

Technical Data Sheet

INTRODUCTION

Crestapol® 1260 is a low viscosity urethane acrylate type resin which is suitable for infusion, Resin Transfer Moulding (RTM) and similar processes at room temperature, and can be infused at vacuum levels down to -1.0 Bar. Crestapol 1260 produces laminates with high strength and toughness with exceptional water and hydrolysis resistance.

KEY FEATURES OF CRESTAPOL® 1260

- ▶ Excellent mechanical performance and durability using only moderate temperature post-curing cycles
- ▶ High temperature performance - HDT 109°C/ 228°F and Tg 112°C/ 234°F
- ▶ Compatible with carbon fibre reinforcement materials and general purpose sizing agents
- ▶ Ability to vary cycle time eliminates the need to stock different resin grades
- ▶ Standard 30 minute gel time but also available in 60 and 90 minute gel times

FORMULATION

Crestapol 1260 should be allowed to attain workshop temperature before use. For curing at room temperature Crestapol 1260 requires the addition of a catalyst and an accelerator.

N.B. Catalysts and accelerators should not be mixed directly together, since they react with explosive violence.

The recommended catalyst for curing at room temperature is Trigonox 239, which should be added at 2% into the resin and thoroughly dispersed. The recommended accelerator is 1% solution of cobalt in styrene, which should be added at 2% into the resin and thoroughly dispersed.

POST CURING

Satisfactory laminates for many applications can be made using Crestapol 1260 by curing at workshop temperature. However, in common with all thermosetting polymers, optimum performance can only be achieved with a high temperature post cure. The typical cure time can be found inside our Crestapol Information Guide.

PHYSICAL DATA – UNCURED

The following tables give typical properties of Crestapol 1260 when tested in accordance with BS2782.

| Property | Unit | Crestapol 1260 |
|------------------------------------------|-------------------|-----------------------------|
| Appearance | - | Clear yellowish brown resin |
| Viscosity at 25°C 4500 sec ⁻¹ | Poise | 2.25 |
| Density at 25°C | gcm ⁻³ | 1.038 - 1.042 |
| Stability in the dark at 20°C | Months | 12 |
| Working time* | Mins | 12 - 15 |

*at 20°C 2% of 1% solution cobalt in styrene, 2% Trigonox 239.

PHYSICAL DATA - CURED: PURE CAST RESIN SHEET

| Property | Unit | Crestapol 1250 |
|----------------------|------------------------|------------------------------------------------------------------------------|
| Barcoal hardness | - | 55 |
| HDT | °C/ °F | 109/228 |
| Tensile strength* | MPa | 76 |
| Tensile modulus* | GPa | 3.6 |
| Elongation at break* | % | 2.7 |
| CTE - Alpha 1** | ppm (°C) ⁻¹ | 65 |
| CTE - Alpha 2** | ppm (°C) ⁻¹ | 200 |
| Tg - TMA | °C °F | 100 (onset), 112 (Tg) and 125 (exit) 212 (onset), 234 (Tg) and 257 (exit) |

