

Information Sheet No. 7-4-1 Playground surfacing

Information Sheet No. 7-4-1
Third Edition 2007

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Definition

Loose fill organic products suitable for surface application in playgrounds with impact absorbing properties that reduce the risk of injury associated with children falling to the ground. Loose fill playground *surfacing* products are also commonly known as soft fall, soft surfacing and undersurfacing.

In New South Wales, playground surfacing must comply with the requirements set out in the Australian and New Zealand Standard for Playground Surfacing (Standards Australia AS 4422, 1996). See Information Sheet No. 3-9, “*Introduction to Australian Standard AS 4422–1996 for playground surfacing*” in the “*Producing Quality Compost*” package of Information Sheets for more details (Recycled Organics Unit, 2002a).

Quality

Mulches with certain physical attributes — classified as *loose fill materials* — can be successfully used as soft fall.

Suitable organic material for use as

soft fall will be ‘soft and fluffy’, and will maintain a low density for an extended period. The product should not be readily removed from playground surfaces by forces of erosion such as wind or surface drainage.

Industry consultation has identified that relatively soft and spongy bark stripped from trees in the debarking process of forestry operations is the preferred product.

Such size reduced bark products should not contain any physical contamination, and should be relatively free from harder woody particles that may result in splinters or cause injury in case of falls.

These relatively wood-free barks should be long lasting as they have a high carbon to nitrogen ratio, and therefore are stable by their nature.

Unlike mulches that are used in landscaping or gardening, soft fall in playgrounds does not require pasteurisation to eliminate weed seeds and plant pathogens. Soft fall mulches are applied in confined playground areas where there is minimal risk of weed seeds and plant

Plate 1. Photographs of soft fall mulch used for playground surfacing. The soft fall material pictured below (right) has been prepared from pine bark and is commercially available in New South Wales.



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ISBN 1-876850-03-5

pathogens impacting on the landscaped environment.

Organic materials that have been *pasteurised* or *composted* are not recommended for use as soft fall. This is because the decomposition process is likely to reduce the porosity and increase the bulk density of the mulch material, reducing its ability to absorb an impact during a fall. Furthermore, pasteurised products that are immature are relatively unstable, and will not provide a long lasting cover on the ground.

Uses

Soft fall is used to provide adequate surfacing underneath and around all playground equipment from which a child might fall, in order to reduce the impact of such a fall.

Loose fill materials are susceptible to scuffing and displacement, which may result in the material becoming too shallow to provide the required impact protection.

Where organic playground surfacing products are used, it is important for playground design to exclude and divert sources of surface drainage that can wash loose fill materials away from playground equipment and out of the *fall zone*.

AS/NZS 4422 (1996) states *loose fill shall be regularly inspected, and further fill added as necessary, in order to ensure that the correct material depth is maintained. In areas where displacement is particularly likely (such as underneath swings, or in areas of heavy traffic), extra material should be provided.*

Benefits

Adequate surfacing beneath playground equipment reduces the incidence and severity of head injury, and will also reduce the occurrence of bone injuries.

Risks

Soft fall mulch must be free from physical contamination. Serious injury (and potential legal liability) can result from a fall if the mulch is contaminated with hard materials such as plastics, glass, metal or stones.

Hard inorganic contaminants (eg. stones) can be imported into playgrounds from the surrounding environment. Manufacture and purchase of playground surfacing products certified against AS/NZS 4422 (1996) is recommended to both manufacturers and purchasers to minimise potential for any legal liabilities associated with playground injuries.

Additives

None, although appropriate playground design with regard to drainage and loose fill containment is necessary to ensure effective results.

Application rates and methods

The Australian and New Zealand Standard for Playground Surfacing (AS/NZS 4422–1996) sets out requirements for the depth of soft fall, and a guide to allowable *free fall heights* from playground equipment onto such surfacing.

Where impact absorbing under-surfacing is required, a minimum depth of 200 mm shall be installed. An extra allowance of depth must also be added, in accordance with the recommendations from manufacturers product testing, to allow for compaction and deterioration resulting from playground use (Standards Australia AS 4422, 1996).

Buy certified products and follow manufacturer recommendations in relation to minimum depth, which will be established through laboratory testing.

Definitions*

Surfacing

The surface of a playground from which the use of the equipment commences.

Loose fill material

Material of a particulate nature, installed to a specific depth, absorbing the energy of an impact through its displacement.

Pasteurised

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.

Fall zone

The surface(s) that may be hit by a user falling from the equipment (Standards Australia, 1996).

Free fall height

The greatest vertical distance between a part of the equipment to which the child has reasonably foreseeable access, and the surface or part of the equipment beneath.

* Recycled Organics Unit (2002b).

Materials differ in their ability to absorb the impact of a fall. Some materials can better absorb the impact of a fall, and are therefore suitable for use as soft fall surfacing

