

Quad-Cure[®] UVX-400

TECHNICAL DATA

TYPICAL PERFORMANCE CHARACTERISTICS*

LIQUID COMPONENTS

CHARACTERISTICS	TEST METHOD	PERFORMANCE
Density @ 77°F 25°C	ASTM D1475	1,1 ± 0,1 g/cm ³ 2.13 ± 0.19 slug/ft ³
Viscosity (1 min ⁻¹) 77°F 25°C	ASTM D445 ⁽¹⁾	2000 ± 200 mPa•s
Viscosity (20 min ⁻¹) 77°F 25°C	ASTM D445 ⁽¹⁾	900 ± 100 mPa•s
Flash point (closed space)	Seta Flash Closed Cup	>212°F >100°C
Appearance, color	—	transparent, yellowish liquid
Shelf life (protected from light, at max. 77°F 25°C)	—	6 months

* The values stated in inch-pound units are to be regarded as the standard.
The values given in international system are for information only.

** Brookfield, RVTD, Spindle 4

HARDENED RESIN / MECHANICAL PERFORMANCE

CHARACTERISTICS ³	TEST METHOD	PERFORMANCE
Young's modulus	ASTM D638	> 348 ksi 2,400 MPa
Tensile strength	ASTM D638	> 7,250 psi 50 MPa
Elongation at break	ASTM D638	> 5%
Flexural modulus	ASTM D790	> 232 ksi 1,600 MPa
Flexural strength	ASTM D790	> 7,250 psi 50 MPa
Glass transition temperature (T _g)	ASTM D5026	203-230°F 95-110°C

³ All the properties were measured on UV cured samples (irradiance strength ~30 mW/cm²)
125 mil plate of cured resin only.

COMPOSITES

PATCH FIBROUS REINFORCEMENTS MECHANICAL PERFORMANCE

CHARACTERISTICS	TEST METHOD	PERFORMANCE
Young's modulus	ASTM D638	> 1,000 ksi 7,000 MPa
Tensile strength	ASTM D638	> 21,750 psi 150 MPa
Elongation at break	ASTM D638	> 5%
Flexural modulus	ASTM D790	>650 ksi 5,000 MPa
Flexural strength	ASTM D790	> 21,750 psi 150 MPa
Adhesion strength on PVC	ASTM D4541	≥ 580 psi 4.0 MPa



A High-Strength,
Styrene-Free UV
Resin Exhibiting
Extreme Adhesion
Characteristics to
PVC Pipe

DESCRIPTION

Quad-Cure[®] UVX-400 has been developed for the UV-CIPP rehabilitation process. The resin is designed for inversion lining and sectional liner repair. The resin can be used as a matrix material for in-situ or for pre-impregnated composites. Quad-Cure UVX-400 resin is a one-component system, which already contains the necessary UV initiator and the thixotropic agent¹. The resin is completely Styrene-free.

¹ The thixotropic agent content should be/can be adjusted according to the specific application

PROPERTIES

- Good chemical resistance²
- High strength
- Thixotropic
- Excellent adhesion on PVC

² Mechanical properties of the treated composites are included in the special information section.

AMBIENT TEMPERATURE AT WORK

- Minimum ambient temperature at work:
32°F | 0°C
- Maximum ambient temperature at work:
104°F | 40°C

WORKABILITY TIME

It remains liquid as long as the resin is not exposed to UV light, to include sunlight.



COMPOSITES

INVERSION HOSE (FELT LINER)

CHARACTERISTICS	TEST METHOD	PERFORMANCE
Young's modulus	ASTM D638	> 261 ksi 1,800 MPa
Tensile strength	ASTM D638	> 2,900 psi 20 MPa
Elongation at break	ASTM D638	> 2.0%
Flexural modulus	ASTM D790	> 145 ksi 1,000 MPa
Flexural strength	ASTM D790	> 3,625 psi 25 MPa
Adhesion strength on PVC	ASTM D4541	≥ 580 psi 4.0 MPa

MIXING

The resin itself is a one-component system, therefore mixing the components is not required, however it contains a thixotropic agent, therefore it must be stirred before use. Try to introduce as little air as possible when mixing by fully submerging mixer into product and mixing slowly.

CURING CONDITIONS

Quad-Cure UVX-400 contains the required amount of photo-initiator. For proper curing, the resin shall be irradiated by UV-light, preferably with a wavelength of 400 nm ± 20 nm and a power intensity of at least 20 mW/cm² for Short-liner, and 200 mW/cm² for inversion lining technique. The photo-initiator allows the use of high-pressure mercury lamps or UV-LEDs for curing.

TOOL CLEANING

Before any exposure to UV light, the resin shall be removed from the tools and equipment that have been contaminated, using clean rags. The resin layer which remains can be removed by wiping with an acetone soaked rag.

DELIVERY

PACKAGING

DESIGNATION	PACKAGING	NET MASS
Quad-Cure UVX-400 Medium Pack	5 Gallon 18.9 L Pail	40 lb. 18.1 kg
Quad-Cure UVX-400 Large Pack	55 Gallon 208 L Drum	425 lb. 192.8 kg

STORAGE

Quad-Cure UVX-400 shall be stored indoors in the original, unopened and undamaged packaging in a dry place at temperatures between 41°F | 5°C and 86°F | 30°C. Store in dark and 100% light tight containers only. Exposure to direct sunlight should be avoided. When stored as directed the quality of the product is guaranteed for 6 months from delivery provided it remains in its original, unopened packaging.

SAFETY

Always use safety glasses and protective clothing including gloves when using this product. Do not ingest. Always read the container warning label and Safety Data Sheet (SDS) prior to use.

CHEMICAL RESISTANCE

IMMERSION LIQUID	YOUNG'S MODULUS	TENSILE STRENGTH	ELONGATION AT BREAK
- (reference)	311 ± 36 ksi 2,144 ± 248 MPa	4568 ± 1450 psi 31.5 ± 10 MPa	2.5 ± 1.5%
1% NaOH	246 ± 58 ksi 1696 ± 400 MPa	4786 ± 1450 psi 33 ± 10 MPa	4.7 ± 0.5%
10% H ₂ SO ₄	243 ± 36 ksi 1675 ± 248 MPa	4641 ± 435 psi 32 ± 3.0 MPa	5.0 ± 1.0%
5% H ₂ O ₂	240 ± 7 ksi 1655 ± 48 MPa	3771 ± 580 psi 26 ± 4.0 MPa	4.0 ± 1.0%

Any application of the product for purposes other than clearly mentioned in this data sheet, is possible only by preliminary consulting with Vortex Companies, Products division.