

Australian Standard™

Potting mixes

This Australian Standard was prepared by Committee CS-037, Garden Soils and Potting Mixes. It was approved on behalf of the Council of Standards Australia on 4 August 2003 and published on 5 September 2003.

The following are represented on Committee CS-037:

Agriculture Victoria
Australian Institute of Horticulture
Australian Society of Soil Science Incorporated
Certification Bodies (Australia)
NSW Agriculture
NSW Department of Public Works and Services
Nursery & Garden Industry Australia
TAFE NSW
Turfgrass Association of Australia

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Australian Standard™

Potting mixes

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PREFACE

This Standard was prepared by the Standards Australia Committee CS-037, Garden Soils and Potting Mixes to supersede AS 3743—1996, *Potting mixes*. The Standard was originally requested by the Australian Institute of Horticulture and the Division of Soils, CSIRO.

This edition incorporates AS 3743—1996 Amendment 1—1998. Other changes comprise refinements which take into account results of further experience in the determination of air filled porosity (Appendices B and H) nutrients (Appendices D and G) and the toxicity test (Appendix F). Marking has changed to include bold line bordering around the health warnings for prominence on the bag.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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FOREWORD

Long-term storage of potting mix, especially in warm, moist environments, can lead to depletion of the available nitrogen content of the mix. The concentration of nitrogen that is available to plants at potting will be decreased from what it was at manufacture. Marking requirements and the note in Clause 2.5.1(c) relate to this problem. A ‘best-before’ date was discussed by the Committee, but was not considered to be the total answer, as retailers would not necessarily see any advantage in rotating mixes in the store, nor consumers any problem in using a mix after the date. Consumers do not generally understand this situation and would need to be educated to understand the fact that fertilizer may need to be added even to a premium mix that has been stored for some time.

In view of this, and in order to increase the likelihood that plants will still have sufficient nutrients to produce plant growth for at least the short term after sale of the potting mix, it is suggested that potting mix ingredients should have an NDI (see Appendix E) of at least 0.6 at the time of their incorporation into a standard potting mix.

STANDARDS AUSTRALIA

Australian Standard Potting mixes

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies physical, chemical, biological and labelling requirements for potting mixes packaged for retail sale. Potting mixes of both regular and premium quality are covered. Requirements are also included for mixes labelled as suitable for African violets, bulbs, hanging baskets, seedlings, orchids, acid-loving plants and plants that are sensitive to phosphorus.

Test methods for the analysis of potting mixes are set out in Appendices A to H.

NOTE: Appendix I gives guidance on the determination of compliance with this Standard.

1.2 OBJECTIVE

The objective of this Standard is to provide manufacturers, educational institutions, consumers and growers with a set of requirements which will ensure that potting mixes can germinate seeds, grow seedlings, strike cuttings and maintain plant growth.

1.3 APPLICATION

All potting mixes shall comply with Section 2 of this Standard and specifically with the applicable requirements in Table 2.1. Requirements shown in the table apply at the time of testing.

1.4 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|--------|--|
| 1199 | Sampling procedures and tables for inspection by attributes |
| 1199.0 | Part 0: Introduction to the ISO 2859 attribute sampling system |
| 1199.1 | Part 1: Sampling schemes indexed by acceptance quality limit (AGL) for lot-by-lot inspection |

AS/NZS

- | | |
|--------|--|
| 1336 | Recommended practices for occupational eye protection |
| 1715 | Selection, use and maintenance of respiratory protective devices |
| 1716 | Respiratory protective devices |
| 2161 | Occupational protective gloves |
| 2161.2 | Part 2: General requirements |

- | | |
|----------|--|
| ISO 9001 | Quality management systems—Requirements |
| ISO 9004 | Quality management systems—Guidelines for performance improvements |
| HB 18 | Guidelines for third-party certification and accreditation |
| HB 18.28 | Guide 28—General rules for a model third-party certification system for products |

1.5 DEFINITIONS

For the purpose of this Standard, the definitions below apply.

1.5.1 Air-filled porosity

The percentage of air, by volume, in a potting mix after it has been watered and drained under standard conditions.

1.5.2 Batch

A limited quantity of product which is made in one cycle of manufacture and is uniform with respect to starting materials, composition and method of manufacture.

1.5.3 Potting mix

A growing medium suitable for the establishment and development of a wide range of plants in containers.

