



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

The ASMS steel furnace slag order 2021

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 steel furnace slag to which 'the ASMS steel furnace slag exemption 2021' applies. The requirements in this order apply in relation to the supply of ASMS steel furnace slag for application to land as a liming material.

1. Waste to which this order applies

- 1.1. This order applies to ASMS steel furnace slag. In this order, ASMS steel furnace slag means waste formed from the reaction of molten iron, scrap steel, and fluxes in a Basic Oxygen Steel (BOS) furnace during the manufacture of steel at Bluescope Steel at Port Kembla, NSW, and which has been further processed by crushing and screening to a particle size <10mm.

2. Persons to whom this order applies

- 2.1. The requirements in this order apply to Australian Steel Mill Services Pty Ltd (ASMS), Port Kembla NSW (ACN 003 705 673).
- 2.2. This order does not apply to the supply of ASMS steel furnace slag 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 28 May 2021 and is valid until 28 May 2024 unless revoked by the EPA by notice in writing at an earlier date.

4. Revocation

- 4.1. 'The ASMS steel furnace slag trial order 2018' which commenced on 23 July 2018 is revoked from 28 May 2021.

5. Processor requirements

The EPA imposes the following requirements on the processor who supplies ASMS steel furnace slag.

- 5.1. On or before supplying ASMS steel furnace slag, the processor must ensure

that the slag does not contain physical contaminants, including but not limited to glass, rigid plastics, flexible plastics or polystyrene. For the purposes of this order, physical contaminants does not include small incidental quantities of iron and steel encapsulated within the slag particles.

- 5.2. The processor must undertake one-off sampling of a batch, truckload or stockpile of the ASMS steel furnace slag, by collecting 10 composite samples from every 4,000 tonnes (or part thereof) generated and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. For batches greater than 4,000 tonnes, the above sampling rate must be repeated (e.g 30 composite samples would be required for a 12,000 tonne batch).

Chemical and other material requirements

- 5.3. The processor must not supply ASMS steel furnace slag to any person if, in relation to any of the chemical and other attributes of the ASMS steel furnace slag:
- 5.3.1. The concentration or other value of that attribute of any sample collected and tested as part of the one-off sampling of the ASMS steel furnace slag exceeds the absolute maximum concentration or other value listed in Column 3 of Table 1, or
- 5.3.2. The average concentration or other value of the ASMS steel furnace slag (based on the arithmetic mean) exceeds the maximum average concentration or other value listed in Column 2 of Table 1, or
- 5.4. The absolute maximum concentration or other value of that attribute in ASMS steel furnace slag supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 3 of Table 1

Table 1

Column 1	Column 2	Column 3
Chemicals and other attributes	Maximum average concentration (mg/kg 'dry weight' unless otherwise specified)	Absolute maximum concentration (mg/kg 'dry weight' unless otherwise specified)
1. Mercury	0.5	1
2. Cadmium	0.5	1
3. Lead	10	20
4. Arsenic	5	10
5. Beryllium	10	20
6. Boron ¹	NA	NA
7. Chromium (total)	2000	2500
8. Copper	20	40
9. Manganese ¹	NA	NA
10. Molybdenum	15	30
11. Nickel	30	60
12. Selenium	2	5
13. Zinc	200	300
14. Vanadium ¹	NA	NA
15. Leachable concentration (TCLP) of Chromium	0.05 mg/L	0.1 mg/L

16. Leachable concentration (TCLP) of Zinc	0.5 mg/L	1.0 mg/L
17. Electrical Conductivity ¹	NA	NA
18. pH	7.5 to 12.5	7 to 13

¹ NA - While limits are not included for boron, manganese, vanadium and electrical conductivity these must be tested in each sample and a record kept of the results.

Test methods

- 5.5. The processor must ensure that any testing of samples required by this order is undertaken by analytical laboratories accredited by the National Association of Testing Authorities (NATA), or equivalent.
- 5.6. The processor must ensure that the chemicals and other attributes (listed in Column 1 of Table 1) in the ASMS steel furnace slag 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.
- 5.6.1. Test method for measuring the mercury concentration:
- 5.6.1.1. Particle size reduction & sample splitting may be required.
 - 5.6.1.2. 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 maximum average concentration in Table 1, Column 2 (i.e. < 0.1 mg/kg dry weight).
 - 5.6.1.3. Report as mg/kg dry weight.
- 5.6.2. Test methods for measuring chemicals 2 - 14:
- 5.6.2.1. Particle size reduction and sample splitting may be required.
 - 5.6.2.2. Sample preparation by digesting using USEPA SW-846 Method 3051A Microwave assisted acid digestion of sediments, sludges, soils, and oils.
 - 5.6.2.3. Analysis using USEPA SW-846 Method 6010D Inductively coupled plasma - atomic emission spectrometry, or an equivalent analytical method with a detection limit < 20% of stated maximum concentration in Table 1, Column 2. The detection limit requirement does not apply to selenium and cadmium, detection limits for selenium and cadmium must be at or below 2 mg/kg for selenium and 0.4 mg/kg for cadmium.
 - 5.6.2.4. Report as mg/kg dry weight.
- 5.6.3. Test method for measuring the leachable concentration of chromium and zinc (TCLP):
- 5.6.3.1. USEPA SW-846 Method 1311 Toxicity characteristic leaching procedure (or an equivalent analytical method)
 - 5.6.3.2. Report as mg/L.
- 5.6.4. Test methods for measuring electrical conductivity and pH:
- 5.6.4.1. Sample preparation by mixing 1 part steel furnace slag with 5 parts distilled water.
 - 5.6.4.2. Analysis using Method 103 (pH) and Method 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).

5.6.4.3. Report decisiemens per metre (dS/m).

Notification

- 5.7. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the ASMS steel furnace slag:
- a written statement of compliance certifying that all the requirements set out in this order have been met;
 - a copy of 'the ASMS steel furnace slag exemption 2021' or a link to a website where the document can be found; and
 - a copy of 'the ASMS steel furnace slag order 2021' or a link to a website where the document can be found.

Record keeping and reporting

- 5.8. The processor must keep a written record of the following for a period of six years:
- all sampling results in relation to the ASMS steel furnace slag supplied;
 - the quantity of the ASMS steel furnace slag supplied.
- 5.9. The processor must provide, on request, the most recent sampling results for ASMS steel furnace slag supplied to any consumer of the steel furnace slag.
- 5.10. The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clause 5.1 to 5.4 by calling the Environment Line on 131555 or by email to info@epa.nsw.gov.au.

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.

consumer means a person who applies, or intends to apply, ASMS steel furnace slag to land.

processor means a person who generates, processes, mixes, blends, or otherwise incorporates ASMS steel furnace slag into a material in its final form for supply to a consumer. In this order, the processor is Australian Steel Mill Services Pty Ltd (ASMS).

transaction means:

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



28/5/21

Karen Marler

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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.

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 ASMS steel furnace slag 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).

While this order requires that the slag must not contain physical contaminants including but not limited to glass, rigid plastics, flexible plastics, or polystyrene, the EPA recognises that the slag may contain extremely low or incidental amounts of physical contaminants. The processor must implement procedures to prevent the presence of physical contaminants in the slag. For the purposes of this order, physical contaminants does not include small incidental quantities of iron and steel encapsulated within the slag particles.

The supply of ASMS steel furnace slag 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.