

Information Sheet No. 6-5

Recycled organics product categories and standards

Information Sheet No. 6-5
Third Edition 2007

Inside This Sheet

1	Introduction
	Product sheets
4	Brief product descriptions
6	Conclusions
	Definitions
	Important references
	Acknowledgements

Introduction

This information sheet outlines relevant Australian Standards for products containing *Recycled Organics* (RO).

Relevant Australian Standards (Tables 1 to 4) from which product categories and descriptions are drawn include:

- Composts, soil conditioners and mulches (now including vermicast);
- Potting mixes;
- Soils for landscaping and garden use, and
- Playground surfacing.

Other RO product categories that are not covered by an existing Australian or Industry Standard are also presented (Tables 5 to 9):

- Shredded plant materials (non-pasteurised);
- Other vermiculture products;
- Non-standard compost products;

- Specialised products containing recycled organics, and
- Reprocessed food organics products.

The purpose of outlining the range of products manufactured from RO is to enable consumers to identify the best product for their needs; select products that minimise impacts on the environment, and to highlight the range of applications these products can be used in.

Where Australian Standards exist, consumers should endeavour to buy certified products that meet the minimum quality requirements in the Standard (see Information Sheet 6-4).

Where possible, Tables 1-9 specify the maximum permissible RO content within each product. This should assist consumers to identify products containing a higher recycled content, thereby reducing demand for non-recycled resources.

Plate 1. High quality soil conditioner to be incorporated into a poor quality, sandy soil used for growing vegetables such as cabbages in coastal New South Wales.



© Recycled Organics Unit 2003

ISBN 1-876850-32-9

Table 1. Range of products within **AS 4454 (2002) for composts, soil conditioners and mulches.** Note that Information Sheets have been developed and are published in “How to Use Recycled Organics Products” by the Recycled Organics Unit. Note that vermicast is now included in the standard and it is classified as a pasteurised soil conditioner.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
Pasteurised products	a) Pasteurised soil conditioner	100%	7-1-1
	b) Pasteurised fine mulch	100%	7-1-2
	c) Pasteurised mulch	100%	7-1-3
Composted products	d) Composted soil conditioner	100%	7-1-4
	e) Composted fine mulch	100%	7-1-5
	f) Composted mulch	100%	7-1-6

Table 2. Range of products within **AS 3743 (2002) for potting mixes.** Note that Information Sheets have been developed and are published in “How to Use Recycled Organics Products” by the Recycled Organics Unit.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
General potting mix	a) Regular grade	Variable	7-2-1
	b) Premium grade	Variable	7-2-1
Specialist potting mix	c) Seedling (Regular grade)	Variable	7-2-2
	d) Orchid (Regular grade)	Variable	7-2-2
	e) Low phosphorus (Regular grade)	Variable	7-2-2
	f) Low phosphorus (Premium grade)	Variable	7-2-2
	g) Acid (Regular grade)	Variable	7-2-2
	h) Acid (Premium grade)	Variable	7-2-2
	i) African violet (Regular grade)	Variable	7-2-2
	j) African violet (Premium grade)	Variable	7-2-2
	k) Bulb (Regular grade)	Variable	7-2-2
	l) Bulb (Premium grade)	Variable	7-2-2
	m) Hanging basket (Premium grade)	Variable	7-2-2

Table 3. Range of products within **AS 4419 (2002) for soils for landscaping and garden use.** Note that Information Sheets have been developed and are published in “How to Use Recycled Organics Products” by the Recycled Organics Unit.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
Manufactured soil products	a) Low density soil	10-40%	7-3-1
	b) Organic soil	15-25%	7-3-2
Soil blend products	c) Top dressing	3-15%	7-3-3
	d) Other	3-15%	7-3-3
Natural soil products	e) Top dressing	Variable	7-3-3
	f) Topsoil	Variable	7-3-3

Table 4. Products within **AS 4422 (1996) for playground surfacing.** Note that an Information Sheet has been developed and is published in “How to Use Recycled Organics Products” by the Recycled Organics Unit.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
Playground surfacing	a) Loose fill material	100%	7-4-1

