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Castle Lime Putty technical data sheet

Castle Lime Putty is a stiff paste composed of a finely divided colloidal dispersion of slaked lime in water.

On opening the container, a little water may be seen on the top of the putty. This is not detrimental to the product and prevents carbonation from taking place during storage. It should be kept for tempering the mortar or for adding back to the tub before resealing. Lime putty hardens by absorbing carbon dioxide from the atmosphere, which converts the lime to calcium carbonate. The hardening process is slow and allows some movement in a structure to be accommodated before the final set is obtained.

Applications

Castle Lime Putty is recommended for mixing with clean, well graded sands in the production of mortars, renders and plasters that are ideal for conservation, restoration and new build applications.

Castle Lime Putty is a fat lime which will carry up to three times its volume of clean, well graded sand below a size of 5mm. Gauging should always be carried out by volume and no further water needs to be added. Adequate mixing is essential to ensure that full workability of the mix is achieved. Pozzolan and other agents may be added to increase the speed of set. However, initial trials should be carried out to determine the correct addition rates.

Castle Lime Putty may be added, in small amounts, to hydraulic lime mortars and renders to improve their plasticity. Initial trials should be carried out to determine optimum proportions and their effect on the hardened product.

Castle Lime Putty may be thinned down using water, with or without the addition of pigments for making brushable lime washes.

For further advice please contact Hanson Cement's Technical Helpline on 0330 123 2441.

Quality

Castle Lime Putty is classified as BS EN 459-1 : 2001 CL 90 Lime Putty.

Typical properties	
Calcium Hydroxide	92.5%
Calcium Carbonate	4.0%
Insoluble	3.0%
Magnesia	0.05%
pH	13
Bulk density	1220 – 1320kg/m ³

High reactivity quicklime (CaO) is reacted with pure water in such a way that ultra fine slaked hydrated lime particles are uniformly dispersed through a thick viscous suspension. After the reaction, the suspension is allowed to stand so that the fine particles can develop their colloidal affinity for water and form a fully matured putty.

Strength

High strength is not normally required or desired of building mortar, renders or plasters. An unnecessarily strong mortar will concentrate the effects of any differential movement between the mortar and the masonry which could lead to cracking, reducing durability and increasing the risk of rain penetration. A weaker mortar will accommodate some differential movement between the mortar and the masonry and if cracking does occur it will generally be distributed as fine hairline cracks, thus preserving the integrity of the building.

Castle Lime Putty has no hydraulic properties and stiffens initially by the loss of moisture from the mix by evaporation and absorption. The hardening of lime putty mortars is due to the lime reacting with the carbon dioxide in the atmosphere that converts the lime to calcium carbonate. This hardening process is slow and it is important that consideration is given to providing adequate protection for the work in wet or cold weather.

Mortar mix design

Castle Lime Putty is usually proportioned with 2 1/2 - 3 parts by volume of clean well graded sand, the lime putty filling the spaces between the sand particles without adding to the overall volume, so the volume of coarse stuff is equal to the volume of the sand used. No additional water is usually required by the mix as the required workability can normally be achieved by adequate mixing of the mortar.

Storage

Castle Lime Putty should be stored under cool, frost free conditions. This is necessary as the water in the putty freezes in temperatures below 0°C, and could lead to separation. Part used tubs should have the surface water returned and the lids tightly sealed to prevent carbonation. Castle Lime Putty is available in 17 litre tubs.

Additions

Additions of pozzolan materials such as crushed brick dust, BS EN 450 Fly Ash, ground granulated blastfurnace slag or metakaolin can improve the rate of setting of lime putty mortars. It is recommended that trial mixes be produced to establish the optimum properties for any particular application.

Please note: Reference to a Technical Standard number in this leaflet is deemed to include the latest published edition and/or any published amendments issued after the standard's publication, unless a date of issue is quoted in which case reference is to the provisions stated in that edition.

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**For further information
please contact:**

Hanson Cement
Ketton
Stamford
Lincolnshire
PE9 3SX

Technical Helpline:

Tel: 0330 123 2441
Fax: 01780 727154
Email: cement.technical.help@hanson.biz

Customer Services:

Tel: 0330 123 2074
Fax: 01780 727008
Email: cement.customer.services@hanson.biz