



INSTRUCTIONS

CF4™

NOTE: CONTENTS SETTLE DURING SHIPPING
Mix CF4™ thoroughly before each use & before beginning Step 1

*****Wear suitable face/respiratory, eye, and skin protection due to powder handling and the splash risk of high temperature liquid*****

CF4™ must be adequately mixed after shipping to allow for even distribution of the materials that may settle. CF4 powders are heated to a liquid state, cast into a heated mold, and then allowed to cool before demolding. It hardens due to solidification. It is important to note for large pieces, the surface may solidify before the center. So do not demold before the center has solidified.

1. Pre-heat the casting mold. We recommend 100°C-180°C. Larger geometries and tools benefit more from higher temperatures.
2. Fill the melting tank with CF4 powder and heat until it melts completely. Partial melting may occur from at 170-200°C depending on grade and heating method. Complete melting occurs at ~240°-270°C. Liquid temperature should be ~275-280°C before casting. Do not overheat significantly. Stir periodically and before casting. We recommend allowing the melt to sit for a few hours to drive off any absorbed water.
3. Remove casting from mold when adequate time has elapsed to allow the center of the part to solidify (demolding too fast could crack the solid shell and spill the molten center). However, waiting too long to demold may promote cracking due to thermal shrinkage. Each geometry will have different demolding requirements.
4. The casting can be removed from the part by melting or with water.
5. Waste water may require proper disposal due to nitrite-nitrate content. Check with local regulations.

For additional assistance, please contact Advanced Ceramics Manufacturing at 520.547.0850.





INSTRUCTIONS for CF4™ Filler Use

NOTE: CONTENTS SETTLE DURING SHIPPING

*****Wear suitable face, eye, and skin protection due to powder handling and the splash risk of high temperature liquid*****

Inorganic fillers are sometimes used to strengthen and reduce the probability of cracks forming during the solidification and cooling phase. The optimum amount of filler may vary depending on the geometry and process.

1. Do not add filler powder to a hot melt due to the risk of steam generation. Add filler powder to CF4 powder before heating. (Pre-heating the filler powder may be necessary to reduce absorbed water if foaming is observed. We recommend 120°C-150°C.)
2. Weigh the CF4 powder to be used in the melt batch. Using the mass of the powder, calculate and weigh the amount of filler to be used. We define a Filler Factor (FF) to determine the mass of filler.

Example: FF=5.0% CF4 powder mass = 400 g
Filler mass = FF x CF4 mass = 0.05 x 400 g = 20 g

We recommend trying a FF from 2.5%-5.0% as an initial starting point.

3. Add the filler powder to the pre-weighed CF4 powder before melting.
4. Follow the instructions for CF4 melting & casting.

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