

March 2016

Leca Building Block Manufacturing

Description of Application

Leca blocks are often used in place of concrete cinder blocks in home and building construction. Leca stands for lightweight expanded clay aggregate; it is created by superheating clay in a rotary kiln producing gases that form bubbles resulting in a honeycomb structure. While there are numerous uses for leca, one common application involves using leca as the aggregate to mix with cement and water to produce a lightweight concrete block – referred to as a leca block - for use in foundations, retaining walls and other building applications.



Leca Aggregate

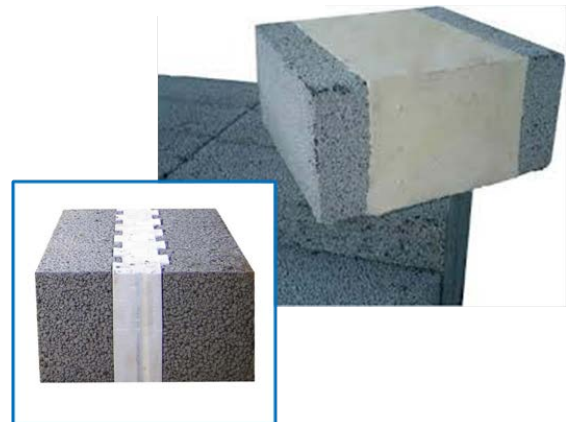
As an inorganic material, leca blocks protect against dry rot, wet rot and insect infestation or damage. Some of the characteristics/properties leca use offers include:

- Lower weight
- Frost resistance
- Strong compressive strength
- Moisture impermeability
- Fire resistance

To improve thermal insulation, polymer materials such as expanded polystyrene (EPS), which is also known as Styrofoam, or polyurethane can be used in the center of two leca blocks.

A common manufacturing method used to create the final leca building block involves pouring the liquid leca and cement mixture into a mold that already has a formed polymer block in the center of the mold. Different sized molds are required for the different size building blocks. And, the two leca blocks used as the two sides of the sandwich are produced inline so slow down the overall production.

Leca Building Blocks



Nordson Solution

Nordson proposes using an adhesive dispensing system to glue two outer leca sides to a center polymer core. Then compression is applied to both sides of the block to assure a tight, complete bond.

A pressure sensitive adhesive can successfully adhere the two dissimilar materials – leca and polymer – and offer a wide temperature window to withstand both the hot and cold temperatures that building materials can face.

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Nordson's solution involves using a bulk melter, such as a VersaDrum[®] bulk melter, feeding multiple high flow, intermittent applicators, such as H-20 LBS applicators, and being controlled by a Spectra[™] 30 pattern controller.



VersaDrum Bulk Melter



Spectra Pattern Controller

Nordson Solution Advantages/Benefits

- Producing the preformed blocks (leca and EPS blocks) offers flexibility in materials.
- There is no need for numerous different sized forms.
- Leca and EPS blocks can both be produced ahead of time and then assembled as needed.

Recommended Action

For more information on adhesive dispensing systems for leca building block manufacturing, or any product assembly needs, please contact your local Nordson representative or visit www.nordsonadhesive.com.