



COMPOSITES METALS PLASTICS



STRUCTURAL ADHESIVES
CRESTABOND

CRESTABOND[®] M7-05

Methacrylate Structural Adhesive

Product Overview

Crestabond M7-05 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 M7-05 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 5mm.

Features and Benefits

- Primer-less metal application
- High strength and modulus
- Fast setting and curing
- Excellent environmental resistance
- Ready-to-use two component adhesive
- Speeds assembly process
- Replaces mechanical fasteners
- Reduce labour
- Bonds difficult metals and plastics

Characteristics of Crestabond M7-05

Characteristics	Typical Value
Working Time/Geltime ¹	4 – 7 Minutes
Fixture Time	18 – 22 Minutes
Gap Filling	1 – 5 mm
Flash Point	10°C
Mixed Colour	Off White or Black

1. Working time measured with 12g mass of adhesive with 1:1 mix ratio by volume at 24°C.

Liquid Properties

Property	M7-05 Adhesive		M7-05/15 Activator
	M7-05 Adhesive	M7-05 Adhesive Black	
Viscosity ²	50,000 – 70,000 cP		30,000 – 50,000 cP
Specific Gravity	1.00 - 1.03		0.98 – 1.00
Mix Ratio (by volume)	1.0		1.0
Mix Ratio (by weight)	1.0		1.0
Colour	Off White	Black	Off White
Stability at 20°C ³	9 Months	6 months	9 Months

2. Viscosity measured using a Brookfield Viscometer at 24°C.

3. Stability defined from date of manufacture when left un-opened in the original containers and out of direct sunlight.

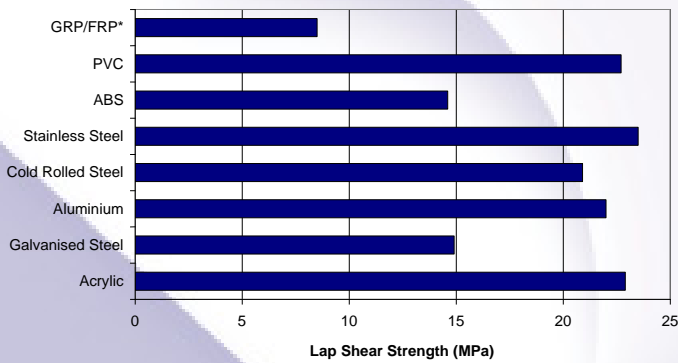
Typical Material Properties

Property	Typical Value
Tensile Strength	23 – 25 MPa
Tensile Modulus	1200 - 1700MPa
Tensile Elongation	33 – 37%

Tested to ASTM D638.

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

Values are based on substrate failure where marked by *

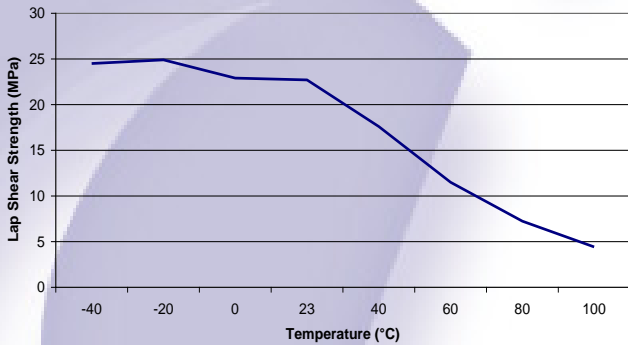


Material	Surface Preparation	Bondline Thickness	Test Method
GRP	Solvent Degrease	3.00mm	ASTM 5868
PVC	Solvent Degrease	0.76mm	ASTM 2564
ABS	Solvent Degrease	0.76mm	ASTM 2564
Stainless Steel	Grit Blast & Degrease	0.26mm	ISO 4587
Cold Rolled Steel	Degrease, Abrade & Degrease	0.26mm	ISO 4587
Aluminium	Solvent Degrease	0.26mm	ISO 4587
Galvanised Steel	Solvent Degrease	0.26mm	ISO 4587
Acrylic	Solvent Degrease	0.76mm	ASTM 2564

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

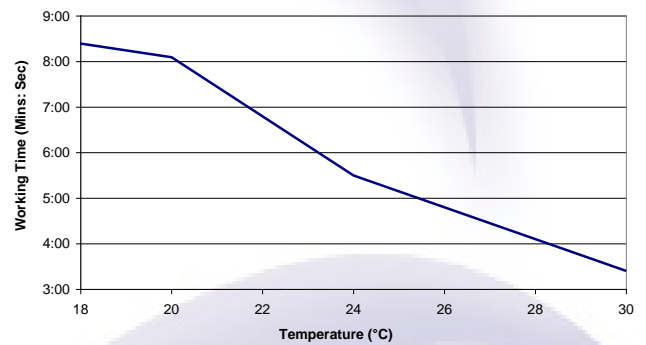
Temperature Performance Lap Shear Testing

Tested to ISO 4587 0.26mm bondline, aluminium 6061-T6, acetone wipe surface preparation.



Working Time Testing

The time taken for a 12g mass to reach 30°C at different ambient temperatures.



Recommended Substrates

Metals

Aluminium
Stainless Steel
Carbon Steel
Powder Coated Metals
Galvanised/Zinc Coated Metals

Thermoplastics

Acrylic
Styrenics
ABS
PVC/CPVC
Nylon

Composites

GRP/FRP
Epoxy⁴
Polyester & DCPD Modified
Vinyl Esters
Urethanes
Gelcoats⁵
Carbon Fibre

- Surface preparation of epoxy laminates may be necessary and testing should be performed to ensure sufficient bond strength is achieved.
- 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

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 required.

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 M7-05 is supplied ready to use in pre-packed 400ml and 50ml 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. Check the cartridge outlet for any obstructions and remove as necessary to ensure product flows easily. Dispense the adhesive at slow rate initially onto a non-bonding surface until the bead colour is uniform. 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.

All these processes must be completed before the working time of the mixed adhesive expires. The effect of temperature upon this working time can be seen in the graph on the previous page. The viscosities of both adhesive and activator are affected by temperature. 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.

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

The shelf life for Crestabond M7-05 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 product will thicken and become unusable, additionally 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 M7-05 is supplied in 18Kg plastic pails, 180Kg drums, pre-packed 400ml and 50ml side by side cartridges.

Health and Safety

See separate Material Safety Data Sheet.

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All information on this data sheet is based on laboratory testing and is not intended for design purposes. Scott Bader makes no representations or warranties of any kind concerning this data. Due to variance of storage, handling and application of these materials, Scott Bader cannot accept liability for results obtained. The manufacture of materials is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication.

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