Table 5. Range of products comprising **shredded plant materials (non-pasteurised)**. Note that Information Sheets have been developed and are published in “How to Use Recycled Organics Products” by the Recycled Organics Unit.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
Shredded garden organics	a) Raw leaf mulch	100%	7-5-1
	b) Raw woodchip	100%	7-5-1
Shredded wood and timber residuals	c) Raw woodchip	100%	7-5-1
	d) Other	100%	7-5-1
Shredded forestry residuals	e) Raw woodchip	100%	7-5-1
	f) Raw bark mulches	100%	7-5-1

Table 6. Range of products derived from **vermiculture processing**. Note that Information Sheets have been developed and are published in “How to Use Recycled Organics Products” by the Recycled Organics Unit. Note that vermicast is covered in **AS 4454 (2002) for composts, soil conditioners and mulches**.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
Vermicast	Note: Pasteurised vermicast products are now characterised as a soil conditioner product according to AS 4454 (2002) (see Table 1).	100%	7-1-1
Non-pasteurised vermicast	b) Mature	100%	7-6-1
	c) Immature	100%	7-6-1
Vermiculture liquids	d) Aqueous vermicast extract	N/A	7-6-2
	e) Worm bed leachate	N/A	7-6-2

Table 7. Range of products comprising **non-standard compost products** not defined in industry standards. Note that Information Sheets have been developed and are published in “How to Use Recycled Organics Products” by the Recycled Organics Unit.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
Compost liquids	a) Aqueous compost extract (compost tea)	N/A	7-7-1
	b) Other	N/A	7-7-1

Table 8. Specialised recycled organics products. Information Sheets have not been developed for these products.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
	a) Bio-filtration products	Variable	Not yet available
	b) Stormwater management products	Variable	Not yet available
	c) Bio-remediation products	Variable	Not yet available
	d) Other	Variable	Not yet available

Table 9. Products from **reprocessed food organics**. No Information Sheets have not been developed for these products.

<i>Category</i>	<i>Product Type</i>	<i>Maximum RO content</i>	<i>Sheet no.</i>
	a) Pasteurised / sterilised animal feeds	100%	Not yet available
	b) Pelleted dry animal feeds	100%	Not yet available
	c) Other	Variable	Not yet available

Product sheets

Readily available commercial product types listed in this Information Sheet are described in greater detail in the “*How to Use Recycled Organics Products*” series of Information Sheets, published by the Recycled Organics Unit.

Some product types are not described in detail because they are new, or they lack performance data, and specifications therefore are not available.

Brief product descriptions

Products listed in Tables 1-7 are defined below. Where possible, definitions were taken directly from the *Recycled Organics Dictionary and Thesaurus* (Recycled Organics Unit, 2002) and from relevant Australian Standards.

Composts, soil conditioners and mulches (Table 1)

Compliance of soil conditioners and mulches (a-f, Table 1) to Australian Standard AS 4454 (2002) requires that they are either *pasteurised* or *composted*.

Pasteurised products are not stable, they undergo significant decomposition after application and will not last as long as equivalent composted products, which are both stable and mature.

Pasteurised soil conditioners are any pasteurised organic product (excluding polymers, which do not degrade) that is suitable for incorporating into soils. These products are also identified as ‘soil amendments’, ‘soil additives’, ‘soil improvers’ and similar terms (Standards Australia AS 4454, 2002).

Note that vermicast is classified as a pasteurised soil conditioner in the updated version of AS 4454 (2002).

Pasteurised soil conditioners can be mixed into soils to improve soil

condition and plant growth. (Recycled Organics Unit, 2002).

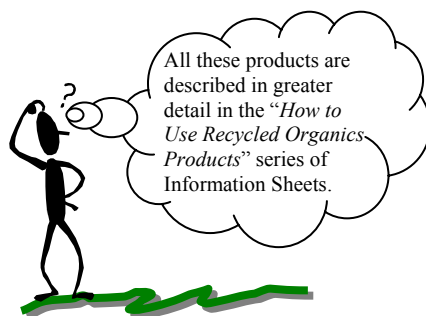
Pasteurised fine mulch is any pasteurised organic product that is suitable for placing on soil surfaces (Recycled Organics Unit, 2002 and Standards Australia AS 4454, 2002).

Pasteurised fine mulches have the same characteristics as pasteurised soil conditioners, except they are applied to the surface of soil. Due to their fine particle size, some mulch-soil mixing may occur and nutrients may be added to soil.

