

## TECHNICAL DATASHEET

### Epoxy High Temperature Tooling Board Sealer 2197 (part A+B/C)

The 2197 system is an unfilled high temperature epoxy sealer specifically designed for sealing the surface of tooling board prior to Marbocote® semi permanent release agents. The ability to withstand to temperatures up to 180°C makes this an ideal product when moulding components directly from epoxy tooling block. The system gels at room temperature, but requires a post cure to achieve maximum properties. This two part system requires thinners for best results use 2197 Part C at a ratio of 1:1 by weight of pre-mixed resin and hardener.

#### Handling Properties:

	Value	Test Method
<b>2197A</b>	<u>2197B</u>	
Resin Density, g/cm <sup>3</sup>	1.17	ASTM E-201
Hardener Density, g/cm <sup>3</sup>	0.97	ASTM E-201
Resin Viscosity @ 25°C, cPs	7,500	ASTM D-2393
Hardener Viscosity @ 25°C, cPs	40	ASTM D-2393
Mix Ratio By Weight	100A : 14B	Calculated
Mixed Viscosity @ 25°C, cPs	1,800	ASTM D-2393
Gel Time @ 25°C, 150g mass, minutes	30	ASTM D-2471
Shelf Life – one year from date of shipment		

#### Physical Properties (1):

2197A+B	Value	Test Method
Colour	White	Visual
Hardness, Shore D	88	ASTM D-2240
Tensile Strength, MPa	86	ASTM D-638
Tensile Modulus, MPa	3,180	ASTM D-638
Tensile Elongation, %	3.7	ASTM D-638
Compressive Strength, MPa	149	ASTM D-695
Flexural Strength, MPa	115	ASTM D-790
Flexural Modulus, MPa	3,250	ASTM D-790
Shrinkage, m/m	<0.002	ASTM D-2566
Izod Impact, Notched, J/m	65.7	ASTM D-256
HDT, Room Temperature Cure, °C	PCR	ASTM D-648
HDT, Post Cure, °C	180	ASTM D-648
CTE, m/m/°C	4.77 x 10 <sup>-5</sup>	ASTM D-696
Density, Cured, g/cm <sup>3</sup>	1.15	ASTM D-792

(1) Properties achieved when cured using the Option 1 or Option 2 cure schedule (page 2, cure increments)

#### Mixing & Handling:

Add the hardener (Part B) to the resin (Part A) in a ratio of 100 parts resin (part A) to 14 parts hardener (part B) by weight and mix for 5 minutes. If spraying then add thinners (Part C) we recommend an initial ratio of 1:1 of pre-mixed resin and hardener, but this can be diluted to personal preference. Mix for a further 5 minutes or until homogenous. Always use clean dry tools for mixing and applying. Material temperatures should not be below 18°C when mixing.

## Application Guide:

1. Please refer to Marbocote® MC Cleaner application instructions and follow steps 1-7.
2. Ensure the environment in which the pattern is to be sprayed is free from air born contaminants such as dust we recommend spraying in a pressurised spray booth.
3. Using a HVLP (High Volume Low Pressure) spray gun with a 1.4mm nozzle at 30-40 psi apply one coat of pre-mixed 2192. (Clean oil free air is required we recommend using an in line trap and filter).
4. Allow 1-2 minutes for any remaining volatiles to evaporate.
5. If the surface being coated is highly porous it maybe required to add further coats of 2192 is so desired repeat steps 3-4
6. Allow a final 4-5 minutes after final coat prior to initial cure cycle.
7. Place in oven at 65°C and cure for a minimum of 1 hour.
8. Remove from oven check to ensure film has cured sufficiently prior to cutting and polishing procedure. If film is still soft place back in oven and cure for further 1 hour at 65°C
9. After the cure the surface may have a 'greasy' appearance, this surface film should be removed with a solvent wipe such as Marbocote® MC Cleaner.
10. After removing the film the surface can be cut back using 600 grade wet and dry paper used wet to flat and fair the surface additional use of finer wet and dry papers is recommended
11. A high gloss can be easily achieved using most standard paint polishing compounds.
12. In order to achieve maximum properties from this system a post cure is recommended.

## Cure Increments:

High temperature epoxy systems require an elevated temperature post cure to enable the resin and hardener to develop their full physical and temperature properties. Select one of the following cure schedules depending upon the physical properties of the master and the desired physical properties of the final tool.

2 hrs. @ 66°C
4 hrs. @ 66°C
1 hrs. @ 93°C
1 hrs. @ 121°C
1 hrs. @ 149°C
1 hrs. @ 177°C

## Storage:

Store at 15-38°C in a dry place. After use, tightly reseal. Store products on pallets during cold weather and avoid storing near outside walls or doors. Epoxy resins that are contaminated with dust or moisture or are subjected to low temperatures may crystallize. Do not use material that has any sign of crystallization until it has been re-liquefied. A crystallized resin or hardener can be returned to its original state by heating the material to 51-63°C and stirring until its liquid consistency is regained.

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## Safety Handling:

Work in well ventilated areas using gloves, eye protection and clothing protection. Avoid contact to the skin and eyes. Avoid clothing contamination. Wash thoroughly after handling. These products may cause skin and respiratory allergic reactions. Consult material safety data sheets for complete precautions with this product.

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