

UVPoxy®

DESCRIPTION

UVPoxy® is a high performance two-component clear epoxy system designed for tabletops, wood finishing, embedding objects, artwork, and other applications requiring a clear strong epoxy coating specifically designed to resist yellowing caused by the sun and other UV sources.

UVPoxy® cures to a water clear high gloss finish that is compatible with many substrates. It is formulated to have increased UV stability, moderate viscosity, and moderate system reactivity to allow for excellent air release and use in quick setting applications.

The appearance of UVPoxy® can be customized using EcoPoxy's high intensity Metallic Pigments and liquid Color Pigments. Compatibility of the cured system with a variety of finishing methods, application techniques, and products ensures that desired custom finishes can be achieved.

The material has an easy to use 1 to 1 by volume mix ratio, wets out substrates well, and maintains its integrity over sharp corners. While UVPoxy® has been formulated to resist yellowing, it is not recommended for permanent outdoor applications.

KEY FEATURES

- Cures water clear
- High-gloss finish
- Self-levelling
- Optimized hardness
- Maintains integrity over sharp edges
- Easy to mix and pour
- Buildable finish
- Customizable with pigments and colorants
- UV resistant
- Easily wets out most substrates

PRODUCT TECHNICAL DATA

PHYSICAL PROPERTIES

The table below summarizes physical properties of liquid UVPoxy® such as appearance, bio-based carbon content, and specific gravity.

| PHYSICAL PROPERTIES (LIQUID) | | |
|----------------------------------|--------------------|---------------------------------|
| Appearance: Part A | Visual observation | Clear viscous liquid; pale blue |
| Appearance: Part B | Visual observation | Clear liquid; pale yellow |
| System Bio-based Carbon Content | ASTM D6866 | 12% |
| Specific Gravity: Part A at 22°C | ASTM D1475 | 1.172 |
| Specific Gravity: Part B at 22°C | ASTM D1475 | 0.969 |

MIXING

UVPoxy® is formulated to have a 1:1 resin to hardener mix ratio by volume. Deviation from the mix ratio can result in inferior properties or incomplete cure.

| MIXING | |
|-------------------------------|------------|
| Mix ratio by volume (A:B) | 1:1 |
| Mix ratio by mass (A:B) | 1.2:1 |
| Recommended coating thickness | Up to 1/8" |

VISCOSITY

Viscosity indicates the material's resistance to flow. Viscosity measurements of resin systems vary during the curing process, first decreasing as the mixture heats up, then increasing as the mixture approaches gelation. Reported initial mixed viscosity can be dependent on the temperature of the resin components, the temperature of the environment, and the ability of the coating to release heat.

| VISCOSITY | | |
|---------------------------------|------------|-----------|
| Viscosity: Part A at 22°C | ASTM D2196 | 12,640 cP |
| Viscosity: Part B at 22°C | ASTM D2196 | 1,240 cP |
| Initial Mixed Viscosity at 22°C | ASTM D2196 | 2,790 cP |

REACTIVITY

UVPoxy® is a thermosetting resin and will generate heat as it cures. **Reactivity level** is a qualitative indicator of the rate of reaction and temperature of the resin system's cure. **Gel time** is the point at which the mixed resin gels or becomes so viscous that it can no longer be worked. **Peak exotherm** is the maximum temperature observed during cure, and **Time to peak exotherm** is the length of time between initial mixing and observation of the peak exotherm temperature. The reactivity of the resin system can be affected by factors such as ambient temperature, applied coating thickness, the initial temperature of resin and hardener, and the ability of the system to release heat.

| REACTIVITY | |
|-----------------------|---------------|
| Reactivity Level | Moderate |
| Gel Time (100 g) | 45 min |
| Peak Exotherm | 121°C (250°F) |
| Time to Peak Exotherm | 53 min |

PROCESSING CHARACTERISTICS

Working time is the time during which the resin has been applied to the substrate but is not yet gelled. It can still be worked with and will produce a uniform coating. In practice, this means that the resin can still be manipulated and will quickly self level.

