



**POLYMER COMPOSITES, INC.**

1871 South Lake Place Ontario, CA 91761  
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www.polymercompositesinc.com

**MAX CLR A/B and MAX CLEAR A/B  
Technical Data Sheet For Food Contact Application**

**DESCRIPTION**

MAX CLR A/B is a two-part, epoxy-based resin system specially formulated to provide a crystal clear coating that demonstrates excellent durability, adhesion, and toughness to a variety of substrates. Its moderate setup time and low viscosity make MAX CLR A/B an ideal specialty purpose coating, adhesive and impregnating resin for composites.

It is highly resistant to amine-blushing making MAX CLR A/B an excellent choice as a sanitary sealant or coating for wood countertops, tabletop, and other surfaces requiring impermeability or as a clear decorative coating purposes.

MAX CLR A/B is suitable for use as a barrier coating and adhesive for direct food contact applications. MAX CLR A/B complies to Title 21 CFR 175.105 and CFR 175.300 mandates for direct and indirect resinous adhesive and coating for food contact.

MAX CLR A/B bonds well to a variety of substrates such as composite materials, concrete and ceramic products, plastics, wood, glass, steel, aluminum and most soft metals.

MAX CLR A/B is 100% solids and does not contain Ozone Depleting Chemicals (ODC), nonreactive plasticizers or solvent fillers. MAX CLR A/B performs well in a wide range of service temperature. It demonstrates low exothermic reaction and low shrinkage during and after cure, yielding excellent dimensional stability, crucial for casting applications.

MAX CLR A/B cures to a tough, resilient and chemical resistant hermetic barrier, capable of curing in high humidity and low temperature.

**PHYSICAL PROPERTIES**

Density	1.10 G/CC
Foam and Color	Clear Liquid
Viscosity	800 – 1,200 cPs @ 25°C Mixed
Mix Ratio	50 Parts “B” to 100 Parts “A” By Weight
Working Time	45 – 50 Minutes @ 25°C (100 gram mass)
Peak Exotherm	70°C (100 gram mass)
Handle Time	5.5 Hours
Full Cure Time	36 Hrs. Minimum @ 25°C

**MECHANICAL PROPERTIES**

Hardness	72 ± 5 Shore D @25°C
Tee-Peel Strength	5.7 Lbs. Per Inch Width @25°C
Tensile Shear Strength	1,300 psi @ 25°C
	800 psi @ -80°C
	550 psi @ 100°C
Elongation	9.0% @ 25°C
Compressive Strength	2,100 to 2,500 psi @25°C
Heat Distortion Temp.	80°C

**ELECTRICAL AND THERMAL CONDUCTIVITY PROPERTIES**

Volume Resistivity	4.7 X 10 <sup>13</sup> Ohms-Cm
Dielectric Strength	510 Volts/Mil 60 Cycles
Dielectric Constant	4.0 (10 kHz)
Dissipation Factor	0.014 (10 kHz)
Thermal Conductivity (Unfilled)40°- 45°C	0.25 W/mK



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**CHEMICAL RESISTANCE PERFORMANCE**  
 FULL IMMERSION at 22°C  
 MEASURED PERCENT CHANGE IN WEIGHT  
 Specimen Cure - 7 days @ 25°C plus 1 hours at 100°C  
 Specimen Size - 1 Cubic Inch  
 Percent Change In Weight

<b>REAGENT</b>	<b>3 days</b>	<b>28 days</b>
Deionized Water	0.09%	0.10%
Sea Water	0.11%	0.28%
100% Methanol	7.93% Destroyed	-2.41% Destroyed
80% Ethanol	3.98%	4.28%
Toluene	0.40%	2.86%
Xylene	0.14%	0.25%
Butyl Cellosolve	6.63%	5.31%
MEK	2.7%	Destroyed
10% Lactic Acid	0.11%	0.42%
10% Acetic Acid	0.11%	0.45%
70% Sulfuric Acid	0.08%	0.14%
50% Sodium Hydroxide	0.1%	0.1%
30% Sodium Hypochlorite	0.51%	1.36%

**NOTICE REGARDING FOOD SAFE RESIN SYSTEMS**

**This formulation is in accordance with CFR Title 21, Part 175.300 and 175.105 for direct and indirect food contact as a resinous adhesive or coatings.**

For Coatings Applications

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcr/CFRSearch.cfm?fr=175.300>

For Adhesives Application

<http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcr/CFRSearch.cfm?fr=175.105>

Proper care must be taken to insure all usage instructions such as accuracy of mix ratio proportioning, component mixing to a homogenous state and established curing schedule must be observed. Please make sure to review all published usage instructions and processing information posted on this item page. Proportioning the resin and curing agent by weight must be observed to achieve an accurate mix ratio and reduce the likelihood of improper proportioning.

The FDA CFR Title 21 175.300 (coatings applications) only provides a list of raw materials and chemical compounds that can be utilized for the formulation of the MAX CLR A/B and similar resin system for the same purpose. We validate the efficacy of the MAX CLR A/B formulation by performing our internal laboratory extractable and leachable studies and deem its suitable performance.

The user should thoroughly test any proposed use of this product and independently conclude satisfactory performance in the application. Likewise, if the manner in which this product is used requires government approval or clearance, the user must obtain and validate said approval.



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#### Parameters Of Consideration For Food Contact Coatings Per Title 21 FDA CFR 175.105

This product and its composition is in compliance with title 21 FDA CFR 175.xxx This confirmation is limited to the use of this product in the above food contact applications and does not apply to any use in drug, medical device, or cosmetic products or packaging. It is the responsibility of the drug, medical device, or cosmetic manufacturer to establish that all materials used as either components of medical devices or components of packaging materials for drugs. Cosmetics or medical devices comply with all regulatory and safety requirements.

