Goodwin Refractory Services
Technical Data Sheet
M463P

QUALITY INVESTMENTS
M463P

PRODUCT TYPE

Our industrial investment powders are formulated especially for the castings of large, thin wall castings in aluminium and other low temperature non-ferrous alloys under vacuum.

This investment is specially formulated to have high green strength and good thermal shock properties, making it especially suitable for larger castings with troublesome cores.

CLASSIFICATION

It is not advisable to use these with metals which melt above 1100°C. It is not recommended to cast magnesium into these powders.

PROPERTIES

Powder:Water ratio	100:28
Work Time	23 minutes
Initial Set Time	23-26 minutes

MIX PROCEDURE - CONVENTIONAL MIXING

1. Determine the weight of powder and the volume of water.
2. Weigh out the powder and measure its temperature.
3. Adjust the water temperature so as to give a slurry temperature of 20^{o}C.
4. Measure the required volume of water into a clean mixing bowl.
5. Add the investment to water.
6. Mix by hand for 30 seconds to break up any lumps.
7. Mix by machine for a further 4 minutes.
8. Vacuum the investment in the bowl (not more than 3 minutes).
9. Pour the investment slowly down the side of the flasks until the wax patterns are covered.
10. Vacuum the investment in the flasks (not more than 3 minutes).
11. Let the flasks stand undisturbed (minimum 2 hours).
12. Remove sprue base and collar.

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MIXING PROCEDURE - VACUUM MIXING

1. Determine the weight of powder and the volume of water.
2. Weigh out the powder and measure its temperature.
3. Adjust the water temperature so as to give a slurry temperature of 20^{o}C.
4. Measure the required volume of water into mixing chamber.
5. Add the investment powder to water.
6. Mix under vacuum for 5 minutes.
7. Slowly fill flasks located in investing chamber.
8. Release vacuum and remove flasks from chamber after a total of 10 Minutes.
9. Let the flasks stand undisturbed (minimum 2 hours).
10. Remove sprue base and collar.

DE-WAX AND BURNOUT

For best results, the flasks should be steam de-waxed in an autoclave at a pressure not exceeding 0.7 bar (10 p.s.i.) then placed in a furnace at room temperature and heated to 200^{o}C at not more than 200^{o}C/hr. After soaking at 200^{o}C for 3 - 4 hours the flasks should be heated to 700^{o}C at not more than 100^{o}C/hr. The time at this temperature will vary according to furnace loading and flask size, but it will typically take 5 hours to burn out a flask 25x25x25 cm and up to 16 hours for a flask 50x50x50 cm.

After this time the furnace should be cooled to casting temperature at 100^{o}C/hr, typically 280-400^{o}C for aluminium.

If steam de-waxing is not available, flasks should be placed in a pre-heated furnace at 150^{o}C and allowed to soak for 5-7 hours before ramping up to 700^{o}C, at not more than 100^{o}C/hr. Soak times at 700^{o}C will be the same as for steam de-waxing.

PACKAGING-STORAGE

These powders are supplied in 1000 KG IBC's and 25.0 KG Paper Sacks. They should be kept dry and used in rotation. Exposure to moisture and prolonged storage will result in deterioration.

HEALTH AND SAFETY

CAUTION: M463P CONTAIN SILICA AND IS THEREFORE HARMFUL BY INHALATION BECAUSE OF DANGER OF CUMULATIVE EFFECTS

DO NOT BREATHE DUST!