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Handling Instructions for Rigidax® Tooling Compounds

A. Preheating The Part

We recommend that the part and the fixture (if there is one) be preheated to 120-180°F. The part and fixture should be clean. Preheat and clean using an aqueous de-greasing solution or other suitable method. The preheat will do two important things to make the Rigidax® work:

1. Cause the Rigidax® to “wet” the metal surface of the part.
   Wetting the metal is the only way to get good holding power.
2. Rigidax® does shrink. Getting good adherence to both the fixture and the part causes the shrinkage to occur in open areas. This would not affect holding the part or any machining operations.

It can often take longer than you think to thoroughly preheat the part and fixture. The surface must be very warm to the touch. **Do not** let the part cool before you pour – pour immediately after the part reaches preheat temperature.

Heat source for the preheating the part may be: hot plate, radiant, oven, elements or induction. Any portion of the part, the fixture or the dam where you do not want adherence, use a release agent. Good release agents are tincture of green soap, silicone spray type mold release.

B. Dispensing

Melt sufficient Rigidax® to fill the fixture completely.
One pound of Rigidax® will fill approximately 20 cubic inches. There are about 11 pounds of Rigidax® to the Gallon.
Heat Rigidax® to the proper pouring temperature, not beyond:

- Rigidax® Tooling Type WS .....200°F
- Rigidax® Tooling Type WI-GREEN.....275°F
- Rigidax® Tooling Type WI-BLUE .....275°F
- Rigidax® will pump and inject at lower temperatures.

Rigidax® has several fillers, which must be in suspension for the proper performance. It is vital that this material be agitated when molten. The agitator should turn at about 30 revolutions per minute.

If you do not have a Rigidax® Melter with automatic agitation, then be sure you stir the Rigidax® thoroughly (much as you would paint), just before pouring. High-speed agitation will introduce froth and air pockets. This should be avoided.

Do not let molten Rigidax® sit too long without agitation or fillers will settle heavily and be difficult to get into suspension.

C. Solidification and Cooling

Rigidax® does not conduct heat well. The use of fans, water-cooled plate, refrigerated air, etc., from the bottom of the fixture, will significantly reduce the cooling cycle. The part and fixture will retain heat longer than you think. Get good air circulation under, around and over the set-up. **Do not** immerse in water or dry ice for fast cooling. This type of cooling will result in severe cracking

of the Rigidax® and possible distortion of the part. About 4.3% shrinkage by volume takes place from pouring temperature of 250°F to ambient temperature of 74°F. Preheating will help to control shrinkage.

Rigidax® is a low temperature compound, which melts at approximately 170°F, so in some cases you will have to increase coolant flow. Coolants containing sulphur, mineral oil, or organic solvents will tend to make the surface of the Rigidax® soft and tacky and it will load up cutting tools and grinding wheels. Only water-soluble coolants should be used.

Do not use coolants with Rigidax® Type WS, as it is water soluble. To keep the tooling cool during machining, we recommend the use of a vortex tube to direct a cold air blast at the tooling.

D. Meltout/Reclaim

Rinse off any coolant on the part and Rigidax® with clear water and then dry the assembly. This prevents contamination of the Rigidax® by coolant ingredients.

Sloppy meltout procedures will waste material, reduce percentage of reclaim, and delay production. The proper meltout temperature for all types of Rigidax® is 250°F. The heat source may be: hot plate, radiant heat elements, infrared or an oven. For most efficient overall meltout and maximum reclaim, we strongly recommend a liquid to liquid return: i.e. the meltout grate, grill, trough, or whatever is used, should feed liquid Rigidax® directly back to the melter. Ensure that at least 30% virgin material is mixed with any remelt material to maintain product consistency.

Make sure the meltout cycle is long enough so that approximately 95% of the bulk Rigidax® melts away from the part. Generally, only a thin film of Rigidax® should remain on the part. This can be removed completely using a safe solvent which we can recommend. Please call us for recommendations. If you are using Rigidax® Type WS, to clean the part after the meltout, immerse the part in warm water containing a small amount of detergent. Rinse the part with clear water on removal from the tank.

E. Safety and Protection

There should be routine adequate ventilation of molten Rigidax® as provided by a suitable extraction unit. Care should be taken when handling materials at a temperature of 250°F. Suitable gloves, clothing, eye and fire protection should be provided for the safety and comfort of all concerned.
Read and understand the relevant Material Safety Data Sheet before using Rigidax® products.

Rigidax® is a trademark of Paramelt