

VTA® 260

VTA® 260 is a variable cure temperature film adhesive suitable for bonding both composite substrates and aluminium to themselves or to honeycomb and foam core materials.

VTA260 is fully cure-compatible with Syensqo's VTM® prepreg range.

Features and Benefits

- 30 days out life at 21°C (70°F).
- 12 months storage life at -18°C (0°F).
- Flexible cure between 65°C and 120°C (149°F and 248°F).
- Minimum cure temperature 65°C (149°F).
- Good tack for easy lay-up of large structures, vertical surfaces and complex shapes.
- Maximum dry service temperature of 120°C (248°F) after full post-cure.

INSTRUCTIONS FOR USE

The roll of film adhesive should be removed from the freezer, thawed and allowed to reach room temperature before removal from the protective polythene bag.

The surfaces to be bonded should be dry, free of grease and pre-treated to give a matt or slightly roughed surface. The pre-treatment method depends on the substrate material, chromic acid etching is recommended for aluminium, peel ply, light abrasion and degrease for composite substrates. Please consult our technical support staff for advice on pre-treatment of specific substrates.

The film should be cut to shape, the backing paper removed and the film applied to the substrate to be bonded, keeping the polythene interleave uppermost. When in position, the polythene interleave should be removed and joint assembly completed.

CURE CYCLE

Oven Vacuum Bag Cure

Vacuum bag pressure	Minimum of 980mbar (29"Hg)*
Ramp rate	0.5 to 3°C (0.9 to 5.4°F)/minute
Recommended cure cycle	16 hours at 65°C (149°F)**
Cool down	Maximum of 3°C (5.4°F)/minute to room temperature

*This is the ideal vacuum level, however, it is recognised that it is not always possible to attain. If in doubt, please contact our technical support staff for advice.

**Sufficient time must be allowed for the bond line to achieve this temperature. This can normally be monitored by use of a thermocouple located on the substrates at the bond line. When curing large structures the temperature ramp rate can be retarded by the thermal mass of the mould tool and the laminate structure creating a temperature lag at the adhesive line. It is recommended that the cure cycle is extended to ensure the adhesive film is exposed to the full cure cycle. The service temperature of a part cured at 65°C (149°F) is 65°C (149°F).



Autoclave Cure

Vacuum bag pressure	Minimum of 980mbar (29"Hg)*
Autoclave pressure	2.1 bar (30 psi)†
Ramp rate	0.5 to 3°C (0.9 to 5.4°F)/minute
Recommended cure cycle	16 hours at 65°C (149°F)**
Cool down	Maximum of 3°C (5.4°F)/minute to room temperature

*This is the ideal vacuum level, however, it is recognised that it is not always possible to attain. If in doubt, please contact our technical support staff for advice.

†Sufficient pressure must be applied to maintain good contact between the substrates during the curing process. For metal to metal or composite to composite bonding, whilst a minimum pressure of 1bar (14psi) is necessary, 2.1bar (30psi) is recommended. For honeycomb sandwich bonding, the applied pressure is dependent on the compression strength of the honeycomb core.

**Sufficient time must be allowed for the bond line to achieve this temperature. This can normally be monitored by use of a thermocouple located on the substrates at the bond line. When curing large structures the temperature ramp rate can be retarded by the thermal mass of the mould tool and the laminate structure creating a temperature lag at the adhesive line. It is recommended that the cure cycle is extended to ensure the adhesive film is exposed to the full cure cycle. The service temperature of a part cured at 65°C (149°F) is 65°C (149°F).

Alternative Cure Cycles

Temperature	Duration	Maximum service temperature
80°C (176°F)	5 hours	80°C (176°F)
100°C (212°F)	2 hours	110°C (230°F)
120°C (248°F)	1 hour	120°C (248°F)

POST-CURE

In applications demanding maximum temperature or environmental resistance, bonded joints cured at temperatures below 120°C (248°F) must be post-cured to fully develop the glass transition temperature.

Ramp rate	0.3°C (0.5°F)/minute
Post-cure cycle	Minimum of 1 hour at 120°C -0/+2°C (248°F-0/+4°F)*
Cool down	Maximum of 3°C (5.4°F)/minute to 60°C (140°F)

* Temperature must be measured by the lagging thermocouple attached to the part. Notes:

- Parts may be loaded into a pre-heated oven or heated at 3°C (5.4°F)/minute to the initial cure temperature.
- Large components should be adequately supported to avoid distortion.

