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Y-FZM 1400 Powder

Yttria-Based Castable/Cement - Dry Powder Mixture

Y-FZM 1400 is a dry powder mixture of Yttria and FZM (Fused Zirconia-Mullite) which, on adding around 40 wt% water and stirring forms a cementitious slurry that can be poured or cast into silicone molds to form parts. Y-FZM 1400 also can be used to cement/glue refractories together (such as Alumina). Cast parts can be removed from the mold after vibrating to remove air bubbles and then heating at 50-60 C to "set" the binder and allow removal from the silicone mold. Heating a cast part to 1375-1400 C results in nearly 100% dense refractory transormed to highly stable Yttria phases (Yttrium Aluminate, YSZ, Yttrium Silicate). Y-FZM 1400 is ideal for making your own corrosion resistant refractory parts, reportedly stable with molten Aluminum, glasses, and steel. Usable to nearly 1400 C in all atmospheres.

Key Attributes

- Prepared as a slurry from dry mixture by just adding water
- Readily prepared into near full density parts by cast-and-sinter technique
- Useful as a cement/glue or repair putty for other refractories
- Nearly 1400 C use temperature
- Forms Yttria compounds on sintering
- Contains no RCF (Refractory Ceramic Fiber)
- Water-based easy cleanup

Use Notes

- 1. Mix well with water at 20-40%. Minimize the amount of water for workability to yield a tougher dried/fired material.
- 2. If casting, pour into silicone mold and preferably place on vibrating-table for a few minutes to allow bubbles to come to surface and dissipate.
- 3. Put into dryer at 50-60 C to "set" the castable overnight.
- 4. Remove part from silicone mold
- 5. Ideally heat at slow rate of 5 C/min to 1000 C with 1-hr 'soak'. Either cooldown to room temperature and reheat at 10 C/min to 1375 C for 1-hr 'soak' ... or finish heating from 1000 C to 1375 C.
- 6. If cementing parts, disregard #2-5, and apply to desired refractory substrate with putty knife, trowel, or fingers.
- 7. Allow to dry completely.
- 8. Heat to 1375-1400 C for 1/2 1 hr for completing the gluing/bonding.



Specifications

Active Ingredients	Yttria, Fused Zirconia-Mullite
Max Use Temperature w	ith
All Atmospheres	1400 C (2552 F)
Fired Composition	YAG, YSZ, Y-Silicate
pH with Water Addition	2-3
Color	Cream/Beige
Shelf Life (months)	
Indefinite but	avoid getting wet before use
H F R Ratings	1-0-0
Substrate Use	Refractory ceramics

Sizes and colors

Y-FZM 1400 is cream/beige colored powder. Standard Sizes: 1 qt. or 8 oz epoxy-lined can

Ideal Use

- Casting your own specialty parts of high-stability, high-performance Yttria-based refractory
- Repairing/patching of fissures, cracks, joints
- Cementing refractory ceramic parts

Safety Information

- Consult SDS before use.
- For industrial use only

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