1.5.4 Premium potting mix

A potting mix complying with the requirements in Table 2.1 of this Standard. Most particularly, its soluble nitrogen content and low ability to deprive plants of soluble nitrogen enable it to sustain good plant growth for at least a month without added fertilizers if the use of the mix is commenced within 2 months of manufacture. Its nutrient levels, water holding capacity and wettability are superior to those of a regular grade mix.

1.5.5 Primary package

Any form of packaging material, i.e. any packet, envelope, box, bag or the like, which is in intimate contact with the product.

1.5.6 Regular potting mix

A potting mix with properties as defined in Table 2.1 of this Standard and requiring the use of a balanced fertilizer from the time of potting.

1.5.7 Shall

Indicates that a statement is mandatory.

1.5.8 Should

Indicates a recommendation.

1.6 NOTATION

The following unit is used in this Standard:

dS/m decisiemens per metre (1 dS/m = 1 mS/cm)

1.7 CLASSIFICATION

1.7.1 General

Potting mixes shall be classified as either—

- (a) regular; or
- (b) premium.

1.7.2 Specialist mixes

Potting mixes intended for specialist applications shall be classified as follows:

- (a) Seedling (regular grade only).
- (b) Orchid (regular grade only).

- (c) Low phosphorus (regular or premium grades).
- (d) Acid (regular or premium grades).
- (e) African violet (regular or premium grades).
- (f) Bulb (regular or premium grades).
- (g) Hanging basket (premium grade only).

SECTION 2 GENERAL REQUIREMENTS

2.1 COMPOSITION

Potting mix shall not contain materials such as glass, or any sharp objects that could injure the hands of a user. It may, however, be composed of any other materials, provided that the requirements of Table 2.1, as appropriate, are met. The mix should also be free of plant pathogens, other pests, harmful chemical substances and any parts of plants generally considered to be weeds.

2.2 PHYSICAL AND CHEMICAL REQUIREMENTS

Potting mixes shall comply with the applicable physical and chemical requirements for the type and grade of mix, as given in Table 2.1 at the specified time of testing.

2.3 STORAGE BEFORE TESTING

When the test method requires that testing be undertaken at a certain time after the manufacture of the potting mix, then storage conditions shall be at a temperature of 15-25°C and in the shade.

2.4 PACKAGING

2.4.1 Volume

Potting mix shall be packaged in multiples of a litre, but otherwise there is no specific requirement on the volume or size of pack contents. When measured in accordance with Appendix A, the actual volume of the packaged mix shall not be less than the volume stated on the bag.

NOTE: As well as the requirements in this Clause, attention is drawn to any relevant federal and state legislation related to size, packing volume, weight or labelling.

2.4.2 Protection

Potting mix should be packaged so that, under normal conditions of handling, storage and transport, the contents are protected from contamination by extraneous matter and the contents are not released unintentionally.

NOTE: Packaging should contain small perforations to allow for pressure equalization and ease of handling.

2.5 MARKING

NOTE: As well as the requirements in this Clause, attention is drawn to any relevant federal and state laws which may require additional marking or documentation.

2.5.1 Required marking

The primary package of each potting mix shall be permanently and legibly marked with the following:

- (a) Name, or registered trade mark, and full address of the manufacturer, packer or distributor.
- (b) Volume of contents, in litres (to the nearest litre) printed in letters a minimum of 4.8 mm high. Packages shall not be marked with codes such as 'No. 1 pack', or similar, as a substitute for stating the actual number of litres of contents in the package.

The volume determined by the procedure in Appendix A shall be the only volume marked on the bag.

NOTE: This information should be located in a prominent position on the package.

- (c) Instructions on the correct application of fertilizer after potting, including the type of fertilizer and application details, for example:
 - (i) *For a regular mix:* ‘A balanced fertilizer should be used from the time of potting.’
 - (ii) *For a premium mix:* ‘The soluble nitrogen content of this mix is higher and its ability to consume soluble nitrogen is lower than that of regular mixes. A balanced fertilizer was added at the time of manufacture, but additional fertilizer may be required, depending on plant needs.’

NOTE: The intention of this wording is to ensure that sufficient fertilizer exists for the plant at the time of sale. A manufacturer may choose to use a date stamp or ‘use-by date’ as an alternative.

