Technical data sheet

Product:	EC-7202
Manufacturer:	3M DEUTSCHLAND GMBH
Product group:	KLEBSTOFF
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3M™ SCOTCH-WELD™ EC-7202 B/A

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3M™ Scotch-Weld™ EC-7202 B/A

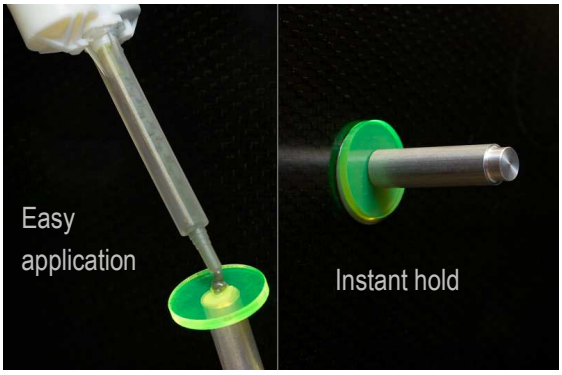
Two Part Epoxy Adhesive

Product Description

3M™ Scotch-Weld™ EC-7202 B/A is a two part, epoxy based, room temperature curing adhesive which combines high mechanical strength, excellent toughness and rapid cure at room temperature. Due to its high viscosity, brackets or fasteners are immediately held in place and don't require any additional fixture, while the adhesive is curing to its final strength.

Key Features

- General purpose adhesive for interior bonding
- High thixotropy provides instant hold for mounted parts and makes it ideal for bracket and fastener bonding
- Fast cure at room temperature
- Excellent shear and peel strength on a variety of substrates
- Contains glass beads to ensure minimum bond line thickness of 150 µm
- Available in cartridges



Product Characterization

All technical information and data in this data sheet should be considered representative or typical only and should not be used for specification purposes.

Properties	Part B	Part A	Test method
Chemical base	Modified epoxy	Modified amine	
Colour	Yellow	Dark grey	
Consistency	Paste	Paste	
Density	1.10 g/cm³	1.07 g/cm³	ISO 2811
Mix ratio by volume	100	50	
Viscosity at 23 °C	440 Pa·s	270 Pa·s	Rheometer (AITM 3-0004)
Colour in mixed state	Olive green		
Work life (10 g of mixed material, 23 °C)	ca. 10 min		Internal test method [a]
Extrudability (50 ml cartridge, 23 °C)	ca. 20 min extrudable from mixing nozzle (EPX Quadro, Art. 300 346: 5.3/16)		
Available packaging	50 ml duo-pack cartridge, others on request		

[a] Time during which the adhesive can be applied properly

Product Performance

The following product performance data were obtained after 7 days curing at room temperature, if not stated otherwise.

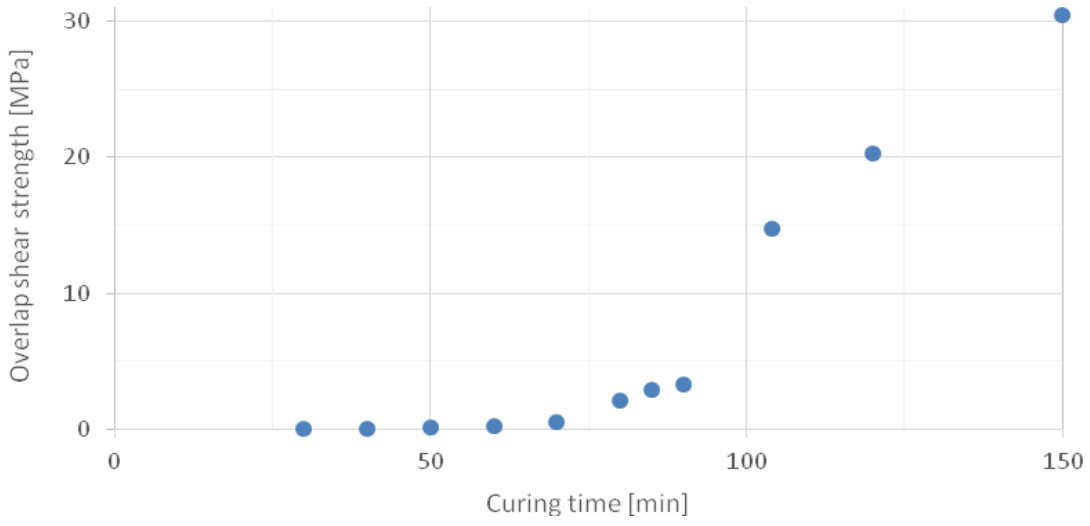
Properties	Test temperature	Result	Test method
Overlap shear strength Clad Al 2024 T3, thickness 1.6 mm, optimized FPL[(a)] surface treatment, test speed 2.5 mm/min	-55 °C	23 MPa	ISO 4587
	23 °C	30 MPa	ISO 4587
	85 °C	7 MPa	ISO 4587
	135 °C	3 MPa	ISO 4587
Floating roller peel strength Material and surface treatment as above, thickness 1.6 mm and 0.5 mm, test speed 100 mm/min	23 °C	172 N / 25 mm	EN 2243-2