PHYSICAL PROPERTIES

Colour	Pink
Cured resin density	1.20g/cm ³



MECHANICAL PROPERTIES

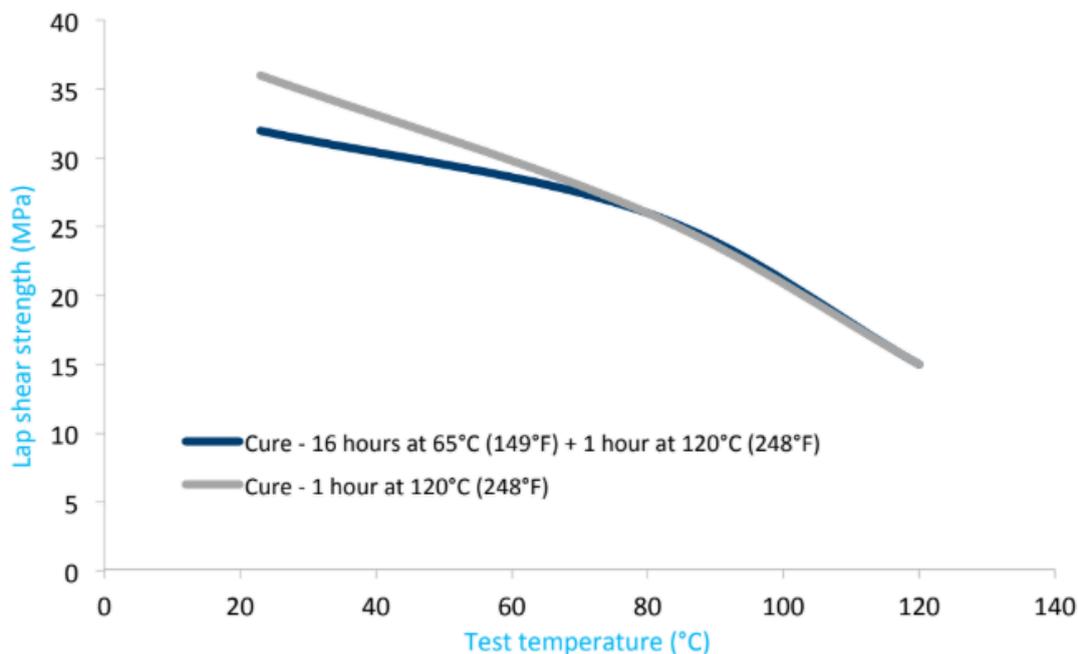
All tests carried out in the as-cured state with no conditioning prior to testing.

Test	Test method	Test conditions	Units	VTA260 PK13-313g/m ²			
				16 hours at 65°C (149°F)	5 hours at 80°C (176°F)	1 hour at 120°C (248°F)	
Lap shear strength	ASTM D3165-00	21°C (70°F) 80°C (176°F) 120°C (248°F)	MPa (ksi)	23.0 (3.34) 6.00 (0.87) -	30.0 (4.35) 16.0 (2.32) -	38.0 (5.51) 26.0 (3.77) 15.0 (2.18)	
Honeycomb climbing drum peel	Top skin	ASTM, D1781-76	21°C (70°F)	Nm/m (lbf/3 inch)	43.0 (28.9)	63.0 (42.4)	90.0 (44.4)
	Bottom skin				42.0 (28.3)	66.0 (44.4)	110 (74.0)

Lap shear specimens – adherends Alclad 2024T3 at 1.6mm thick prepared by degreasing and chromic acid etch Peel specimens – adherends Alclad 2024T3 at 0.48 mm thick prepared by degreasing and chromic acid etch Honeycomb specimens – 7.9 lb/ft³ density, ¼ inch cell vapour degreased 5052 aluminium core (12.7 mm thick)

Material: VTA260/PK13-313g/m²

Lap shear strength vs test temperature



AVAILABILITY

VTA260 is available in the following standard formats:

VTA260/PK13-413g/m ²	1100mm wide
VTA260/PK13-313g/m ²	1100mm wide
VTA260/PK13-263g/m ²	1100mm wide
VTA260/150g/m ² unsupported	1100mm wide

PK13 is a 13g/m² knit polyester carrier for improved handleability and bond line thickness control. Other formats may be possible to order.

STORAGE

Out life* at 21°C (70°F)	30 days
Storage at -18°C (0°F)	12 months from date of manufacture

*Out life refers to accumulated time out of the freezer before the part is cured.

HEALTH & SAFETY

Please refer to the product SDS for safe handling, personal protective equipment recommendations and disposal considerations.