- (d) If the mix is intended for other than general use, the type of plants for which it is designed.
- (e) A statement complying with items (i) or (ii) below, as appropriate:
 - (i) *For potting mixes complying with the requirements for regular potting mixes* ‘This mix complies with the requirements of AS 3743 for a regular grade potting mix.’
 - (ii) *For potting mix complying with the requirements for premium potting mixes* ‘This mix complies with the requirements of AS 3743 for a premium grade potting mix.’

The word ‘premium’ shall not be marked anywhere on the package unless the contents comply with the relevant requirements given in Table 2.1.

- (f) A health warning label* and hazardous information label for customers on the handling of potting mix.

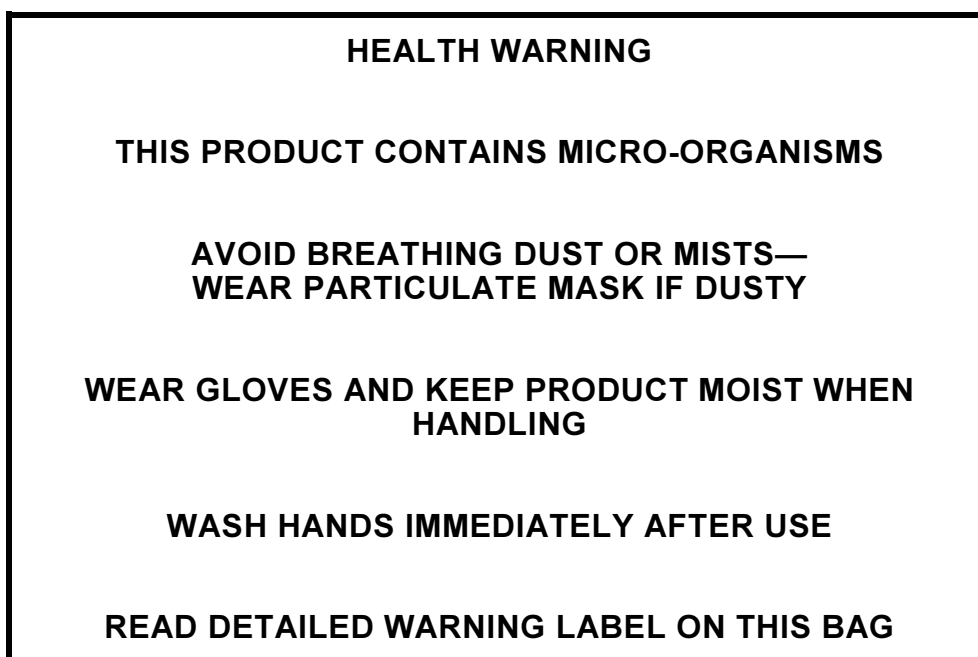
NOTE: As well as the requirements in this Clause, attention is drawn to any relevant federal and state laws which may require either additional or different marking or documentation.

The following requirements apply:

- (i) *Appearance* The warning specified in Clause 2.5.1(f)(ii) shall be printed in a contrasting colour to other non-warning printing, have a border in bold and shall appear in accordance with Items (A) or (B) as appropriate:
 - (A) On 15 L or larger packages, in 16 point Arial bold or another similar distinctive font.
 - (B) On packages of less than 15 L, in a 12 point Arial bold or another similar distinctive font.
- (ii) *Health warning label* The following warning* shall be printed in a prominent position on the front of the package as follows:

NOTE: Each point should be separated by a space, dot or other indication that a new point is being made.

* At the time of publication of this Standard, the health warning specified in Clause 2.5.1(f)(ii) was the latest agreed to jointly by the now renamed Nursery and Garden Industry Association of Australia and enHealth. It is the responsibility of the manufacturer to ascertain this is still the latest required warning. For further information refer to the relevant Material Safety Data Sheet.



- (iii) *Hazardous information label* A warning shall be printed on the reverse side (or back of the package) to the warning in Clause 2.5.1(f)(ii).

The actual words on the label are optional, but the example on the following page gives guidance on the type and extent of information to include on the label. The title 'HAZARDOUS' should be printed in a font size not less than twice the size of the general text.

2.5.2 Optional marking

The primary package may also carry statements about the major ingredients included in the mix, watering instructions, advice about the need for wetting agents, a caution about settling of the mix during transport, and other information related to the growing of plants in the mix.

Where claims are made regarding additives to or performance of the product, such claims must be capable of being verified. Verification will be audited as part of the certification process.

NOTE: Manufacturers making a statement of compliance with this Australian Standard on a product, packaging, or promotional material related to that product are advised to ensure that such compliance is capable of being verified.

