

Product Description

VTA260 is a flexible cure temperature film adhesive suitable for bonding both aluminium and composite substrates either to themselves or to honeycomb and foam core materials. It can be used in secondary bonding processes or with ACG's VTM® prepreg products to produce sandwich components by the co-curing process.

Features

- Flexible cure between 65°C and 120°C (149°F and 248°F).
- Minimum cure temperature 65°C (149°F).
- Maximum dry service temperature of 120°C (248°F) following a suitable post cure.
- Good tack for easy lay up of large structures, vertical surfaces and complex shapes.

Instructions for use

As with all bonding operations, the surfaces to be bonded should be dry, free of grease and pre-treated to give a matt or slightly roughened surface. The pre-treatment method depends on the substrate material, chromic acid etching is recommended for aluminium, peel ply and light abrasion for composite substrates. Please consult ACG for advice on pre-treatment of specific substrates.

Remove the roll of film from the freezer and allow it to warm to room temperature prior to use. The effects of moisture on adhesive films can critically affect their performance in service. ACG recommends that the roll of material be allowed to fully thaw before the seal on the storage bag is broken. It can take 6 hours for the centre of the roll to reach room temperature.

Cut the film to the shape and size required, remove backing paper and apply to the substrate to be bonded, keeping the polythene interleaves uppermost. When in position, lift the corner of the polythene and remove by pulling sharply. Complete the joint assembly.

Initial cure:

Recommended cure options are:

Cure Temperature	Recommended Cure Time	Maximum Service Temperature
65°C (149°F)	16 hours	80°C (176°F)
80°C (176°C)	5 hours	90°C (194°F)
100°C (212°F)	2 hours	110°C (230°F)
120°C (248°F)	1 hour	120°C (248°F)

Sufficient time must be allowed for the glue line to achieve this temperature. This can normally be monitored by use of a thermocouple located on the substrates at the glue line.

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 0.1MPa (14psi) is necessary, 0.21MPa (30psi) is recommended. For honeycomb sandwich bonding, the applied pressure is dependent on the compression strength of the honeycomb core.

It is recommended that components be cooled to below 70°C (158°F) before releasing pressure.

Optional postcure:

The bonded assembly may be postcured at 120°C (248°F) for 1hour to achieve the maximum service temperature.

It is recommended that a minimum pressure of 0.1MPa (14psi) be maintained during postcure. Heat up rate to 120°C (248°F) should be 20°C (36°F) per hour.

Outlife:

VTA260 has a cumulative outlife of 30 days when stored at 21°C (70°F).

