Resource Recovery Order under Section 286A of the Protection of the Environment Operations Act 1997

The enrich360 rapidly dehydrated food waste order 2024

Introduction

This order, issued by the Environment Protection Authority (EPA) under section 286A of the Protection of the Environment Operations Act 1997, imposes the requirements that must be met by processors of rapidly dehydrated food waste from specified enrich360 units, to which 'the enrich360 rapidly dehydrated food waste exemption 2024' applies. The requirements in this order apply to the supply of rapidly dehydrated food waste for application to land as a soil amendment.

1. Waste to which this order applies

1.1. This order applies to rapidly dehydrated food waste. In this order, rapidly dehydrated food waste means the dehydrated output from the mechanical mixing and heating of food waste by specified enrich360 units.

2. Persons to whom this order applies

2.1. The requirements in this order apply, as relevant, to any person who supplies rapidly dehydrated food waste that has been generated, processed or recovered by the person.

2.2. This order does not apply to the supply of rapidly dehydrated food waste to a consumer for land application at a premises for which the consumer holds a licence under the *Protection of the Environment Operations Act 1997* (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 May 2024 and is valid until 24 May 2026 unless revoked by the EPA in writing at an earlier date.

4. Processor requirements

The EPA imposes the following requirements on any processor who supplies rapidly dehydrated food waste.

General conditions

4.1. On or before supplying rapidly dehydrated food waste, the processor must ensure that the rapidly dehydrated food waste:

4.1.1. does not include grease trap waste or animal waste.

4.1.2. does not contain any physical contaminants, including but not limited to glass, metal, rigid or flexible plastics (including compostable plastics) or polystyrene.

4.1.3. is in a form and condition that is suitable for land application as a soil amendment.

4.1.4. has completed at least one full operational cycle by the specified enrich360 unit.

Sampling requirements

4.2. On or before supplying rapidly dehydrated food waste, the processor must:

4.2.1. Prepare a written sampling plan for the rapidly dehydrated food waste which includes a description of the input to the specific enrich360 unit sampled, sample preparation, and storage procedures for the rapidly dehydrated food waste samples. The sampling plan must include the appropriate holding times for all tests including microbiological testing.

4.2.2. Undertake sampling and testing of the rapidly dehydrated food waste as required under clause 4.3. The sampling must be carried out in accordance with the written sampling plan.

4.3. The processor must undertake characterisation of the rapidly dehydrated food waste by:

4.3.1. collecting 10 samples and testing each sample for the chemicals and other attributes listed in Column 1 of Table 1. Each sample must be taken from a single batch that has not been previously sampled for the purposes of characterisation. A maximum of two samples must be collected per month. Characterisation must be conducted on the rapidly dehydrated food waste within 12 months following the commencement of the process[1]; or

4.3.2. an alternative sampling and testing program that is approved by the EPA.

Chemical and other material requirements

4.4. The processor must not supply rapidly dehydrated food waste to any person if, in relation to any of the chemical and other attributes of the rapidly dehydrated food waste:

4.4.1. The concentration or other value of that attribute of any sample collected and tested as part of the characterisation of the rapidly dehydrated food waste exceeds the absolute maximum concentration or other value listed in Column 2 of Table 1.

4.5. The absolute maximum concentration or other value of that attribute in any rapidly dehydrated food waste supplied under this order must not exceed the absolute maximum concentration or other value listed in Column 2 of Table 1.

[1] Processors should note that further testing will be required after the first year. Further testing will be determined on the review of the results from the first year.

Table 1

Column 1	Column 2
Chemical and other attributes[2]	**Absolute maximum concentration[1]** (% 'dry weight' unless otherwise specified)
1. *Salmonella spp*.	Absent in 25 grams
2. Escherichia coli (E. coli)	Absent at limit of detection (Most probable number per gram)
3. Clostridium perfringens	Absent at limit of detection (colony forming units per gram)
4. Bacillus cereus	Absent at limit of detection (colony forming units per gram)
5. Particle size >9.5 mm	0 % mass
6. Electrical conductivity	N/A[3]
7. Sodium mg/kg	N/A[3]
8. Moisture content percentage	10%
9. pH	N/A[3]

[1]Processors should note that holding times for some of these tests are short and processors should check with the laboratories before sampling. For example, some microorganism samples must be analysed within 24 hours of collection.
[2]Take discrete samples for tests 1, 2, 3, and 4. Take composite samples for tests 5, 6, 7, 8 and 9.
[3] While limits are not included for 6, 7 and 9, these must be tested in each sample and records kept of the results.

Test methods

4.6. 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.

4.7. The processor must ensure that the chemical and other attributes (listed in Column 1 of Table 1) in the rapidly dehydrated food waste supplied are tested in accordance with the test methods specified below. Where an equivalent analytical method is used the detection limit must be equal to or less than the detection limit for the method given below.

4.7.1. Test method for the detection of *Salmonella*:

4.7.1.1. Australian Standard 5013.10-2009 Food microbiology - Microbiology of food and animal feeding stuffs - Horizontal method for the detection of Salmonella spp., or an equivalent analytical method.

4.7.1.2. Report as absent or present in 25 grams.

4.7.2. Test method for *E. coli*:

4.7.2.1. Australian Standard AS5013.15-2006 Food microbiology - Microbiology of food and animal feeding stuffs - Horizontal method for the detection and enumeration of presumptive. Escherichia coli - Most probable number (MPN) technique, or an equivalent analytical method.