These products are primarily used to: protect the soil surface from erosion; reduce evaporation from soil, and to suppress weeds.

Pasteurised mulch is any pasteurised organic product (excluding polymers, which do not degrade) that is suitable for placing on soil surfaces. As the particle size of this product is significantly larger than that of fine mulches, no soil-mulch mixing occurs.

Pasteurised mulches are primarily used to: protect the soil surface from



erosion; reduce evaporation, and to suppress weeds.

These products have a particle size range slightly larger than soil conditioners (i.e. particles between 20 and 70% by mass greater than 16 mm).

Composted soil conditioner is any pasteurised product that has undergone composting for a period

of not less than 6 weeks that is suitable for incorporating into soil.

These products are more stable than pasteurised soil conditioners and may release nutrients into soil.

Composted fine mulch is any *pasteurised* product, which has undergone composting for a period of not less than 6 weeks. These products have similar benefits and applications to equivalent pasteurised fine mulches, but have longer life spans due to their more mature state.

Composted mulch is any *pasteurised* product, which has undergone composting for a period of not less than 6 weeks.

Once again, these products have similar benefits and applications to equivalent pasteurised mulches, but have longer life spans due to their more mature state.

Potting mixes (Table 2)

Pasteurised or composted soil conditioners can be used to make up to 50% of a potting mix. A potting mix is a growing medium suitable for the establishment and development of a wide range of plants in containers (Recycled Organics Unit, 2002 and Standards Australia AS 3743, 2002).

Composts used in potting mixes are stable and can stimulate plant growth. They are pasteurised, signifying that consumers can be confident they are free from plant pathogens or plant propagules.

General potting mix is defined as an ‘all-purpose’ potting mix according to Australian Standard AS 3743, (2002) (See Information Sheet No. 7-2-1 in the “*How to Use Recycled Organics Products*” series of Information Sheets).

General potting mixes can be of regular or premium grade. Regular grade general potting mixes require a

balanced fertiliser at potting, whereas premium grade general potting mixes do not.

Specialist potting mixes are growing mediums suitable for the establishment and development of plants with specialised requirements in containers.

A specialist potting mix can be one of seven types according to Australian Standard AS 3743, (2002) (see Information Sheet No. 7-2-2). Specialist potting mixes are specified for: African violets; bulbs; hanging baskets; seedlings; orchids; acid-loving plants, and plants that are sensitive to phosphorus.

These products come in regular or premium grades. The specifications for these grades are the same as for general potting mixes.

Soils for landscaping and garden use (Table 3)

Pasteurised or composted soil conditioners can be used in combination with natural or blended soils to manufacture soils for landscaping and garden use.

Soils for landscaping and garden use include low density soils, organic soils and soil blends.

Low-density soils tend to be composed mainly of organic materials (e.g. compost), and some sand and/or natural soil.

They have a low bulk density (0.3-0.6 kg/L) and a moderately high organic matter content (10-40% by mass).

Such soils tend to be used in large landscape containers and rooftop gardens.

Topsoils include organic soils or soil blends.

Organic soils usually consist of natural soil and organic materials (e.g. compost). Most organic soils contain less compost than low density soils.

Organic soils have a medium bulk density (>0.6 kg/L) and a moderate organic matter content (15-25% by mass). Organic soils are used mainly for general landscaping where topsoil is used.

Natural soils or soil blends are composed mainly of soil excavated from the environment, sometimes with a very small fraction of organic material (e.g. compost).

They tend to have a relatively high

bulk density (>0.7 kg/L) and a low organic matter content (3-15% by mass).

Such soils tend to be used primarily for general landscaping where topsoil is used. The clay content of these soils helps bind plant nutrients and organic matter when incorporated into an existing soil.

Playground surfacing (Table 4)

Adequate surfacing is required underneath and around all playground equipment from which a child might fall.

Loose-fill material is of a particulate nature (e.g. wood free bark mulch), installed to a specific depth, absorbing the energy of an impact through its displacement. These are used for surfacing in children's playgrounds to minimise the severity of head injury resulting from a fall from play equipment to the ground below (Recycled Organics Unit, 2002 and Standards Australia AS 4422, 1996).

Non-pasteurised shredded plant materials (Table 5)

These may include such products as shredded: garden organics; wood and timber residuals, and/or forestry residuals.

