

Information Sheet No. 7-1-1

Pasteurised soil conditioner

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Definition

A *pasteurised* organic product that is suitable for incorporation into soils. Soil conditioners are also referred to as soil amendments, soil additives, soil improvers and similar terms. In this context organic excludes polymers (e.g. plastics, rubber and coatings), which do not readily degrade.

Soil conditioner has not more than 20% by mass of particles with a maximum size above 16 mm (Standards Australia AS 4454, 2002). See Information Sheet No. 3-8, “*Introduction to Australian Standard AS 4454-2002 for composts soil conditioners and mulches*” in the “*Producing Quality Compost*” package of Information Sheets for more details (Recycled Organics Unit, 2002a). Note that AS 4454 (2002) now includes vermicast as a product, as long as it meets the pathogen and plant propagule requirements of the standard.

Uses

Pasteurised soil conditioners can be mixed into soils to improve soil condition and plant growth. Pasteurised soil conditioners can be

beneficially incorporated into soils in a variety of applications, including: home gardens; community open space; urban landscaping; agriculture; forestry, and for soil and site rehabilitation.

Benefits

Pasteurised soil conditioners have a number of benefits when incorporated into soils. These include: reduced soil erosion, particularly in areas with exposed soils; increased water retention in the upper soil profile, thereby reducing the frequency of watering to maintain plant growth; release of nutrients for plant growth, thus reducing the need for chemical fertilisers; suppression of soil borne plant diseases, thereby reducing fungicide and/or bactericide requirements.

Pasteurised soil conditioners are usually cheaper than composted soil conditioners because they require less processing time. However, as they are not mature, they still undergo rapid decomposition and will have a relatively short life span when applied to soil, compared with mature composted soil conditioners.

Plate 1. Soil conditioners used for agricultural (large scale) applications.



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Risks

Minimal, if handled and used correctly.

Effective *pasteurisation* via an aerobic and thermophilic (>55°C) composting or equivalent process, destroys weeds, seeds and plant/animal pathogens that may have been present in the original organic materials.

In most instances pasteurised products should be considered superior to shredded plant material products (e.g. leaf mulches), because non-pasteurised products increase the risk of spreading weeds, seeds or plant/animal pathogens.

Pasteurised soil conditioners are not mature composts and continue to decompose following use. Thus, pasteurised soil conditioners cannot be incorporated in excessive quantities into soils, as increased oxygen consumption from decomposition processes in the root zone can deleteriously affect plant growth. When incorporated into soils, planting should be delayed for at least two weeks to allow the material to decompose further.

Because pasteurised soil conditioners are not fully mature, they should not be bagged and stacked on large pallets because the generation of heat from the continuing decomposition process may compromise the integrity of the plastic bag. If bagged, the bag should contain adequate perforations to allow air exchange,

thereby preventing the development of anaerobic conditions and nuisance odours.

Additives

Slow releasing fertilisers containing plant macronutrients (nitrogen, phosphorus and potassium) and/or trace elements are sometimes added to prevent the immobilisation of soil nutrients and resulting nutrient deficiencies that may arise directly following product applications.

Application rates

The rate of application of a pasteurised soil conditioner to soil depends upon the length of time to planting. If seeds, seedlings or established plants are to be planted within a couple of days from the incorporation of the pasteurised soil conditioner, rates should not exceed 20 L/m² (layer not exceeding 20 mm depth). If planting is to proceed at least two weeks after application, the application rate can be up to 50 L/m² (layer no exceeding 50 mm depth). At greater application rates, oxygen availability to plants will be reduced and may impair plant growth or result in plant death.

For pasteurised soil conditioners that are high in soluble salts (measured as electrical conductivity, dS/m), application rates may be limited as soluble salts that leach out can cause water stress in plants. If the pasteurised soil conditioner has an electrical conductivity in excess of 1 dS/m, application rates need to be

Definitions*

Pasteurisation

The process whereby organic materials are treated to kill plant and animal pathogens and weed propagules.

Vermicast

Solid organic material resulting from the biological transformation of compostable organic materials in a controlled vermiculture process.

* Recycled Organics Unit (2002b).

restricted, depending on the sensitivity of the plant(s) to salt. See Information Sheet 6-6, "*Use of recycled organics products – Importance of electrical conductivity*" from the "*Buyers Guide for Recycled Organics Products*" for more information.

Application methods

Pasteurised soil conditioners are usually incorporated into bare soil containing no plants. Seeds, seedlings, or established plants are usually planted after the soil conditioner has been applied.

In small areas, such as domestic gardens, soil conditioners can be dug into soil with a garden fork or spade.

For larger areas, such as agricultural or forestry applications, soil conditioners can be spread with a manure spreader and tilled into the soil.

Important references

- Recycled Organics Unit (2002a). Producing Quality Compost: Operation and management guide to support the consistent production of quality compost and products containing recycled organics, Third Edition. Recycled Organics Unit, internet publication: <http://www.recycledorganics.com>
- Recycled Organics Unit (2002b). Recycled Organics Industry Dictionary & Thesaurus: standard terminology for the recycled organics industry. Recycled Organics Unit, internet publication: <http://www.rolibrary.com>
- Standards Australia (2002). AS 4454—Composts, soil conditioners and mulches. Standards Australia, Homebush, NSW.

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