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Mixing & Using Instructions

HARCAST ES

General

Material should be stored in a dry place. For best results, material should be maintained at 10 - 21°C prior to casting.

Porous back-up materials or wood forms should be waterproofed. Absorption of water can result in reduced flow or affect setting of the product. Forms must be stout and water tight.

This product is designed to be mixed with water and poured or handcast into place. It can also be placed by vibration at a lower water addition. All equipment used to mix this product must be clean.

Never mix less than full bags. Add only clean water suitable for drinking, for best results, water should be maintained at 10 - 21°C.

Water Addition and Mixing Requirements

Water addition per 100 Kg 12 Litres

Mix for at least five minutes. For best results, wet mix temperature should be maintained at 15 - 25°C. Minor adjustments to the amount of water are permissible to achieve desired flow.

To maximise strength and density the castable should be placed using the minimum water addition consistent with satisfactory placement and removal of air pockets.

Over vibration or over vigorous placement of very fluid mixes should be avoided to minimise segregation of the castable.

Excess water lowers strength and increases time to set.

Installation

Place material within 20 minutes after adding water. Do not trowel to slick finish. At temperatures above 15°C, air cure, keeping surfaces damp and / or covered, for 16 – 24 hours typically or until a hard set has developed. Lower temperatures will increase the time before a hard set develops. The best results are achieved at curing temperatures of 30°C - 45°C. Keep material from freezing during air cure and preferably until a dryout can be initiated. Freezing of this product prior to water removal can cause structural damage.

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Dryout Schedule

Heating and cooling refractory structures can be a complex procedure and where possible should be delegated to experts. Where this is done by the client they are themselves contractually responsible, and the following is given in good faith for guidance only.

Ambient to 120ºC	17ºC / hour
Hold at 120ºC for 60 mins per 25mm thickness	
120ºC to 260ºC	17ºC / hour
Hold at 260ºC for 60 mins per 25mm thickness	
260ºC to 550ºC	17ºC / hour
Hold at 550ºC for 60 mins per 25mm thickness	
550ºC to 800ºC	17ºC / hour
Hold at 800ºC for 60 mins per 25mm thickness	

Never enclose a castable in a vapour-tight encasement as a dangerous steam explosion may result.

For thicknesses greater than 230mm or for multi-component linings contact Harbison-Walker Refractories Ltd for further advice.

Please note, the position of the control thermocouples for the heating and holding phase is important and can be critical. Advice can be given in good faith on request.