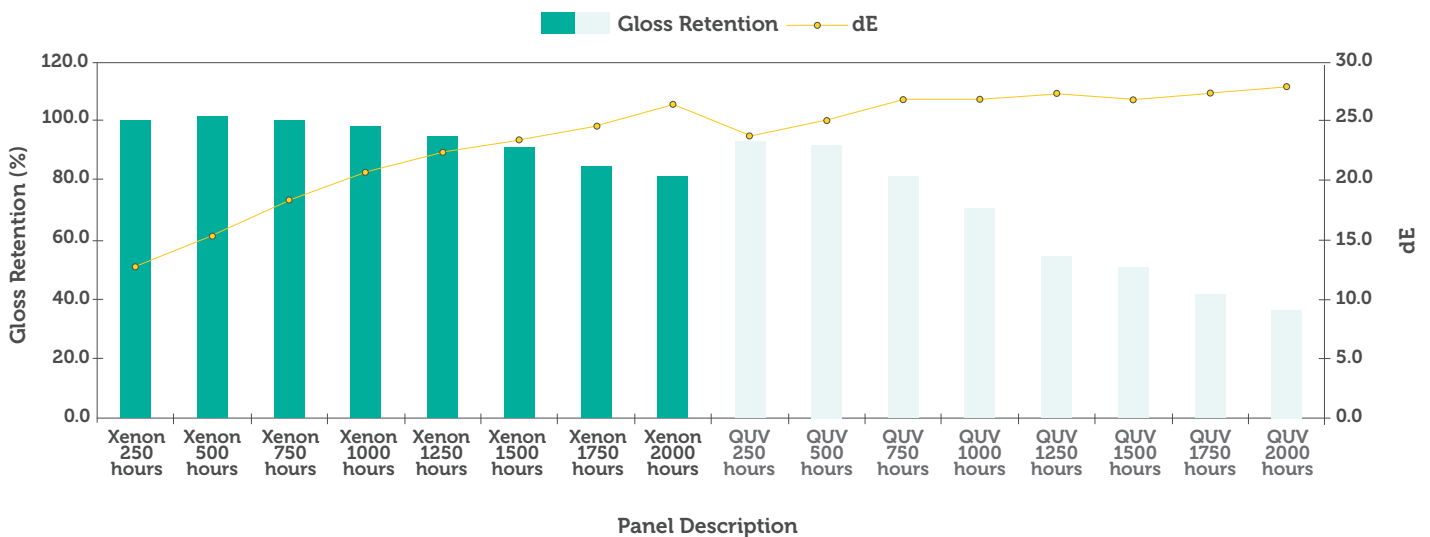
*Curing schedule - 24 hours at 20°C/ 68°F, 5 hours at 80°C/ 176°F

**CTE as measured by TMA, ASTM E 831

UV WEATHERING DATA

Results: Crestapol 1250 & 1260

The resin colour-shifted but no fibre bloom detected, meaning the resin did not degrade.



Laminate lay up as follows:

- ▶ 9" x 9" square
- ▶ 2 x glass tissue on tool side
- ▶ 2 x 450gsm powder pound CSM
- ▶ Peel ply and infusion flow media on bag side only

WATER ABSORPTION DATA

| | Avg Gain/ mg | Avg Gain/ % |
|----------|--------------|-------------|
| 24 hours | 6.5 | 0.08 |
| 1 week | 17.1 | 0.20 |
| 4 weeks | 20.8 | 0.24 |

BS EN ISO 62:1999.

50x50x3mm sample size.

Water bath 23°C/ 73°F.

Cast resin, cure: 2% of 1% solution cobalt in styrene, + 2%LPT-IN.

Post Cure: 16 hours @ 40°C/ 104°F (Lloyd's).

ABRASION DATA

Accelerated wear testing was performed by doing a Taber Abrasion test to ASTMD4060.