4.7.2.2. Report as MPN / g.

4.7.3. Test method for *Clostridium perfringens*:

4.7.3.1. Australian Standard AS 5013.16-2006 Food microbiology – Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of Clostridium perfringens —Colony-count technique – colony forming units (CFU) technique, or an equivalent analytical method.

4.7.3.2. Report as CFU / g.

4.7.4. Test method for *Bacillus cereus*:
  4.7.4.1. Australian Standard AS 5013.2-2007 Food microbiology - Microbiology of food and animal feeding stuffs - Horizontal method for the enumeration of Bacillus cereus - Colony-count technique at 30C - colony forming units (CFU) technique, or an equivalent analytical method.
  4.7.4.2. Report as CFU / g.

4.7.5. Test method for measuring maximum particle size:
  4.7.5.1. Analysis using Australian Standard AS4454-2012 Composts, soil conditioners and mulches, Appendix G – Method for Determination of Particle Size Grading.
  4.7.5.2. Results must be reported as % by mass retained on a sieve with 9.5 mm apertures.
  4.7.5.3. The entire sample must pass through the sieve.

4.7.6. Test method for electrical conductivity:
  4.7.6.1. Analysis using Method 3A1 Electrical Conductivity (EC) of 1:5 soil/water extract from SOIL CHEMICAL METHODS – Australasia, Rayment and Lyons 2011.
  4.7.6.2. Report in dS/m on an air-dry basis.

4.7.7. Test method for sodium:
  4.7.7.1. Sample preparation using USEPA SW-846 Method 3050B Acid digestion of sediments, sludges, and soils.
  4.7.7.2. Analysis using USEPA SW-846 Method 6010C Inductively coupled plasma – optical emission spectrometry.
  4.7.7.3. Report as mg/kg.

4.7.8. Test method for moisture content:
  4.7.8.1. Analysis using method Method 2A1 Air dry moisture content from SOIL CHEMICAL METHODS – Australasia, Rayment and Lyons 2011.
  4.7.8.2. Report as %.

4.7.9. Test method for pH:
  4.7.9.1. Prepare sample by mixing one part of rapidly dehydrated food waste with 5 parts of water using analysis method 4A1 pH of 1:5 soil/water suspension from SOIL CHEMICAL METHODS – Australasia, Rayment and Lyons 2011, or an equivalent analytical method.
  4.7.9.2. Report as pH on an air-dry basis.

Notification

4.8. On or before each transaction, the processor must provide the following to each person to whom the processor supplies the rapidly dehydrated food waste:

- a written statement of compliance certifying that all the requirements set out in this order have been met;
- a copy of “the enrich360 rapidly dehydrated food waste exemption 2024”, or a link to the EPA website where the exemption can be found; and
- a copy of “the enrich360 rapidly dehydrated food waste order 2024”.

Record keeping and reporting

4.9. The processor must keep a written record of the following for a period of six years:

- the sampling plan required to be prepared under clause 4.2.1;
- all test results in relation to the rapidly dehydrated food wastes supplied;

- the quantity of any rapidly dehydrated food waste supplied; and
- the name and address of each person to whom the processor supplied the rapidly dehydrated food waste.

4.10. The processor must notify the EPA within seven days of becoming aware that it has not complied with any requirement in clauses 4.1- 4.5.

5. Definitions

In this order:

animal waste means dead animals and animal parts and any mixture of dead animals and animal parts[2].

application or apply to land means applying to land by:

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

consumer means a person who applies, or intends to apply, rapidly dehydrated food waste to land.

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

discrete sample means a sample collected and analysed individually that will not be composited.

food waste means food waste from the manufacture, preparation, sale or consumption of food but does not include grease trap waste or animal waste.

grease trap waste means any grease, oils, solids, water or other matter resulting only from the preparation or manufacturing of food that is collected in a grease trap in the usual course of the operation of the grease trap. This definition includes dissolved air flotation (DAF) units used to treat grease trap waste, but does not include grease trap waste collected from grease traps in hospitals and shopping centres other than those solely from the preparation of food.

enrich360 unit means the units supplied by enrich360 Pty Ltd. The enrich360 unit is a fully automated, closed-circuit vessel that operates with agitation using internal propellors and minimum internal temperature of 84 degrees Celsius (achieved by way of a jacketed external oil chamber) for a minimum of 8 hours.

processor means a person who processes rapidly dehydrated food wastes for supply to a consumer.

transaction means:

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

22/5/24

A/Director, Technical – Chemicals, Land and Radiation
Regulatory Practice and Services

[2] see Notes section for guidance

Notes

The EPA may amend or revoke this order at any time. It is the responsibility of the 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.

While this order requires that the rapidly dehydrated food waste must not contain physical contaminants including but not limited to glass, metal, rigid and flexible plastics (whether compostable or not) or polystyrene, the EPA recognises that the rapidly dehydrated food waste may contain extremely low or incidental amounts of physical contaminants. The processor must implement procedures to prevent the presence of physical contaminants in the rapidly dehydrated food waste. These procedures must be formally documented, and their implementation demonstrated. However, as noted in this order, the rapidly dehydrated food waste must not contain any grease trap waste or animal waste.

Animal waste is defined as dead animals and animal parts and any mixture of these. Under the food waste definition in this order, it is intended that for example, meat waste from commercial kitchens and plate scrapings would be considered as food waste. However, animal carcasses or parts of animals from an animal slaughtering process are excluded.

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 rapidly dehydrated food waste 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 requirements for asbestos waste (s 144AAB), 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, but not limited to the *Biosecurity Act 2015* and *Biosecurity Regulation 2017.*

Failure to comply with the conditions of this order constitutes an offence under section 286A of the Protection of the Environment Operations Act 1997.