



Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014

The processed foundry sand order 2014

Introduction

This order, issued by the Environment Protection Authority (EPA) under clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 (Waste Regulation), imposes the requirements that must be met by suppliers of foundry sand to which 'the foundry sand exemption 2014' applies. The requirements in this order apply in relation to the supply of foundry sand for application to land in a blend with either (i) recovered aggregate or (ii) compost.

1. Waste to which this order applies

- 1.1. This order applies to processed foundry sand which is foundry sand that has been blended with either recovered aggregate or compost.
- 1.2. In this order, foundry sand means material recovered from the moulds used in the hot casting of iron, steel and aluminium metals, comprised predominantly of sand and fine sand rejects from sand recovery systems. Foundry sand does not include other materials from foundries such as bag dusts, dross and slags, or foundry sand from the casting of other materials, including brass, bronze, stainless steel or any other metal alloys, combination of alloys or hot dipping or surface treating.

2. Persons to whom this order applies

- 2.1. The requirements in this order apply, as relevant, to any person who supplies foundry sand that has been generated, processed or recovered by the person.
- 2.2. This order does not apply to the supply of processed foundry sand to a consumer for land application at a premises for which the consumer holds a licence under the POEO Act that authorises the carrying out of the scheduled activities on the premises under clause 39 'waste disposal (application to land)' or clause 40 'waste disposal (thermal treatment)' of Schedule 1 of the POEO Act.

3. Duration

- 3.1. This order commences on 24 November 2014 and is valid until revoked by the EPA by notice published in the Government Gazette.

4. Generator requirements

The EPA imposes the following requirements on any generator who supplies foundry sand to a processor.

Sampling requirements

- 4.1. On or before supplying foundry sand to a processor, the generator must:
 - 4.1.1. Prepare a written sampling plan which includes a description of sample preparation and storage procedures for the foundry sand.
 - 4.1.2. Undertake sampling and testing of the foundry sand as required under clauses 4.2 and 4.3 below. The sampling must be carried out in accordance with the written sampling plan and Australian Standard 1141.3.1-2012 Methods for sampling and testing aggregates – Sampling – Aggregates (or equivalent).
- 4.2. Where the foundry sand is generated as part of a continuous process, the generator must undertake the following sampling:
 - 4.2.1. Characterisation of the foundry sand by collecting 20 composite samples of the waste and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of characterisation. Characterisation must be conducted for foundry sand generated and processed during each 1-year period following the commencement of the continuous process; and
 - 4.2.2. Routine sampling of the foundry sand by collecting either 5 composite samples from every 1,000 tonnes (or part thereof) processed or 5 composite samples every 1 month (whichever is the lesser); and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1 other than those listed as 'not required' in Column 3. Each composite sample must be taken from a batch, truckload or stockpile that has not been previously sampled for the purposes of routine sampling. However, if characterisation sampling occurs at the same frequency as routine sampling, any sample collected and tested for the purposes of characterisation under clause 4.2.1 may be treated as a sample collected and tested for the purposes of routine sampling under clause 4.2.2.
- 4.3. Where the foundry sand is not generated as part of a continuous process, the generator must undertake one-off sampling of a batch, truckload or stockpile of the foundry sand, by collecting 10 composite samples from every 1,000 tonnes (or part thereof) processed and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. The test results for each composite sample must be validated as compliant with the maximum average concentration or other value listed in Column 2 of Table 1 and the absolute maximum concentration or other value listed in Column 4 of Table 1 prior to the supply of the foundry sand.

Chemical and other material requirements

- 4.4. The generator must not supply foundry sand to any person if, in relation to any of the chemical and other attributes of the foundry sand:
 - 4.4.1. The concentration or other value of that attribute of any sample collected and tested as part of the characterisation, or the routine or one-off sampling, of the foundry sand exceeds the absolute maximum

concentration or other value listed in Column 4 of Table 1, or

4.4.2. The average concentration or other value of that attribute from the characterisation or one-off sampling of the foundry sand (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 1, or

4.4.3. The average concentration or other value of that attribute from the routine sampling of the foundry sand (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 3 of Table 1.

