














Product Overview

One of a range of Solarbond adhesives, Solarbond M7 is a toughened, two component 1:1 acrylic cartridge adhesive designed for bonding to coated metals, thermoplastics (GRP) and composite panels.

This new generation of structural methacrylate adhesive demonstrates excellent impact, peel, shear, compressive strength and fatigue resistance properties. When used in conjunction with Solarbond's pre-primed solar modules, it is ideally suited for attachment to profiled colour coat metal roofing.

Features and Benefits

-  Primerless application including on to plastisol coated steel
-  High strength, modulus and toughness
-  Excellent environmental resistance
-  Eliminates any need for mechanical framework or fasteners
-  Designed for demanding site applications
-  Solar module attachment wind load tested to in excess of 6kN
-  Excellent adhesion
-  Fast setting and curing
-  Non-sag
-  Speeds up site installation
-  Application on vertical surfaces

Application Properties

Working Time ¹	10 - 20 Minutes
Fixture Time ²	30 - 45 Minutes
Gap Filling	1 - 5 mm (0.04-0.2 inch)
Mixed Colour	Off White or Black
Recommended Application Temperature	18 - 25 °C (64 - 77°F)

Mechanical Properties

Tensile Strength ³	22 - 25 MPa (3.2 - 3.6 ksi)
Tensile Modulus ³	1200 - 1700 MPa (174 - 246 ksi)
Tensile Elongation ³	25 - 30%
Aluminium Lap shear ⁴	17 - 22 MPa (2.4 - 3.2 ksi)
Recommended Operating Temperature ⁵	-40 - 100 °C (-40 - 212°F)

Liquid Properties

Product	M7 Adhesive	M7 Activator
Viscosity ⁶	50,000 - 70,000 cP 200-450 & 450-1100 dPa.s**	30,000 - 50,000 cP 120-250 & 1400-3000 dPa.s**
Specific Gravity	1.00 - 1.03 g/cc	0.98 - 1.00 g/cc
Mix Ratio (by volume)	1	1
Mix Ratio (by weight)	1	1
Colour	Off white or Black	Off white
Shelf Life ⁷	9 months	9 months

Substrates

	Recommended Substrates (Lapshear Strength MPa*)	Non - Recommended Substrates
Plastics	Acrylic ¹⁰ 22 - 26 MPa PVC ⁸ 16 - 22 MPa ABS ⁸ 13 - 15 MPa Other: Urethanes, Nylon and common engineering thermoplastics	Low Surface Energy Plastics e.g. PP, PE & PTFE
Metals	Plastisol Coated Steel 21-26 MPa Stainless ¹⁰ 21 - 25 MPa CRS ¹⁰ 21 - 25 MPa Aluminium ¹⁰ 17 - 22 MPa Zinc/Galvanised ⁹ 13 - 18 MPa Other: Powder Coated Metals, Carbon Steel	-
Composites	GRP/FRP ⁸ 8 - 12 MPa Carbon Fibre/ Polyester DCPD Modified Vinyl Esters Epoxy ¹¹ Gelcoats ¹²	-

Please contact Solarbond™ technical services for information and advice on other substrates

Surface Preparation

The surface to be bonded can affect the strength and durability of the bond joint. Appropriate treatment may be required to ensure that there are no traces of oil, grease, dirt or release agents through the use of a degreasing agent, for instance acetone or another degreasing agent on the joint surfaces.

Mechanically abrading or chemically etching degreased surfaces can make bond joints more durable and stronger. If abrading, a second treatment of degreasing is highly recommended.

Do not use petrol (gasoline), low grade alcohol or paint thinners.

i) Metals

Typically, the surface should be clean and dry by using an alcohol/solvent wipe and allowing the solvent to evaporate before application. Certain metals, such as carbon steel may also require mechanical abrasion and a subsequent alcohol solvent wipe prior to bonding.

ii) Thermoplastics

The surface must be clean, dust-free and dry. A suitable solvent such as iso-propanol can be used to degrease.

iii) Composites

The surface must be clean, dust-free and dry. This can be achieved by the use of proprietary strippable cloths such as peel-ply (without lubricant contaminates). The laminate should be fully cured prior to bonding and if the laminate surfaces are more than 3 days old, it is recommended that the surface must be cleaned with a suitable solvent or cleaner with a lint-free, clean cloth prior to bonding.

Surface preparation, such as mechanical abrasion, is likely to be needed on gel coat surfaces and moulded surfaces where release agents are likely to be present. When bonding epoxy laminates please test bond strength prior to application.

Application

Prior to bonding, ensure the substrate surface is clean (see surface preparation notes over) Application of Solarbond M7 can be either by two-part cartridge or canister. Ensure bulk dispensing equipment is in good operating condition.

Dispense the adhesive at a slow rate initially onto a non-bonding surface until the mixed bead colour is uniform. Check the bead for cure quality before beginning the bonding process.

When adhering to profiled metal roof panels with crown or crest width of 25-30mm, a 5mm diameter bead of adhesive is adequate. For profiled roof panels with panel ribs in excess of 300mm apart, check with Solarbond Technical for suitability of application.

Storage and Shelf Life

Solarbond™ products should be stored in their original container out of direct sunlight. The bulk product or cartridge material should be opened only immediately prior to use. The expiry date is indicated on the product labels.

The shelf life is defined from date of manufacture when stored at a recommended temperature between 2°C and 23°C (36°F and 73°F). It is highly recommended that products should never be frozen. Exposure to temperatures above 23°C (36°F) will reduce the shelf life of these materials. Exposure above 35°C (95°F) of activators, including the cartridges, should be avoided as the reactivity of the product is quickly diminished.

Packaging

Solarbond™ M7-15 is supplied in 18Kg (40 lb) plastic pails, 180Kg (397 lb) drums, pre-packed 50ml and 400ml side by side cartridges.

Health and Safety

See separate Material Safety Data Sheet.

1. Working time measured with 10g mass of adhesive with 1:1 mix ratio by volume at 24°C (75°F).	2. Fixture time defined using an ISO 4587 lap shear sample, 0.26mm bondline thickness with 23°C (73°F) ambient temperature achieving >1.4MPa.
3. Tested to ASTM D638.	4. Metals tested according to ISO 4587, Thermoplastics according to ASTM 2564 and GRP according ASTM 5868.
5. Maximum temperature where an ISO 4587 lap shear sample, 0.26mm bondline thickness achieves >3MPa.	6. Viscosity measured using a Brookfield Viscometer at 24°C (75°F)* Viscosity measured using HAKKE RV1 Rheometer at 25°C (77°F)**
7. Shelf life defined from date of manufacture when stored as recommended.	8. Substrate failure when tested.
9. Adhesive failure when tested.	10. Cohesive failure when tested.
11. Surface preparation of epoxy laminates may be necessary and testing should be performed to ensure sufficient bond strength is achieved.	12. Surface preparation is likely to be needed on gelcoat surfaces to ensure no release agents are present.

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