

How to Calculate the Total Volume of LIAS Required

1. Measure the maximum free fall height.
This is the greatest vertical distance between any accessible part of the equipment intended for play and the surface beneath. Where barriers and guard rails are provided, for example around platforms, stairs or ramps, the free fall height should be taken as the height of the platform, stair or ramp. For further information, refer to the API guide to the 'Provision of Rubber and Loose Fill Impact Absorbing Surfaces'.
Play equipment inevitably has different fall heights at different points. The type of LIAS used should take this into account.
2. The free fall height, together with the results of laboratory testing, will determine which products can be used and at what depth they should be installed.
BS EN 1176 states that if loose particulate material is used it shall be installed to a layer thickness of 100 mm more than that found by laboratory testing to be necessary to achieve the required critical fall height.
3. Measure the surface area to be covered, in square metres rounded up to the nearest half metre.
4. The table below gives a guide to the area in square metres, covered by one cubic metre, when evenly laid at the given depths. Melcourt Playsand LIAS is sold by weight.

LIAS depth required	300 mm	200 mm	100 mm
Square metres covered by 1m ³ of bark or wood based LIAS	3.3	5.0	10.0
Square metres covered by 1 tonne of Melcourt Playsand™	4.0	6.0	12.0

5. Divide the total area to be covered by the figure in the appropriate depth column, to get the pre-settlement quantity of material required in cubic metres.
6. Refer to the 'Melcourt Product Specification and Performance Guide' (item 7) to determine the product settlement factor.
7. To calculate the total quantity of material required, add the basic quantity as in 5 above, to the settlement quantity calculated as in 6 above.

Example

To calculate the total quantity of Melcourt Playbark® 10/50 required where :-

- The maximum critical fall height of the equipment is 2.40 metres.
- The surface area to be covered is 365 square metres.

Therefore :-

1. Refer to the Melcourt LIAS Critical Height Test Results in Accordance with BS EN 1176.
2. Laboratory testing showed that Melcourt Playbark® 10/50 achieved a critical fall height of 2.45 metres, at 100 mm LIAS depth.

The maximum critical fall height in the example is 2.40 metres, therefore to comply with BS EN 1176. the depth of Melcourt Playbark® 10/50 will need to be 100 mm + 100 mm i.e. 200 mm settled depth.

To complete the calculation :-

Surface area of 365 square metres x 200 mm depth	=	73.00 cubic metres
Add 'settlement factor' from technical information sheet i.e. 10%	=	7.30 cubic metres
Total	=	80.3 cubic metres

Quantity of Melcourt Playbark® 10/50 required, rounded up to the nearest whole cubic metre = 81 cubic metres.

Contact