



REPLICAST Unfilled II

DESCRIPTION

REPLICAST Unfilled II is a low viscosity, fast setting polyurethane casting system that is useful for a variety of casting applications. Its low mixed viscosity makes it ideal for casting prototype or production parts where very fine detail must be duplicated. It is also well suited for potting and encapsulating uses, as well as, general tooling and fixtures.

REPLICAST Unfilled II is often used with bulk fillers to extend its use to different and more demanding applications. Bulk fillers have traditionally been used with unfilled materials to provide better machining of the finished castings, and they give added compressive and/or impact strength. Bulk fillers can improve thermal conductivity. They lower the cost of the castings, and often they improve other handling and cured properties.

PTM&W'S PA0738 is a white, high purity treated alumina material in a fine power form that is very easy to add to REPLICAST Unfilled II. The particle size and shape of PA0738 gives it a very free-flowing consistency, and also allows high loading of the REPLICAST Unfilled II, while maintaining a good pouring viscosity. The cured material is a medium tan color. Castings made with REPLICAST Unfilled II and PA0738 have very little shrinkage and are easy to machine.

PRODUCT SPECIFICATIONS

	REPLICAST Unfilled II A	REPLICAST Unfilled II B	ASTM Method
Color	Cloudy Amber	Clear Amber	Visual
Viscosity, @ 77°F, centipoise	700 cps	50 cps	D23932
Specific Gravity, gms./cc	1.01	1.135	D1475
Mix Ratio	88 A to 100 B By Weight,	1 to 1 By Volume	PTM&W
Pot Life, 4 fl. Oz. Mass @ 77°F	3 - 4 minutes		D2471

HANDLING and CURING

REPLICAST Unfilled II is a fast setting material ! The working time before gel is less than 5 minutes at 77°F, so it is important to plan ahead to allow sufficient time for mixing and pouring. Proper sealing of the pattern and application of release agent are very important to insure acceptable castings. Silicone release agents can have a reaction with the REPLICAST Unfilled II system, leaving pinholes on the cured surface. For best results with this system, use PA0801 non-silicone paste wax release to avoid the silicone-related problems.

The mix ratio for REPLICAST Unfilled II is 88 Parts A to 100 Parts B by weight. It is best to use two containers to separately measure out the Parts A and B, and a third container to combine and mix them in. Carefully measure out proper quantities of Part A and Part B, then mix them thoroughly in the third container for 30 seconds. Be sure to scrape the sides and bottom of the container while mixing, and take care to minimize air entrapment. Pour the mixed material into the previously prepared mold or pattern. Do not scrape the sides or bottom of the container to get out the last bit of material, as unmixed material could be scraped into the casting, making soft spots.

If a bulk filler such as PA0738 is used, certain benefits are derived. The working time of REPLICAST Unfilled II was developed for the unfilled material. Therefore, when bulk fillers are used, the material is slowed down, allowing a longer working time to add the fillers and make the casting. This aids greatly in avoiding trapped air caused by trying to mix fillers into an exceptionally fast gelling system.

NOTE: PTM&W supplies the combination of REPLICAST Unfilled II and PA0738 filler in kits for convenience as product number REPLICAST 112. See the REPLICAST 112 product bulletin for mixing and handling instructions if you are adding a bulk filler to REPLICAST Unfilled II.

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TYPICAL MECHANICAL PROPERTIES

	REPLICAST Unfilled II A/B	ASTM Method
Mix Ratio	88 A to 100 B By Weight, 1 to 1 By Volume	PTM&W
Color	Buff	Visual
Mixed Viscosity, @ 77°F, centipoise	275 cps	D2393
Working Time, 4 fl. Oz. Mass, @77°F	3 - 4 minutes	D2471
Cured Hardness, Shore D	75 Shore D	D2240
Shrinkage, inch/inch Mold Number 2, .344 Gallons Volume	.002 inch / inch	D2566
Specific Gravity, grams, cc	1.07	D1475
Density, lb./cu. Inch lb./Gallon	.0386 lb. / cu. inch 8.9 lb. / Gallon	D792
Specific Volume, cu. in./lb.	25.8	D792
Tensile Strength, psi	4,900 psi	D638
Elongation at Break, %	30 %	
Flexural Strength	6,000 psi	D790
Bashore Rebound	37 %	D2632

PACKAGING WEIGHTS

	Quart Kit	Gallon Kit	Pail Kit	Drum Kit
REPLICAST Unfilled II A	1.75 lb.	8 lb.	40 lb.	400 lb.
REPLICAST Unfilled II B	2 lb.	9 lb.	45 lb.	455 lb.
Kit	3.75 lb.	17 lb.	85 lb.	850 lb.

SAFETY and HANDLING

PTM&W urethane products are made from raw materials carefully chosen to minimize or even eliminate toxic chemicals, and therefore offer the user high performance products with minimum hazard potential when properly used. Generally, the PTM&W urethane resins and hardeners will present no handling problems if users exercise care to protect the skin and eyes, and if good ventilation is provided in the work areas. However, breathing of mist or vapors may cause allergenic respiratory reaction, especially in highly sensitive individuals. As such, avoid contact with eyes and skin, and avoid breathing vapors. Wear protective rubber apron, clothing, nitrile rubber gloves, face shield or other items as required to prevent contact with the skin. In case of skin contact, immediately wash with soap and water, followed by a rinse of the area with vinegar, and then a further wash with soap and water. The vinegar will neutralize the hardener and lessen the chances of long term effects. Use goggles, a face shield, safety glasses or other items as required to prevent contact with the eyes. If material gets into the eyes, immediately flush with water for at least 15 minutes and call a physician. Generally, keep the work area as uncluttered and clean as possible, and clean up any minor spills immediately to prevent accidental skin contact at a later time. Keep tools clean and properly stored. Dispose of trash and empty containers properly. Do not use any of these types of products until Material Safety Data Sheets have been read and understood.

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