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RefClay ZRP

Water-Based Refractory Clay for >1400 C Utility with Near-Zero CTE after Sintering

RefClay ZRP is a ready-to-use, water-based, refractory claylike material that can be press molded to form shapes and then sintered to high density at 1400 C. The sintered refractory has very low thermal expansion, CTE (20-1000 C) = $0.55 \times 10^{-6}/C$.

Key Attributes

- Based on very refractory, proprietary Zirconium based composition
- Very-low-expansion, comparable to fused silica
- Water-based, safe, and easy to use and cleanup
- Can be press-formed with silicone or plaster press-molds to most any shape
- Dried parts can be sanded/cut/shaped further
- Dried scrap can be easily reconstituted by adding water
- Sintering to 1400 C in air forms tough, dense body
- Resists cracking/warping during sintering
- Contains no Refractory Ceramic Fiber
- Contains no Boron
- Low sintered density of 2.75 g/cc
- Sintered pieces can be glued/bonded with Vitragard FS

Use Notes

1. Remove appropriate amount from container.
2. Trowel/spatulate into silicone or plaster press-mold of the desired shape.
3. Place onto "dental" lab vibrator and vibrate into the mold cavities, first on low and then on higher setting.
4. Remove excess clay by scraping top of part with spatula, trowel, or putty knife; tamp the mold lightly to even out the surface further.
5. Thoroughly dry at room temperature, preferably overnight, while in the mold.
6. Still in the mold, place into lab dryer at 60 C for a few hours. Remove from the mold and continue to dry for 1-2 hours. Handle cast/dried pieces gently.
7. Place into furnace to sinter at 1400 C to 1500 C, with ½ hr "soak".

NOTES: Above procedure yields dense parts with good strength after firing; shrinkage is around 65%. Firing on alumina coupons sprinkled with zirconia powder with thin sheet of parchment paper on top of the powder prevents any sticking during firing.



Specifications

Active Ingredient	Proprietary Zirconium-based composition	
Max Use Temperature with	All Atmospheres	1500 C (2732 F)
Fired Composition	Proprietary	
Liquid Carrier	Water	
Binder Phase	Proprietary	
Consistency	Claylike, easily spatulated and press-molded	
Color	White	
Shelf Life (months)	>12	
Coating pH	5-6	
H F R Ratings	1-0-0	

Ideal Use

- Forming stable refractory parts based on unique Zirconium-based composition
- Making very-low-CTE ceramic shapes by merely press forming

Sizes and colors

RefClay ZRP is a white colored refractory claylike material
Standard Sizes: 8 oz epoxy-lined can

Safety Information

- Consult SDS before use.
- For Industrial Use only.

CAUTION: DO NOT CONTACT WET COATINGS WITH MOLTEN METAL.

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