Mechanical Performance

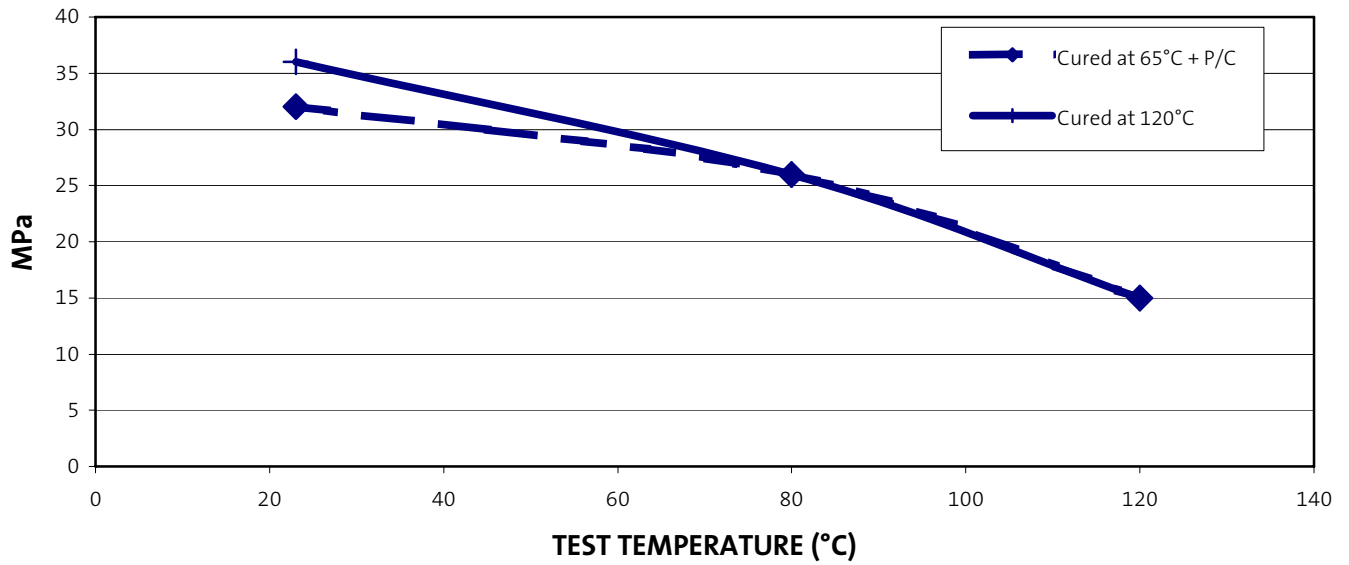
Adherends were aluminium 2024T3 at 1.6mm thick (lap shear) or 0.48mm (honeycomb peel and flatwise tensile), degreased and chromic acid etched. Honeycomb was 7.9lb/ft³ density, ¼ inch cell, vapour degreased 5052 aluminium core (12.7mm thick).

All tests were carried out on specimens as received (no special conditioning prior to test) unless specified. The figures below represent results obtained from two adhesive mix each filmed at 300gsm, 250gsm and 400gsm.

TEST	Test Temp. °C (°F)	VTA260 PK13-313 gsm				
		16 hrs at 65°C (149°F)	5 hrs at 80°C (176°F)	2 hrs at 100°C (212°F)	1 hr at 120°C (248°F)	
Lap Shear Strength MPa (ASTM D3165-00)	RT 80(176) 120(248)	28 16 /	31 27 /	34 28 16	36 26 15	
Honeycomb Flatwise Tensile MPa (Pr EN2243-4 Edition P2)	RT	7.4	7.0	8.0	7.8	
Honeycomb Climbing Drum Peel Nm/m (ASTM D1781-76)	Top skin	RT	58	47	60	78
	Bottom skin	RT	54	51	66	78

TEST	Test Temp. °C (°F)	VTA260 PK13		
		At 263 gsm	At 413 gsm	
		1 hr at 120°C (248°F)	1 hr at 120°C (248°F)	
Lap Shear Strength MPa (ASTM D3165-00)	RT	33	34	
Honeycomb Climbing Drum Peel Nm/m (ASTM D1781-76)	Top skin	RT	80	80
	Bottom skin	RT	91	102

LAP SHEAR STRENGTH vs TEMPERATURE



Availability

ACG VTA260 is available from stock, in 10sqm or 40sqm rolls, with the following standard formats:

VTA260 /PK13-413gsm	1100mm wide
VTA260 /PK13-313gsm	1100mm wide
VTA260 /PK13-263gsm	1100mm wide
VTA260-150gsm unsupported	1100mm wide

Special care is required in handling lightweight unsupported films. (PK13 is a 13gsm knit polyester carrier for improved handleability and glue line thickness control)

Other formats may be possible, but a long lead time or a minimum order quantity may be necessary. Please refer to ACG for advice.

Storage

VTA260 should be stored at -18°C (0°F) in a sealed polythene bag. Under these conditions the material has a storage life of at least 12 months from the date of manufacture.

Health and Safety

VTA260 contains epoxy resins that can cause allergic reactions on skin contact. Use gloves and protective clothing.

In case of contact, wash skin thoroughly with soap and water, or use resin-removing cream.

Use mechanical exhaust ventilation when curing the resin.

For further information, consult ACG Material Safety Data Sheet No. 397.

