Waste derived fill (water treatment solids – SPACE) specification

Issued January 2017

EPA 1098/17: This specification is approved by the Environment Protection Authority according to clause 4(a) of the Environment Protection (Waste to Resources) Policy 2010 *and applies to the SPACE product which is produced from water treatment solids (WTS) obtained from South Australian Water Corporation (SA Water) controlled water treatment plants (WTPs) and collected by SPACE Down Under.*

Title

This specification is to be known as the *Waste derived fill (water treatment solids – SPACE) specification*.

Commencement

This specification comes into operation on **20 December 2016** and applies to the use of waste derived fill (water treatment solids – SPACE) as a product.

Legislation

Clause 4 of the *Environment Protection (Waste to Resources) Policy 2010* states that:

> *For the purposes of the definition of **waste** in section 3(1) of the Environment Protection Act 1993, waste or material resulting from the treatment of waste continues to be waste except insofar as—*
>
> *(a) it constitutes a product that meets specifications or standards published from time to time or approved in writing by the Authority; or*
>
> *(b) if no specification or standard published or approved in writing by the Authority applies to such waste or treatment of waste – it constitutes a product that is ready and intended for imminent use without the need for further treatment to prevent any environmental harm that might result from such use.*

Chemical characteristics for waste derived fill (water treatment solids)

Waste derived fill (water treatment solids – SPACE) continues to be waste under the *Environment Protection Act 1993* except insofar as:

- it complies with the chemical criteria listed in Table 1.
- it is used in the following applications:
  - under bitumen or pavement as a root-friendly structural soil to prevent pavement buckling; and/ or

- under bitumen or pavement, but with the contained TreeNet Inlet as a means of capturing stormwater and nutrients for adjacent soils and plant roots.

It is not to be used on sensitive land applications as defined in the *Environment Protection Act 1993*, Part 1, where 'sensitive use' means for residential purpose, pre-schools, primary schools or of a kind prescribed by regulation.

Sampling and testing

When sampled and tested in accordance with the following methods, waste derived fill (water treatment solids – SPACE) must not exceed the chemical criteria in Table 1.

Table 1 Chemical criteria

Chemical substance	Maximum dry weight concentration (mg/kg)
Aluminium	145,000
Arsenic	20
Barium	300
Beryllium	20
Cadmium	3
Chromium (III)	400
Chromium (VI)	1
Cobalt	170
Copper	5,000
Lead	300
Manganese	500
Mercury	1
Nickel	60
Zinc	200

Sampling method

Sampling of SPACE must be undertaken in accordance with the method set out in *Australian Standard AS1141: Methods for sampling and testing aggregates: Method 3.1: Sampling – Aggregates.*

SPACE product usage limitations

The materials used to generate batches of SPACE are to be processed and analysed while still on SA Water premises. Material is not to be released from the production site until the batch of SPACE has been shown to meet the sampling and testing requirements:

- SPACE must always be installed under an impermeable or semi-permeable covering to prevent off-site movement.
- SPACE is not to be installed at sites that have a high water table (ie <2 m from the base of the SPACE trench).
- SPACE is not to be installed in soils with pH less than 4.5, or bulk soil pH must be ameliorated to a pH greater than 5.

- The batches of water treatment solids used to produce each SPACE blend are to be recorded and noted in the installation details for each site.

Test method

1 Testing must be undertaken by a National Association of Testing Authorities (NATA) accredited laboratory.

2 A minimum of one sample must be tested per 250 m^3 batch by a suitably qualified consultant, with a minimum of five samples to enable statistical analysis.

3 Statistical evaluation using 95% Upper Confidence Limit (UCL) calculations can be used on test results from representative sampling using ProUCL Software where any individual sample exceeds the absolute maximum dry weight concentration as defined in Table 1.

4 Leachable concentrations of chemical substances should be measured in accordance with *Australian Standard 4439.2–1997: Wastes, sediments and contaminated soils – Preparation of leachates – Bottle leaching procedures for semi or non-volatile analytes*.

Records

The final location of SPACE installation will require the generator (SPACE Down Under) to:

1 Log specific GPS marked locations of all SPACE installations with the Dial Before You Dig (DBYD) register to prevent disturbance of installed SPACE material.

2 Cover SPACE trenches with orange safety para-webbing. This will make the SPACE clearly identifiable should it be disturbed.

3 Keep all test results and record the quantity and destination of all SPACE supplied to its customers.

4 Provide its customers with a written statement of compliance certifying that SPACE comply with the chemical criteria of this specification.

5 Record details of all SPACE sales and installations, including quantities, trench dimensions, and locations are to be accurately and thoroughly recorded and copies kept by SPACE Down Under and the land-owner/council of the installation site.

6 Keep chain of custody documentation within the installation records for each site.

7 Provide a site management instruction detail to land-owners receiving SPACE. This must include procedures to be followed if emergency excavation of SPACE material is required.

Definitions

Generator	means a person who generates SPACE for supply to a consumer
SPACE	structural permeable aerated compactable earth – means the product formed from the blending of 1 kg diammonium phosphate (DAP) fertilizer/m^3 to achieve the required specification for a structural soil not exceeding 5,000 mg/kg Cu.
Structural soil	any soil that will be (or maybe), requested to support structures or associated pavements, or for which engineering properties are to be controlled. Sometimes referred to as controlled or engineered fill.
Subgrade	the earth material on which it is proposed to construct a pavement. This is often taken as being to a depth of 300 mm below the level from which the formal pavement is constructed.
Sensitive use	as defined in clause 3 of the Environment Protection Act, 1993 and means use for: (a) residential purposes

	(b) a pre-school within the meaning of the *Development Regulations 1993* (c) a primary school (d) a kind prescribed by regulation.
Specially protected areas	as defined under section 10A of the Environment Protection Act 1993
Waste derived fill	the homogenous waste material resulting from the production of a soil structural enhancer from water treatment solids (SPACE) that complies with the requirements of this specification

Further information

Legislation

Online legislation is freely available. Copies of legislation are available for purchase from:

Service SA Government Legislation Outlet
Adelaide Service SA Centre
108 North Terrace
Adelaide SA 5000

Telephone: 13 23 24
Facsimile: (08) 8204 1909
Website: <shop.service.sa.gov.au>
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General information

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