Tacky to touch is the period where a second application can be done without the need to abrade the surface for adhesion. During this period, the project will need to be protected from contaminants that can adhere to the surface. To determine tacky to touch, wear gloves and lightly touch the surface of the coating. No resin will stick to the glove's surface, but tackiness between the glove and surface will be apparent. The onset of tacky to touch has not been reached if the surface significantly deforms in this process.

Set to touch or Handling time defines the point at which the surface is no longer tacky and at risk of contamination and has achieved sufficient hardness that subsequent processing and handling can occur without resulting in damage. A second pour is not recommended without first abrading the surface of the first layer. Determine if set to touch has been reached using the same method as tacky to touch. There is no observable tackiness between the glove and the surface.

Full cure is the point in time when resin achieves full mechanical properties.

The table below shows Working Time, Tacky to Touch, Set to Touch/ Handling Time, and Full Cure for a standard sized panel coated up to 1/16" with UVPoxy[®]. Ambient temperature was 21°C, with 50% RH. Processing characteristics will vary depending on factors such as resin volume, coating thickness, ambient conditions, and mold materials..

| PROCESSING CHARACTERISTICS | |
|----------------------------|-----------------|
| Working Time | 30 - 40 minutes |
| Tacky to Touch Period | 4 - 10 hours |
| Set to Touch | 10 hours |
| Full Cure | 48 hours |

CURED RESIN PROPERTIES

Density is a measure of the degree of compactness of a substance. It is expressed as a mass per unit of volume.

Shore D Hardness is a measure of the cured resin's resistance to deformation via indentation. Resins with a higher hardness will be more resistant to scratches.

Glass Transition Temperature is the temperature at which the cured resin changes from a rigid, glassy material to a soft, non-melted material. Above the glass transition temperature, the resin may permanently deform when force is applied.

Water Absorption is a measure of the mass of water absorbed by a cured resin sample when fully immersed for a specific length of time.

Abrasion Resistance is the mass of cured resin removed from a specimen by a standard (size, abrasive) rotating disk operated at a specified speed over a set number of cycles. Materials with high abrasion resistance are better able to withstand the wear and tear caused by friction.

Cured resin properties were obtained for a coating that was cured at room temperature, after a minimum of 48 hours. Tests were performed according to applicable ASTM standards. These typical values are provided for reference only.

| CURED RESIN PROPERTIES | | |
|--|-------------|--------------|
| Density g/cm ³ (lb/in ³) | Theoretical | 1.07 (0.039) |
| Shore D Hardness | ASTM D2240 | 80 |
| Glass Transition Temperature (Tg) by DSC °C (°F) | ASTM E1356 | TBD |
| Water Absorption % | ASTM D570 | TBD |
| Abrasion Resistance | ASTM D4060 | TBD |

STORAGE

Store in a cool, dry, well-ventilated location out of direct sunlight. Protect from freezing and physical damage. Do not store in a location subject to frequent temperature changes as the product may crystallize. Use product as soon as possible after opening. If storing remainder of product for another project, keep container tightly closed.

| STORAGE | |
|---------------------------------|-----------------------|
| Ideal working temperature | 22°C (72°F) |
| Recommended working temperature | 20 - 25°C (68 - 77°F) |
| Recommended storage temperature | 15 - 25°C (59 - 77°F) |
| Shelf Life | 2 years; unopened |

SAFETY

Consult safety data sheet (SDS) before use. Wear protective gloves, clothing, and eye/face protection. Use only in well ventilated areas. Avoid contact with the skin and eyes. Take off contaminated clothing and wash before reuse. Keep containers tightly sealed when not in use. Avoid breathing dust, vapors, and fumes. Wash hands thoroughly after handling. During post finishing wear proper PPE and avoid dust. When fully cured, UVPoxy® is an inert plastic.

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