

HIGH-TEMPERATURE-CURING ADHESIVES

AD-58 ADHESIVE FILM

Features: High strength, high modulus, high toughness, excellent durability and processability, and less demanding storage and transportation requirements.

AD-58 is a carrier-supported modified epoxy structural adhesive film that cures at high temperature (180°C). It is suitable for panel-to-panel bonding of metals, non-metallic materials, and composites, as well as panel-to-core bonding between metal, non-metallic, or composite skins and metallic or non-metallic honeycomb cores.

KEY PROPERTIES

1. Typical mechanical properties

Property	Test temperature	Typical value
Lap shear strength, MPa	R.T.	52.0
Lap shear strength, MPa	-55°C	49.2
Lap shear strength, MPa	150°C	32.7
Floating-roller peel strength, kN/m	R.T.	10.0
Floating-roller peel strength, kN/m	-55°C	7.26
Floating-roller peel strength, kN/m	150°C	10
Honeycomb climbing-drum peel strength, N-mm/mm	R.T.W	232
Honeycomb climbing-drum peel strength, N-mm/mm	R.T.L	173
Honeycomb flatwise tensile strength, MPa	R.T.	11.6
Honeycomb flatwise tensile strength, MPa	150°C	7.92

Note: Aluminum coupons were treated by phosphoric acid anodizing.

2. Physical properties

Appearance: Pale yellow film with a uniform surface, free of foreign matter, and containing a knitted nylon carrier.

Areal weight: 250 ± 20 g/m²; nominal thickness: 0.2 mm (customizable).

Volatile content: $\leq 1\%$ (weight change before and after cure).

Self-tack: The film is self-tacky at room temperature. At $23 \pm 2^\circ\text{C}$ and $\leq 70\%$ R.H., a 100 mm × 100 mm film specimen applied to a clean glass plate and placed vertically shall remain attached after 1 h.

3. AD-58 cure conditions

Bond-line temperature, °C	173–175
Cure time, h	2
Heating rate, °C/min	1–4
Cure pressure, MPa	0.30 ± 0.02 (panel-to-panel) 0.08–0.30 (panel-to-core; depends on core specification and skin thickness)

PRODUCT SAFETY

This product contains no organic solvents, is neither self-igniting nor explosive, and is classified as a general chemical product.

PACKAGING AND TRANSPORT

Labeling: Each package shall bear a secure label stating the product name, grade, batch, quantity, manufacturer, manufacturing date, storage conditions and shelf life.

Packaging: Separate the film with release paper or colored plastic film, seal it in a polyethylene bag, then pack it in a carton or wooden case.

Storage: Store at 10–35°C and $\leq 70\%$ R.H., away from direct sunlight and heat. Cold storage may also be used. Shelf life from manufacture is 9 months at room temperature or 2 years at -18°C. After expiry, material may still be used provided that its self-tack remains acceptable and it passes the applicable factory release inspection; each reinspection is valid for 3 months.

Transport: Transport as non-dangerous goods.