Raw products are any compostable organic material that is distributed as a recycled organic product without having been subjected to a pasteurisation or composting process, and may contain weed propagules and pathogenic microorganisms (Recycled Organics Unit, 2002).

Garden organics include any source separated organic (plant) materials generated by domestic, construction and demolition and commerce and industry sources.

Garden organics are defined by their component materials, including: putrescible garden organics (grass

Plate 2. Photograph of cabbages on land treated with a composted soil conditioner.



clippings); non-woody garden organics; woody garden organics; trees and limbs, and stumps and rootballs (Recycled Organics Unit, 2002).

Wood and timber residuals are any laminated or non-laminated, contaminated or uncontaminated, treated or untreated, solid or composite wood material produced by domestic, construction and demolition and commerce and industry sources, including: off-cuts; crates; pallets and packaging; saw dust and timber shavings (Recycled Organics Unit, 2002).

Products from Vermiculture processing (Table 6)

Vermiculture is a method of stabilising organic materials under controlled conditions by specific worm species and microorganisms under mesophilic temperatures. Commercial vermiculture systems include: windrows or beds; stackable trays; batch-flow containers, and continuous flow containers (Recycled Organics Unit, 2002). Products include vermicasts and vermiculture liquids.

Pasteurised vermicast is now included in the Australian Standard AS 4454 (2002) and is classified as a pasteurised soil conditioner product.

Non-standard compost products (Table 7)

Compost tea is a liquid extract of a composted material, which is pasteurised and has undergone composting for a minimum period of six weeks. Compost tea may contain organic and inorganic soluble nutrients, and a large number of organisms including bacteria, fungi, protozoa and nematodes (Recycled Organics Unit, 2002).

Compost teas may supply nutrients and organic matter to soil. If applied to plant foliage, these products may alter the composition of organisms on the leaf surface. Research indicates that some compost teas can help suppress foliar pathogens.

Conclusions

These product categorisations and definitions should only be used as an initial guide for product selection.

For more detailed information on specific product types use the Product Selector at <http://www.recycledorganics.com> or look at Information Sheets 7-1 to 7-7 in the “How to Use Recycled Organics Products” series of Information Sheets.

Definitions*

Recycled organics

The term Recycled Organics has been adopted by NSW Waste Boards as a generic term for a range of products manufactured from compostable organic materials (garden organics, food organics, residual wood and timber, biosolids and agricultural organics).

Pasteurised product

Organic material resulting from the controlled microbiological transformation of organic materials under aerobic and thermophilic conditions such that the whole mass of constantly moist material is subjected to a least 3 consecutive days at a minimum temperature of 55°C.

Composted

The process whereby organic materials are pasteurised and microbially transformed under aerobic and thermophilic conditions for a period not less than 6 weeks. By definition, it is a process that must be carried out under controlled conditions yielding mature products that do not contain any weed seeds or pathogens.

* Recycled Organics Unit (2002).

Important references

- Recycled Organics Unit (2002). Recycled Organics Industry Dictionary & Thesaurus: standard terminology for the recycled organics industry. Recycled Organics Unit, internet publication: <http://www.rolibrary.com>
- Standards Australia (1996). AS 4422 – Playground surfacing: Specifications, requirements and test methods. Standards Association of Australia; Homebush, NSW, Australia.
- Standards Australia (2002). AS 3743 – Potting Mixes. Standards Association of Australia; Homebush, NSW, Australia.
- Standards Australia (2002). AS 4419 – Soils for landscaping and garden use. Standards Association of Australia; Homebush, NSW, Australia.
- Standards Australia (2002). AS 4454 – Composts, soil conditioners and mulches. Standards Association of Australia; Homebush, NSW, Australia.

Acknowledgements

The development of this information package has been funded by Resource NSW.

© Recycled Organics Unit 2003

Produced by:

Recycled Organics Unit
PO Box 6267
The University of New South Wales
Sydney Australia 1466

Online contact details:

ROU Angus Campbell
Internet www.recycledorganics.com

Whilst all care is taken in the preparation of this Information Sheet, the information provided is essentially general in nature and the Recycled Organics Unit disclaims all liability for any error, loss or other consequence which may arise from application of the information in any specific situation.