CRESTABOND® M1-90HV

Methacrylate Structural Adhesive

Product Overview

Crestabond M1-90HV is a toughened, two component acrylic adhesive designed for bonding composites, thermoplastics and metals. This new generation of structural methacrylate adhesive meets the bonding requirements of most assembly operations, demonstrating excellent impact, peel, shear, compressive strength and fatigue resistance properties across all bonded parts. Crestabond M1-90HV is a primer-less adhesive, requiring only minimal surface cleaning of the substrates to be bonded and demonstrates high toughness in all assembled parts with a gap filling capability up to 50mm.

Features and Benefits

- Primer-less metal application
- Excellent adhesion to dissimilar substrates
- Fast setting and curing
- High strength and modulus
- Excellent retention of toughness
- Excellent environmental resistance
- Ready-to-use two component adhesive
- Non-sag
- Application on vertical surfaces
- Replaces mechanical fasteners
- Speeds assembly process
- Reduces labour

Characteristics of Crestabond M1-90HV

Characteristics	Typical Value
Working Time/Geltime[1]	70 – 100 Minutes
Fixture Time[2]	210 – 240 Minutes
Gap Filling	1 – 50 mm
Flash Point	8°C
Mixed Colour	Green

1. Working time measured with 40g mass of adhesive with 10:1 mix ratio by volume at 24°C.
2. Fixture time defined using an ISO 4587 lap-shear sample, 0.26mm bondline thickness with 23°C ambient temperature achieving >1.4MPa (203psi), equivalent to approximately 44kg.

Liquid Properties

	Typical Value	
Property	**M1-90HV Adhesive**	**Activator 2 Green**
Viscosity[3]	340,000 – 380,000 cP	80,000 – 120,000 cP
Specific Gravity	0.97 – 1.03	1.05 – 1.15
Mix Ratio (by volume)	10.0	1.0
Mix Ratio (by weight)	9.1	1.0
Colour	Off White	Green
Stability at 20°C[4]	6 Months	6 Months

3. Viscosity measured using a Brookfield Viscometer at 24°C.
4. Stability defined from date of manufacture when left un-opened in the original containers and out of direct sunlight.

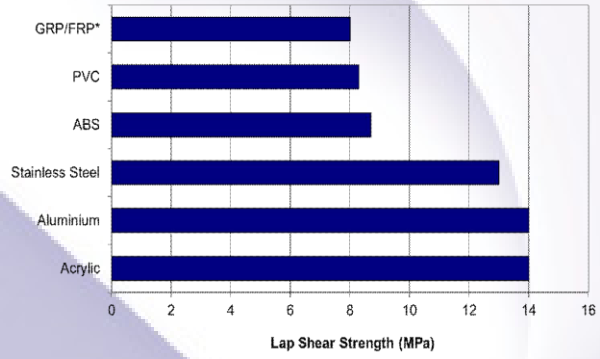
Typical Material Properties

Property	Typical Value
Tensile Strength	20 – 25 MPa
Tensile Modulus	1400 – 1800 MPa
Tensile Elongation	50 - 70%

Tested to ASTM D638.

Bond Joint Strength – Typical Lap Shear Strengths at 23°C

Values are based on substrate failure where marked by *



Material	Surface Preparation	Bondline Thickness	Test Method
GRP	Solvent Degrease	3.00mm	ASTM 5868
PVC	Solvent Degrease	0.76mm	ASTM 2564
ABS	Solvent Degrease	0.76mm	ASTM 2564
Stainless Steel	Solvent Degrease	0.26mm	ISO 4587
Aluminium	Solvent Degrease	0.26mm	ISO 4587
Acrylic	Solvent Degrease	0.76mm	ASTM 2564

Recommended Substrates

Metals	Thermoplastics	Composites
Aluminium	Acrylic	GRP/FRP
Stainless Steel	Styrenics	Epoxy[5]
Carbon Steel	ABS	Polyester & DCPD Modified
Powder Coated Metals	PVC/CPVC	Vinyl Esters
		Urethanes
		Gelcoats[6]
		Carbon Fibre

5. Surface preparation of epoxy laminates may be necessary and testing should be performed to ensure sufficient bond strength is achieved.
6. Surface preparation is likely to be needed on gelcoat surfaces to ensure no release agents are present.

Please contact Scott Bader Technical Services for information on other substrates and advice.

Non-Recommended Substrates

- Polyethylene
- Polypropylene
- Polytetrafluoroethylene
- Polyacetals
- Zinc/Galvanised Coated Metals
- Cold Rolled Steel

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 or dirt 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 gasoline (petrol), 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, free of dust 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 surface where release agents are likely to be present. When bonding epoxy laminates please test bond strength prior to application.

Application
Crestabond M1-90HV is supplied ready to use in pre-packed 400ml and 825ml cartridges and in bulk (18Kg pails and 180Kg drums). Prior to bonding, ensure the substrate surface is clean by following instructions provided. Bulk dispensing equipment should be in good operating condition. Dispense the adhesive at slow rate initially onto a non-bonding surface until the bead colour is uniform green. Check the dispensed bead for cure quality before beginning the bonding process.

Dispense enough adhesive to fill the bond gap before parts are mated. Avoid dry bonds by using adequate pressure to mate parts and clamp properly to prevent joint movement. The working time is the approximate time after mixing that the adhesive is still useable. The bonding process must be completed before the working time of the mixed adhesive expires. The adhesive, activator and parts to be bonded should be allowed to attain workshop temperature of between 18°C and 25°C prior to bonding. This temperature should be maintained during the bonding process and until the adhesive is sufficiently cured to allow movement of the assembly. Typically, such movement may be possible after the fixture time of the adhesive is achieved. Ambient temperature, bondline thickness and the substrate materials being bonded can all affect the fixture time.

For industrial/commercial use only. Not to be used in household applications. The user must determine the suitability of a selected adhesive for a given substrate and application. Contact your local Scott Bader representative for questions or assistance with the selection of adhesives for your use. This product is intended for use by skilled individuals at their own risk. Recommendations contained herein are based on information we believe to be reliable. The properties and strength values obtained under controlled conditions at the Scott Bader laboratory.

Storage and Shelf-Life
The shelf life for Crestabond M1-90HV is defined from date of manufacture when stored at a recommended temperature between 2°C and 23°C. It is highly recommended that products should never be frozen. Exposure to temperatures above 23°C will reduce the shelf life of these materials. Exposure above 35°C of activators, including the cartridges, should be avoided as the reactivity of the product is quickly diminished.

Crestabond 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.

Packaging
Crestabond M1-90HV is supplied in 18Kg plastic pails, 180Kg drums, pre-packed 400ml co-axial and 825ml side by side cartridges.

Health and Safety
See separate Material Safety Data Sheet.

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