4.5. The absolute maximum concentration or other value of that attribute in foundry sand supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 4 of Table 1.

Table 1

Column 1	Column 2	Column 3	Column 4
Chemicals and other attributes	Maximum average concentration for characterisation (mg/kg 'dry weight' unless otherwise specified)	Maximum average concentration for routine testing (mg/kg 'dry weight' unless otherwise specified)	Absolute maximum concentration (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.15	Not required	0.3
2. Cadmium	0.5	0.5	1
3. Lead	15	15	30
4. Arsenic	5	Not required	10
5. Beryllium	1.5	Not required	3
6. Chromium (total)	40	40	80
7. Copper	40	40	80
8. Molybdenum	10	Not required	20
9. Nickel	20	20	40
10. Selenium	3	Not required	5
11. Silver	5	Not required	10
12. Zinc	50	50	100
13. Fluoride	100	Not required	200
14. Electrical Conductivity	1 dS/m	1 dS/m	2 dS/m
15. pH*	7 to 8	Not required	6 to 9

*Note: The ranges given for pH are for the minimum and maximum acceptable pH values in the foundry sand.

Test methods

4.6. The generator must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities, or equivalent.

4.7. The generator must ensure that the chemicals and other attributes (listed in Column 1 of Table 1) in the foundry sand it supplies are tested in accordance with the test methods specified below or other equivalent analytical methods. Where an equivalent analytical method is used the detection limit must be

equal to or less than that nominated for the given method below.

4.7.1. Test methods for measuring the mercury concentration:

- 4.7.1.1. Analysis using USEPA SW-846 Method 7471B Mercury in solid or semisolid waste (manual cold vapour technique), or an equivalent analytical method with a detection limit < 20% of the stated absolute maximum average concentration in Table 1, Column 2 (i.e. < 0.03 mg/kg dry weight).
- 4.7.1.2. Report as mg/kg dry weight.

4.7.2. Test methods for measuring chemicals 2 - 12:

- 4.7.2.1. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils (or equivalent).
- 4.7.2.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 10% of the stated maximum average concentration in Table 1, Column 3 (i.e. 1.5 mg/kg dry weight for lead).
- 4.7.2.3. Report as mg/kg dry weight.

4.7.3. Test methods for measuring the fluoride concentration:

- 4.7.3.1. Particle size reduction & sample splitting may be required.
- 4.7.3.2. Analysis using Method 404 (Fluoride) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method with a detection limit < 10% of the stated maximum average concentration in Table 1, Column 3 i.e. 10 mg/kg dry weight).
- 4.7.3.3. Report as mg/kg dry weight.

4.7.4. Test methods for measuring the electrical conductivity and pH:

- 4.7.4.1. Sample preparation by mixing 1 part foundry sand with 5 parts distilled water.
- 4.7.4.2. Analysis using Method 103 (pH) and 104 (Electrical Conductivity) in Schedule B (3): Guideline on Laboratory Analysis of Potentially Contaminated Soils, National Environment Protection (Assessment of Site Contamination) Measure 1999 (or an equivalent analytical method).
- 4.7.4.3. Report electrical conductivity in deciSiemens per metre (dS/m), and pH as pH.

Notification

4.8. On or before each transaction, the generator must provide the following to each processor to whom the generator supplies the foundry sand:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of the processed foundry sand exemption, or a link to the EPA website where the processed foundry sand exemption can be found; and
- a copy of the processed foundry sand order, or a link to the EPA website where the processed foundry sand order can be found.