HAZARDOUS

COMPOSTS, POTTING MIXES

AND OTHER ORGANIC GARDENING MATERIALS

This product is made from organic materials, including composted pinebark, and contains living micro-organisms, including bacteria, fungi and protozoa. May also contain mineral and fertiliser additives.

RISK Inhalation of dust and/or liquid mists may irritate, inflame or sensitise the nose, throat and lungs resulting in illnesses ranging from hayfever or asthma, to pneumonia (e.g. Legionnaire's disease) or pneumonia-like illnesses. Direct contact with this material or its dust and/or liquid mists (bioaerosols) may cause skin irritation (dermatitis), and skin or eye infection or irritation. People particularly at risk are those suffering from asthma or allergies, and those whose immune defence systems are compromised.

SAFETY Avoid contact with eyes and skin.
 Avoid breathing dust and/or liquid mists (bioaerosols).
 Wear suitable protective clothing and standard duty gloves (AS/NZS 2161.2).
 If exposed to dust and/or liquid mists, also wear dust resistant eye protection (AS/NZS 1336) and particulate respirator (AS/NZS 1715 and AS/NZS 1716).
 Wash thoroughly immediately after handling.
 Wash work clothes regularly.
 Clean up by wet sweeping or vacuuming.
 Store this product in a cool location.

FIRST AID Irrigate eyes with plenty of water for 10 minutes.
 Wash skin with soap and water.
 Seek medical attention for any persistent skin, eye or respiratory symptoms.

DISPOSAL Follow above safety precautions and collect in containers for disposal as trade waste in accordance with local authority guidelines.

MANUFACTURER xxxx

For further information, refer to the Material Safety Data Sheet for this product which is available from xxxx.

TABLE 2.1
PHYSICAL AND CHEMICAL REQUIREMENTS FOR POTTING MIXES

Characteristic	Unit of measurement (Note 1)	Requirement		Test method
		Regular	Premium	
Air-filled porosity (Note 2) Seedling mix Orchid mix (Note 3) Other mixes (Note 4)	%	8 to 15 ≥ 20 ≥ 13	Not applicable Not applicable ≥ 13	Appendix B or Appendix H
Total water holding capacity Orchid mix Seedling mix Other mixes	%	No requirement ≥ 50 ≥ 40	Not applicable Not applicable ≥ 50	Appendix B
Wettability	min	≤ 5	≤ 2	Appendix C
pH Acid mix Other mixes	pH units	4.8 to 5.8 5.3 to 6.5	4.8 to 5.8 5.3 to 6.5	Appendix D
Electrical conductivity Seedling mix Other mixes	dS/m	≤ 1.5 ≤ 2.2	Not applicable ≤ 2.2	Appendix D
Chloride (Cl) Seedling mix Other mixes	mg/L	≤ 60 ≤ 200	Not applicable ≤ 200	Appendix D
Nitrogen (N) (as ammonium ions) Seedling mix Other mixes	mg/L	≤ 50 ≤ 100	Not applicable ≤ 100	Appendix D
Nitrogen (N) (as ammonium plus nitrate ions) Seedling mix Other mixes	mg/L	≥ 25 No requirement	Not applicable ≥ 50	Appendix D
Nitrogen drawdown index Seedling and orchid mix Other mixes	—	≥ 0.5 ≥ 0.2	Not applicable ≥ 0.7	Appendix E
Toxicity	mm %	≥ 70	≥ 70	Appendix F
Phosphorus (P) Low phosphorus mix Low phosphorus soil mixes (Note 5) Other soil mixes Other mixes	mg/L	≤ 3 ≤ 0.5 ≥ 0.5 No requirement	≤ 3 ≤ 0.5 0.7 to 4 8 to 40	Appendix G
Potassium (K) (Note 6) DTPA extract Ammonium acetate extract	mg/L	No requirement No requirement	≥ 50 ≥ 30	Appendix G
Sulfur (S)	mg/L	No requirement	≥ 40	Appendix G
Calcium (Ca) Seedling mix Other mixes	mg/L	≥ 80 ≥ 50	Not applicable ≥ 80	Appendix G
Magnesium (Mg)	mg/L	≥ 15	≥ 15	Appendix G
Calcium/magnesium ratio	—	1.5 to 10	1.5 to 10	Appendix G
Potassium/magnesium ratio	—	No requirement	1 to 7	Appendix G

(continued)