEOTEXTILES USED FOR FILTRATION, DRAINAGE AND SEPARATION</b>					
3.1	Robustness	Geotextile Strength Rating "G"	Refer Clause 4	Refer Clause 4	Type 1 geotextile: G > 2 000 Type 2 geotextile: G > 3 000
		Burst Strength	AS 3706.4: Determination of Burst Strength - California Bearing Ratio (CBR) Plunger Method.	Refer Clause 4	Refer to Geotextile Strength Rating
		Puncture Resistance	AS 3706.5: Determination of Puncture Resistance - Drop Cone Method	Refer Clause 4	Refer to Geotextile Strength Rating
	Porosity	Equivalent Opening Size	AS 3706.7: Determination of Pore Size Distribution - Dry Sieving Method	Refer Clause 4	Between 85 and 230 microns
<b>GEOTEXTILES USED IN SPRAY SEALS (PAVING FABRICS)</b>					
3.2	Robustness	Mass per unit area	AS 3706.1: General Requirements, Sampling, Conditioning, Basic Physical Properties and Statistical Analysis or ASTM D5261-96: Test Method for measuring Mass per Unit Area of Geotextile	Refer Clause 4	Grade 1: > 135 g/m <sup>2</sup> Grade 2: > 175 g/m <sup>2</sup>
		Wide-strip Tensile Strength	AS 3706.2 Geotextiles—Methods of Test Method 2: Determination of tensile properties—Wide-strip method	Refer Clause 4	Grade 1: > 7 kN/m Grade 2: > 10 kN/m
		Maximum Elongation Range	AS 3706.2 Geotextiles—Methods of Test Method 2: Determination of tensile properties—Wide-strip method	Refer Clause 4	40 – 60%