

Product Description

MXCUR 311 is a medium viscosity, fast curing, single component acrylated urethane adhesive. MXCUR 311 is specifically formulated for bonding rigid or flexible PVC to polycarbonate, while not inducing stress cracking. MXCUR 311 also provides excellent adhesion to a wide variety of other substrates including glass, many plastics and most metals. MXCUR 311 cures rapidly when exposed to ultra violet radiation specifically in the UVA/visible light region.

MXCUR[®] 311 offers the following characteristics:

Technology	Acrylic
Appearance (uncured)	Transparent liquid
Chemical Form	Acrylated urethane
Cure	Ultraviolet (UV)/ visible light
Cure Benefit	Production - high speed curing
Components	Single – requires no mixing
Viscosity	Low
Application	Bonding
Flexibility	Enhanced shock resistance.

Properties of Uncured Material

	Typical Value
Specific Gravity @ 25°C	1.1
Viscosity @ 20°C	200 to 400mPas
Flash Point	See MSDS

UV Intensity

MXCUR 311 can be cured by exposure to visible light of sufficient intensity and/or UV. To obtain full cure on surfaces exposed to air, radiation @ 220 to 260 nm is also required.

Stress Cracking

Liquid adhesive is applied to a medical grade polycarbonate bar 6.4 cm by 13 mm by 3 mm which had been flexed to induce a known stress level.

Stress Cracking, ASTM D 3929, minutes:

7 N/mm ² stress on bar	>15
12 N/mm ² stress on bar	3 to 4

Fixture Time

Fixture time is defined as the time to develop shear strength of 0.1 N/mm². UV Fixture Time, ISO 4587, Glass microscope slides, seconds:

6 mW/cm² @ 365 nm ≤15

UV Fixture Time, ISO 4587, Polycarbonate, seconds:
30 mW/cm² @ 365 nm <5

Properties of Cured Material

30 mW/cm² @ 365 nm for 80 seconds

Physical properties

Shore Hardness, ISO 868, Durometer D	58
Refractive Index	1.5
Water Absorption, ISO 62, %:	
2 hours in boiling water	5.36
Elongation, at break, ISO 527, %	265
Tensile Modulus, ISO 527	N/mm ² 669 (psi) (97,000)
Tensile Strength, at break, ISO 527	N/mm ² 23 (psi) (3,300)

Electrical properties

Surface Resistivity, IEC 60093,Ω	1.0×10 ¹⁵
Volume Resistivity, IEC 60093, Ω·cm	8.4×10 ¹⁴
Dielectric Breakdown Strength, IEC 60250, kV/mm	31
Dielectric Constant / Dissipation Factor, IEC 60250:	
100-Hz	4.56 / 0.05
1-kHz	4.41 / 0.02
1-MHz	4.02 / 0.03

Performance of Cured Material

Cured @ 30 mW/cm² @ 365 nm for 80 seconds using a metal halide light source

Lap Shear Strength, ISO 4587:

Polycarbonate:	
0.5 mm gap	N/mm ² *5.2 (psi) (750)

* substrate failure

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	Temperature	% of initial strength		
		2 h	24 h	170 h
Boiling water	100°C	*100	-	-
Water immersion	49°C	-	-	*100
IPA immersion	21°C	-	*100	-
Heat/humidity	38°C	-	-	*100

Heat Aging

Lap Shear Strength, ISO 4587, % of initial strength:

Polycarbonate:

Aged @ 71°C for 170 hours	*100
Aged @ 71°C for 340 hours	*100
Aged @ 93°C for 170 hours	*100
Aged @ 93°C for 340 hours	*100

* substrate failure

General information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be use with chlorine or other strong oxidising materials.

For information on the safe handling of this product, consult the Material Safety Data Sheet, (MSDS).

Where washing systems are used to clean the surfaces before bonding, it is important to check the compatibility of the washing solution with the adhesive. In some cases these solutions can affect the cure and performance of the adhesive.

Precaution

1. Use with proper ventilation. Avoid contact with skin and eyes.
2. If contact with skin occurs, rinse with warm water and soap.
3. If adhesive gets into eye, keep eye open and rinse thoroughly. Seek medical attention immediately.
4. Keep well out of reach of children.

Storage

Keep adhesive in a cool, dry place optimal storage 8°C-28°C. is recommended unless otherwise labelled. To prevent contamination of unused material, do not return any product to its original container. For specific shelf life information, contact Cartell . Avoid direct sunlight.

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