White Paper

Lost wax casting using EC500 with Omega+ and ProHT investment powder.

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This paper aims to give a step by step guide on how to use EnvisionTEC Perfactory® machines to make master patterns for lost wax or investment casting.
First the parts need to be prepared in 3D CAD and converted into a .stl file format. It is helpful if a large 6 mm diameter cone support can be added to the bottom of the shank not only to assist with part building but it is beneficial as this acts as a sprue to allow the metal to flow more easily during the casting process.

The type of perfactory machines commonly used for jewelry pattern production are the Perfactory® Mini machines, Aureus or Perfactory® Micro. These tend to give the best accuracy and surface finish.
The recommended material for casting is EC500 as this has a high wax content which allows a clean burnout.

Once the parts are built on the machine and removed from the printer they need cleaning in isopropanol to remove all uncured resin.

Using a soft brush and alcohol will quickly clean the jobs. Be sure to remove all uncured resin as that will negatively effect the casting process.

Gently blow air on the jobs to fully dry the alcohol.
Parts must be fully dry before next stage (a warm oven can speed this up if parts are placed at 30-40 °C for 30 minutes). Then the parts can be post cured using the EnvisionTEC Otoflash for 1500 flashes per side. The entire cleanup process should take no more the 15 minutes.

The parts are now ready to be set up for casting. The parts must be coated in GRS PROCAD solution, this is available from GRS (via www.goldstarpowders.com) or their distributors.

GRS PROCAD was developed to be integrated into the casting process, when used with Omega+ investment powder it helps with the removal of ashes and gases from the flask during burnout.

The parts must be dipped 8-10 times in the solution and allowed to dry for 10-15 seconds between each dip.

Ensure not to allow a build up of excessive solution in fine filigree or stone settings.

The solution will form a barrier between the resin parts and the investment flask.
Once your designs have been dipped and assembled onto a tree,

Vacuum invest using Omega+ with GRS's recommended investing procedure.
GRS PROCAD & Omega+ give superior results when used with the recommended burnout cycle.
GRS PROCAD should also be used for High temperature Platinum or Steel casting using ProHT phosphate bonded investment powder.

For further information on using EnvisionTEC’s equipment and resins please contact info@envisiontec.com

And for use of GRS PROCAD solution, rubbers and waxes contact info@grs-procad.com