**PRODUCT OVERVIEW**

Crystal Clear™ 200, 202, 204 and 206 are water white clear and made specifically for applications that require clarity. These rigid urethane casting resins differ only in working and demold times. Low viscosity ensures easy mixing and pouring. Crystal Clear™ resins cure at room temperature* with negligible shrinkage. Cured castings are UV Resistant and are not brittle. Vibrant colors and color effects are achieved by adding pigment dispersions. Applications include encapsulation, making prototype models, lenses, sculpture reproductions, decorative cast pieces, jewelry, prototype models, special effects and props. Crystal Clear™ 220 and 221 are harder, heat cured products that offer advantages over these room temp. cure products. A separate tech bulletin is available for Crystal Clear™ 220 and 221 at www.smooth-on.com.

**CAUTION: NOT FOR HOME USE. THIS PRODUCT IS FOR INDUSTRIAL USE ONLY.** With adequate local exhaust ventilation, respiratory protection is not normally required when using this product. Where risk assessment shows air-purifying respirators are appropriate, follow OSHA respirator regulations and European Standards EN 141, 143 and 371. Protective clothing (gloves and long sleeves) is required to minimize the risk of dermal sensitization. If breathing is affected or a dermal rash develops, immediately cease using this product and seek medical attention. Read SDS before using.

**TECHNICAL OVERVIEW**

| Crystal Clear™ 200 | 20 Min. | 16 Hours | 2,500 psi | 73,200 psi | 10% | 10,650 psi* | 200,000 psi | 6,385 psi* | 40,000 psi | 0.001 |
| Crystal Clear™ 202 | 9 Min. | 90 Min. | 3,500 psi | 86,240 psi | 10% | 5,390 psi | 183,200 psi | 4,200 psi | 44,000 psi | 0.0125 |
| Crystal Clear™ 204 | 2 Hours | 48 Hours | 3,500 psi | 86,240 psi | 10% | 5,390 psi | 183,200 psi | 4,200 psi | 44,000 psi | 0.002 |
| Crystal Clear™ 206 | 4.5 Hours | 7 Days | 2,500 psi | 73,200 psi | 10% | 10,650 psi* | 200,000 psi | 6,385 psi* | 40,000 psi | 0.002 |

Mix Ratio; 100A:90B by weight

Mixed Viscosity, cps: 600 (ASTM D-2393)

Specific Gravity, g/cc; 1.036 (ASTM D-1475)

Specific Volume, cu. in./lb.; 26.7 (ASTM D-1475)

Color; Clear

Shore D Hardness; 80 (ASTM D-2240)

Heat Deflection Temp; 120°F / 50°C (ASTM D-648)

**REFRACTIVE INDEXES**

| Crystal Clear 200 | 1.49962 @ 20°C | 1.49894 @ 25°C |
| Crystal Clear 202 | 1.49888 @ 20°C | 1.49893 @ 25°C |
| Crystal Clear 204 | 1.49888 @ 20°C | 1.49830 @ 25°C |
| Crystal Clear 206 | 1.49962 @ 20°C | 1.49894 @ 25°C |

**ELECTRICAL PROPERTIES**

Dielectric Strength; 260 Volts/MIL (ASTM D-149)

Dielectric Constant; 3.36 @77°/25°C at 100 Hz (ASTM D-150)

Dielectric Constant; 3.34 @77°/25°C at 1 kHz (ASTM D-150)

Dissipation Factor; 0.00 @77°/25°C at 100 Hz (ASTM D-150)

Dissipation Factor; 0.01 @77°/25°C at 1 kHz (ASTM D-150)

Vol. Resistivity; 1.4 x 1015 @77°/25°C ohm-cm (ASTM D-257)

**PROCESSING RECOMMENDATIONS**

**PREPARATION...Safety** Store and use at room temperature (73°F/23°C). These products have a limited shelf life and should be used as soon as possible. Environmental humidity should be as low as possible. Good room size ventilation is essential. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk. Wearing a NIOSH approved respirator will minimize inhalation of residual fumes. Use in a low humidity environment (below 50% RH). Mixing containers should have straight sides and a flat bottom. Mixing sticks should be flat and stiff with defined edges for scraping the sides and bottom of your mixing container.

**Selecting A Mold Rubber** - Pour into a urethane rubber mold (Vytaflex™ urethane – release agent required), tin cured silicone mold (Mold Max™ silicone) or Mold Star™ 15, 16 or 30 platinum cured silicone (not Mold Star™ 20T). Do not use other rubber mold products.

**If using Mold Max™ silicone;** to prevent cure inhibition, post-cure newly cured silicone mold for 8 hours at 150° F / 60° C and let cool prior to casting resin. If you are unsure about surface compatibility, a small scale trial casting should be made. For Best Results Before Pouring Crystal Clear™ Into Mold: Pre-heat rubber mold at 212°F / 100°C for 4 hours. This will minimize chances of fish-eyeing, suck back, corner rounding, large bubbles, etc. in finished casting.
**Safety First!**

The Material Safety Data Sheet (MSDS) for this or any Smooth-On product should be read prior to use and is available upon request from Smooth-On. All Smooth-On products are safe to use if directions are read and followed carefully.

Be careful.

Part A is a modified aliphatic diisocyanate. Vapors, which can be significant if heated or sprayed, cause lung damage and sensitization. Use only with adequate ventilation. Contact with skin and eyes may cause severe irritation. Flush eyes with water for 15 minutes and seek immediate medical attention. Remove from skin with waterless hand cleaner followed by soap and water. Refer to MSDS.

Part B is irritating to the eyes and skin. Avoid prolonged or repeated skin contact. Remove from skin with soap and water. If contaminated, flush eyes with water for 15 minutes and seek immediate medical attention. Use only with adequate ventilation.

Important: The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe upon a patent. User shall determine the suitability of the product for the intended application and assume all risk and liability whatsoever in connection therewith.

**Pouring, Curing & Performance...**

Pouring - If casting Crystal Clear™ into a rubber mold, pour mixture in a single spot at the lowest point of the mold. If encapsulating an object, do not pour the mixture directly over the object. Let the mixture seek its level. A uniform flow will help minimize entrapped air.

Castings will reach ultimate physical properties at room temperature in 7 days. Castings removed from mold before recommended cure may exhibit a tacky surface that can be eliminated by exposing casting to 150°F / 65°C for 6 hours. Pot life and cure time depend on mass concentration and mold configuration.

**Post Curing** - Castings will achieve maximum physical properties, better heat and UV resistance if Crystal Clear™ is post cured. Post curing is recommended if castings are thin or of low mass concentration. Castings should be post cured in a mold or support structure. Post Cure Schedule: Allow the material to cure fully at room temperature followed by 6 hours at 150°F–160°F (65°C–72°C). Allow casting or part to cool to room temperature before demolding.

Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.

Call Us Anytime With Questions About Your Application

Toll-free: (800) 381-1733  Fax: (610) 252-6200

The new www.smooth-on.com is loaded with information about mold making, casting and more.