Record keeping and reporting

- 4.9. The generator must keep a written record of the following for a period of six years:
- the sampling plan required to be prepared under clause 4.1.1;
 - all characterisation, routine and/or one-off sampling results in relation to the foundry sand supplied;
 - the quantity of any foundry sand supplied; and
 - the name and address of each processor to whom the generator supplied the foundry sand.
- 4.10. The generator must provide, on request, the most recent characterisation and sampling (whether routine or one-off or both) results for foundry sand supplied to any processor of the foundry sand.
- 4.11. The generator must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 4.1 to 4.7.

5. Processor requirements

The EPA imposes the following requirements on any processor who supplies foundry sand.

- 5.1. The foundry sand must be mixed or blended with, or otherwise incorporated into:
- 5.1.1. Recovered aggregate where the foundry sand is added at a rate <20% by weight; or
- 5.1.2. Compost where the foundry sand is added at a rate <10% by weight.
- 5.2. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the processed foundry sand:
- a written statement of compliance certifying that all the requirements set out in this order have been met;
 - a copy of the processed foundry sand exemption, or a link to the EPA website where the processed foundry sand exemption can be found; and
 - a copy of the processed foundry sand order, or a link to the EPA website where the processed foundry sand order can be found.
- 5.3. The processor must keep a written record, for a period of six years, of the quantity of:
- any foundry sand received from the generator, and the generator's name and address; and
 - any processed foundry sand supplied to the consumer and the consumer's name and address.

6. Definitions

In this order:

application or apply to land means applying to land by:

- spraying, spreading or depositing on the land; or
- ploughing, injecting or mixing into the land; or
- filling, raising, reclaiming or contouring the land.

composite sample means a sample that combines five discrete sub-samples of equal size into a single sample for the purpose of analysis.

compost means material that meets all chemical and other material requirements,

for compost which are required on or before the supply of compost under 'the compost order 2014'.

continuous process means a process that produces foundry sand on an ongoing basis.

generator means a person who generates foundry sand for supply to a processor.

processor means a person who processes, mixes, blends, or otherwise incorporates foundry sand into compost or recovered aggregate producing a material in its final form for supply to a consumer.

recovered aggregate means material that meets the chemical and other material requirements for recovered aggregate which are required on or before supply of recovered aggregate under 'The recovered aggregate order 2014'.

transaction means:

- in the case of a one-off supply, the supply of a batch, truckload or stockpile of foundry sand that is not repeated,
- in the case where the supplier has an arrangement with the recipient for more than one supply of foundry sand, the first supply of foundry sand as required under the arrangement.

**Manager Waste Strategy and Innovation
Environment Protection Authority
(by delegation)**

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of each of the generator and processor to ensure it complies with all relevant requirements of the most current order. The current version of this order will be available on www.epa.nsw.gov.au

In gazetting or otherwise issuing this order, the EPA is not in any way endorsing the supply or use of this substance or guaranteeing that the substance will confer benefit.

The conditions set out in this order are designed to minimise the risk of potential harm to the environment, human health or agriculture, although neither this order nor the accompanying exemption guarantee that the environment, human health or agriculture will not be harmed.

Any person or entity which supplies foundry sand should assess whether the material is fit for the purpose the material is proposed to be used for, and whether this use may cause harm. The supplier may need to seek expert engineering or technical advice.

Regardless of any exemption or order provided by the EPA, the person who causes or permits the application of the substance to land must ensure that the action is lawful and consistent with any other legislative requirements including, if applicable, any development consent(s) for managing operations on the site(s).

The supply of foundry sand remains subject to other relevant environmental regulations in the POEO Act and Waste Regulation. For example, a person who pollutes land (s. 142A) or water (s. 120), or causes air pollution through the emission of odours (s. 126), or does not meet the special requirements for asbestos waste (Part 7 of the Waste Regulation), regardless of this order, is guilty of an offence and subject to prosecution.

This order does not alter the requirements of any other relevant legislation that must be met in supplying this material, including for example, the need to prepare a Safety Data Sheet.

Failure to comply with the conditions of this order constitutes an offence under clause 93 of the Waste Regulation.