

3DC®

101



Product Data Sheet

limakcement.com

LimakCement 3DC® | 101

Low Carbon Mortar Premix for 3D Printing

LimakCement 3DC-101 is a specially designed one-part mortar premix for 3D printing applications with gantry printers. It is composed of low carbon footprint CEMPLUS+ cement, sand, and additives. The mortar exhibits high shape retention capability allowing for layer-by-layer construction when extruded.

Printing the future layer by layer.

Specially Formulated Mortar Premix Offers

- Easy Pumpability.
- Adjustable Consistency
- High Early Strength Development
- Good Crack Resistance
- Suitable for Extruding Both Flat and Curved Lines for Complex Shapes

Product Information

Apperance	Powder
Color	Light Grey
Grain Size	0-2mm
Packaging	25kg
Yield	~13L per 25kg
Shelf Life	6 Months

Technical Specifications*

Compressive Strenth (min. 3.5L water per 25kg)	1 Day 12-14 MPa	7 Day 30-32 MPa	28 Day 44-47 MPa	(EN 196-1)
Flexural Strength	6-8 MPa (28 days)			
Setting Time	Initial: 130 min. Final: 240 min.			(EN 196-3)
Density	2000-2100kg/m ³			

* Technical specifications are valid only for use of 25 kg bag.

The technical data presented herein has been derived from laboratory assessments conducted in controlled environments. It is essential to acknowledge that real scale application conditions can exert substantial influence, potentially leading to deviations from the provided data. Therefore, measured data may exhibit variations attributed to external factors beyond the control.

Application Information

Mixing Ratio	14-15% Water (by weight of powder)
Layer Thickness	~10-30mm
Temperature Range	5-30 °C

Mixing Instructions

After pouring at least 100 kg of dry mix into the mixer, clean water is added according to the specified percentage. The mortar is then mixed for a minimum of 5 minutes. Once the mortar reaches the desired consistency for 3D printing, it is ready to fed into the mortar pump, and the 3D printing process can be started.



Mixing, pumping, automated placement and curing significantly impacts the quality of the final concrete product. Therefore, preliminary trials and assessments should be conducted prior to the final production of finished components for optimal results.

Operating Conditions

- The recommended working temperature range is between 5°C and 30°C. Note that material usage time may be affected by temperature variations.
- Accurately measure and incorporate the appropriate amount of clean water to achieve the desired workability. In extreme conditions (< 5°C & > 30°C), it is advised to preheat the water to approximately 20°C.
- Shield the printed elements from frost, and direct sunlight during setting and hardening.
- If possible, employ curing sheets to prevent evaporation during the curing process, especially in environments with relative humidity below 50%.

<p>GHS05</p> 	<p>GHS07</p> 	<p>Hazard Statement;</p> <p>H315 Causes skin irritation H317 May cause an allergic skin reaction H318 Causes serious eye damage H335 May cause respiratory irritation</p>
<p>P102 Keep out of reach of children</p> <p>P232 Protect from moisture</p> <p>P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray</p> <p>P264 After handling wash with soap and water</p> <p>P271 Use only outdoors or in a well-ventilated area</p> <p>P272 Do not remove contaminated clothes outside the work-place</p> <p>P290 Wear protective gloves/ protective clothing/ eye protection/ face protection</p> <p>P302+P352 IF ON SKIN: Wash with plenty of soap and water</p> <p>P333+P313 If skin irritation or a rash occurs: medical advice/attention</p>	<p>P305+P351+P338+P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician</p> <p>P304+P340+P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, call POISON CENTER or doctor/physician</p> <p>P402 Store in a dry place</p> <p>P405 Store locked up</p> <p>P403+P233 Store in a well-ventilated area. Keep container tightly closed.</p> <p>P501 Dispose of contents/ container must be disposed of according to local regulations.</p>	

Storage Requirements

- Storage conditions mandate the utilization of the original, unopened, and undamaged sealed packaging to maintain product integrity.
- Store the mortar premix within a climate-controlled environment with a temperature range between +5°C and +30°C.
- During warmer seasons, provide mortar premix is stored at temperatures lower than ambient room temperature. In colder seasons, maintain storage temperatures at a minimum of 5°C.

Applications

- LimakCement 3DC-101 is compatible with 3D printing technology, facilitating the production of both linear and curved components.
- Restrict its application to 3D concrete printing solely with 3D concrete printers subjected to scrutiny and authorization by Limak Cement Company.
- The adaptability of print variables with each 3D print operation allows for the optimization of the printing process, negating the establishment of any rights based on the specifications. Please be aware that data may be changed modifications without prior notification.
- Prior to employing LimakCement 3DC-101, familiarize with the latest technical data sheet and the operational manual of the 3D printer. The user is accountable for reviewing instructions and safety precautions outlined in the current technical data sheet for any LimakCement 3DC-101 product before application.
- After usage, promptly clean all tools and application equipment using water. Removal of hardened material necessitates mechanical means.
- In case of blockages, immediately clean equipment and pump lines with water.
- Maintain the moisture and temperature levels of pump lines to provide optimal performance.
- In cases of technical difficulties, it is recommended to consult the Limak Technical team.
(e-mail: arge@limakcement.com)
- Please note that Limak Cement bears no responsibility for performance deviations resulting from external factors beyond its control.