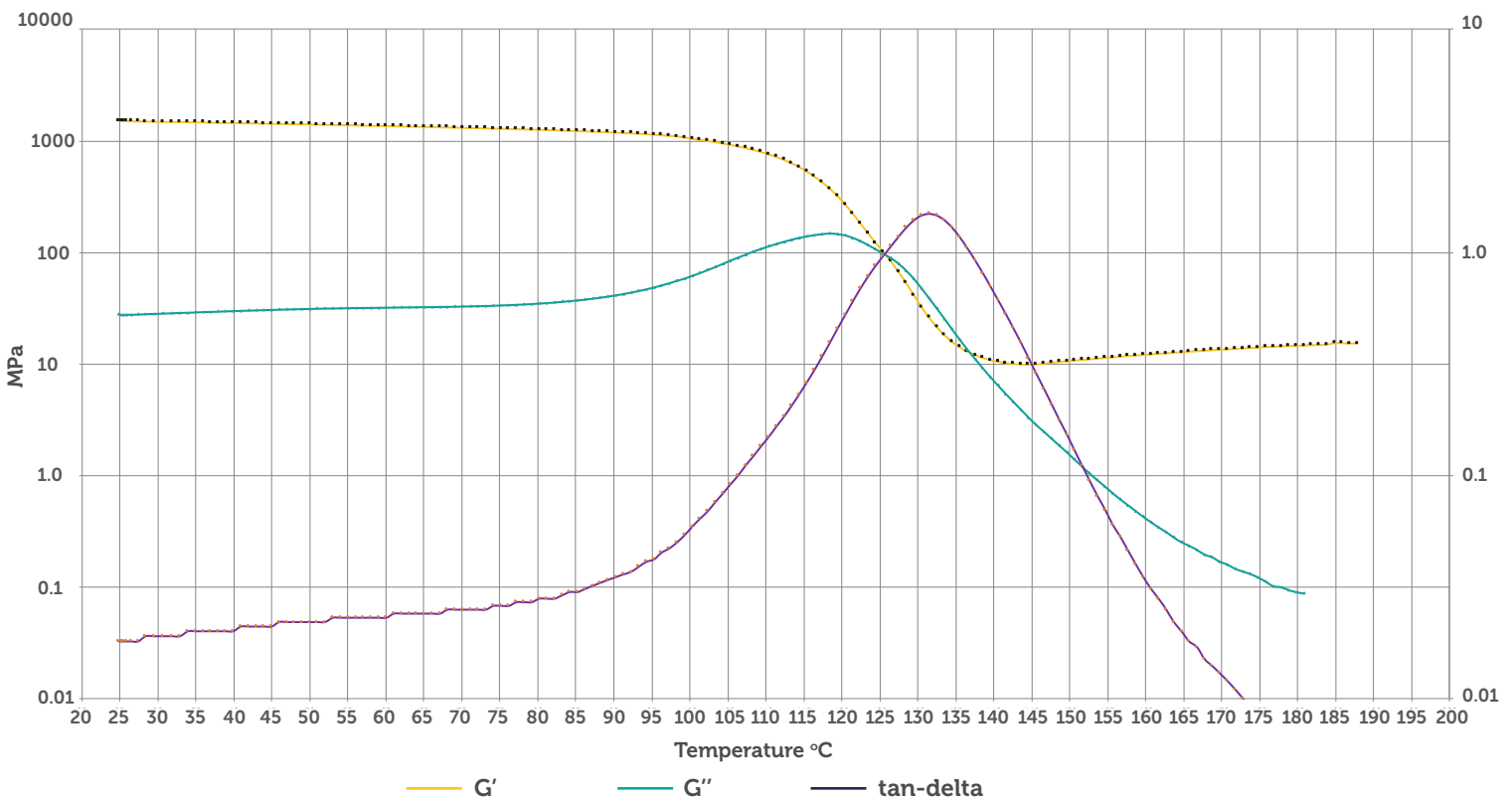
After 4000 abrasion cycles, Crestapol 1260 lost 190mg.

IMPACT RESISTANCE DATA

ASTM D 4226 Standard Test Method for Impact Resistance of rigid Poly Vinyl Chloride building products was conducted by Professional Engineering Inc. to determine what affect impact at extreme temperatures would have on the composite material. Tests to be conducted at -54°C/ -65°F, ambient, and 71°C/ 160°F, on thirty samples at each temperature. All samples were conditioned for at least 24 hours then immediately tested to maintain the temperature of the test specimen. An 8.4lb weight was dropped from various heights to determine if the fibres broke in the composite material. For purposes of customer testing, the failure criteria would be no permanent deformation or breakage of the skin material. There was no permanent deformation or breakage observed.

| Temperature | Failure Height | Damage Observed |
|--------------|----------------|-----------------|
| -54°C/ -65°F | 32cm - 38cm | Broken fibres |
| Ambient | 28cm - 34cm | Broken fibres |
| 71°C/ 160°F | 28cm - 32cm | Broken fibres |

TEMPERATURE EFFECTS ON MODULUS - TG ONSET G' 109 °C/ 227 °F



STORAGE AND PACKAGING

Crestapol 1260 should be stored at 25°C/ 77°F in the original, unopened container in a dry, well ventilated place. Protect from freezing and direct sunlight. Avoid contact with oxidising agents. The shelflife is defined from date of manufacture when stored as recommended. The expiry date is indicated on product labels.

Crestapol 1260 is supplied in 25kg/ 6.6 gallon, 200kg/ 53 gallon and 1000kg/ 264 gallon pack sizes.



Making a *positive* difference

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