The product may be used based on the "no-migration"-principle, i.e. if FDA -recognized migration modeling or studies show no detectable migration (transfer of substance to food) in a particular application, the product can be used legally. However, final legal compliance needs to be verified by the producer of the final article under consideration of the final application and the conditions of use of the product.

#### IMPORTANT GUIDELINES FOR FOOD CONTACT APPLICATIONS

For food contact applications, MAX CLR A/B must be fully cured to ensure no chemical leaching can occur when foodstuffs' come in contact with the cured resin system. Any uncured chemical compounds from the improperly prepared MAX CLR may be extracted and cause cross-contamination or leaching during food contact. Please review the following and to avoid any curing problems.

Before Mixing the MAX CLR A/B, check for resin or PART A component for crystallization. During the colder season, the MAX CLR resin component or PART A may crystallize and must be heat-process to fully polymerize the resin system. Inspect the PART A bottle for any turbidity or any solid mass that typically forms on the bottom of the bottle. Please view the following video on heat-processing the PART A or resin component.



Please view the heat processing video demonstration at  
<https://youtu.be/NrPLTmhqsSY>

- Weigh or measure the components accurately at a 2:1 mix ratio. Any off-ratio excess of either the resin or curing agent in the mixture can cause poor cure and can cause chemical leaching that can transfer to the food or beverage. Use a digital scale and weigh each component for best results, for example, a 200-grams of MAX CLR PART A will require 100 grams of MAX CLR PART B. Careful accuracy must be observed when proportioning the resin & curing agent to ensure the proper cured performance of the MAX CLR A/B resin system. This digital scale is available on eBay for purchase.





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- Mix the components thoroughly. Any unmixed component from poor mixing will result in poor polymerization and can be extracted and cross-contaminated the food stuff. Please view the following mixing demonstration below. Please view the recommended mixing procedure video demonstration at [https://youtu.be/Q2HCTlfqIxU?list=PL6x6YfnNMffxolgQwS\\_-iD90vB3yBlmZ1](https://youtu.be/Q2HCTlfqIxU?list=PL6x6YfnNMffxolgQwS_-iD90vB3yBlmZ1)
- Allow the applied resin to fully cure for a minimum of 48 hours at 75°F before exposing the coating to any food or beverage. A short heat post cure at 150°F for 60 to 90 minutes will ensure the resin is fully cured. Rinse the cured coating with warm water and mild detergent before allowing any food contact. If an oven is not available, an infrared heat lamp will work well for heat curing.



#### APPLICATION and USAGE

Precaution: As with industrial chemicals of the same nature, avoid direct skin contact by using protective gloves and eyewear. Always practice safety first.

**Weigh out two parts "Part A" to one part "Part B" by weight in to a clean container. Mix using a spatula or a low speed mixer. Avoid excess air entrapment mix gently and scrape the sides and bottom of the container to ensure complete mixing.**

- Prepare the surface to be sealed by cleaning with a tack rag to remove loose and other surface contaminants.*
- If imbedding pictures or other items unto the tabletop, plaques or a decoupage projects, secure the items using MAX CLR as an adhesive and allow to set-up before coating.*
- Pour the mixed MAX CLR into another container and mix for another minute (this insures that no tacky spots caused by unmixed material will be applied) and pour or brush or foam roller (use foam roller for a lint free application) coat apply unto the substrate to be sealed. Allow the coating to flow out evenly and protect the surface from airborne dust and debris until it has set-up. If a thicker coating is desired, allow to set-up for at least 6 hours before applying subsequent coats. To remove stubborn surface bubbles, pass a flame from a propane torch over the surface very, very quickly and the bubbles will pop.*
- Allow the completed coating to cure for at least 24 hours before handling.*
- Optional step for a supper high gloss finish: Upon full cure of the coating, lightly wet sand the surface using a 1800 grit then an a 2000 grit polishing sand paper or rubbing compound and apply durable carnauba wax polish.*

#### PACKAGING AND STORAGE

MAX CLR A/B is available in pints, quarts, gallon, 5 gallon and 55 gallon Kits. Use size kits and special packaging requests are also available. MAX CLR A/B should be stored in a cool dry place. DO NOT store above 30°C for prolonged period.



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**SAFETY NOTE**

This product is for industrial use only. Please review all precautions before using this product. As with all products of the same nature, avoid prolonged inhalation and repeated skin contact. Always wear safety goggles and impervious rubber gloves when handling this material. Large mass curing of this product is not recommended for it may produce noxious fumes.

**IMPORTANT NOTICE**

The information contained herein is based on data believed to be accurate at the time of publication. Data and parameters cited have been obtained by PCI using materials under controlled conditions. Data of this type should not be used for specification for fabrication and design. It is the user's responsibility to determine this products fitness for use.

PCI warrants only that this product will only meet the cited parameters within the established conditions. There is no warranty of merchantability, fitness of use, nor any other express implied warranty. The user's exclusive remedy and the manufacturer's liability are limited to refund of the purchase price or replacement of the product within the agreed warranty period.

**Polymer Composites, Inc. will not be liable for incidental or consequential damages of any kind.**

The user should thoroughly test any proposed use of this product and independently conclude satisfactory performance in the application. Likewise, if the manner in which this product is used requires government approval or clearance, the user must obtain said approval.

Determination of the suitability of any kind of information or product for the use contemplated by the user, the manner of use and whether there is any infringement of patent is the sole liability of the user.