[(a)] for optimized FPL etching process see “Instructions for use” below

Strength build-up

Specimens were prepared using fresh mixed adhesive from a 50 ml cartridge. Overlap shear strength was measured after the curing times specified in the table below.

Properties	Curing time at 23 °C	Result	Test method
Overlap shear strength Clad Al 2024 T3, thickness 1.6 mm, surface treatment: CAA + primer BR 127, test speed 10 mm/min	30 min	0.0 MPa	EN 2243-1
	40 min	0.1 MPa	EN 2243-1
	50 min	0.1 MPa	EN 2243-1
	60 min	0.3 MPa	EN 2243-1
	70 min	0.5 MPa	EN 2243-1
	80 min	2.1 MPa	EN 2243-1
	85 min	2.9 MPa	EN 2243-1
	90 min	3.3 MPa	EN 2243-1
	104 min	14.7 MPa	EN 2243-1
	120 min	20.3 MPa	EN 2243-1
	150 min	30.4 MPa	EN 2243-1



Variation of bond line thickness

Overlap shear specimens with different bond line thicknesses were prepared by adding up to 1 wt.% of glass beads to the mixed adhesive.

Properties	Bond line thickness [a]	Result	Test method
Overlap shear strength Clad Al 2024 T3, thickness 1.6 mm, surface treatment: CAA + primer BR 127, test speed 10 mm/min	150 µm	31 MPa	ISO 4587
	300 µm	30 MPa	ISO 4587
	1000 µm	24 MPa	ISO 4587

[a] maximum nominal thickness of glass beads

Ageing Properties

Overlap shear specimens were cured 7 days at room temperature and exposed to different media and environments for the durations specified in the table below. After exposure, the specimens were conditioned 72 hours at 23 °C / 50 % rel. humidity and tested at 23 °C.

Mechanical properties	Ageing condition	Result	Test method
Overlap shear strength Clad Al 2024 T3, thickness 1.6 mm, surface treatment: CAA + primer BR 127, test speed 2.5 mm/min	(initial)	30 MPa	ISO 4587
	1000 h, 105 °C	30 MPa	ISO 4587
	1000 h de-ionized water, 70 °C	14 MPa	ISO 4587
	336 h 70 °C / 70 % r. h.	26 MPa	ISO 4587
	1000 h hydraulic fluid, 70 °C	30 MPa	ISO 4587
	336 h water / hydraulic fluid (50:50), 70 °C	14 MPa	ISO 4587
	1000 h anti-icing liquid (type 1), 60 °C	26 MPa	ISO 4587
	24 h lubricating oil NATO O-142	30 MPa	ISO 4587
	24 h heat transfer fluid Coolanol 25R, 25 °C	30 MPa	ISO 4587

Handling, Application, Storage

Precautionary Information

Refer to product label and Material Safety Data Sheet (MSDS) for health and safety information before using this product. For MSDS visit our website www.3M.com/msds

Instructions for use

Process step	Instruction
Surface preparation	For optimum adhesion, a thoroughly cleaned, dry, grease-free surface is essential. The strength and durability of a bonded joint depend on proper treatment of the surface to be bonded. Cleaning methods which will produce a continuous water film on metal surfaces are generally satisfactory. Optimum processing temperature for substrates and adhesive is around room temperature (23 °C). At the very least, joint surfaces should be cleaned with a good proprietary degreasing agent and abraded mechanically, e. g. with 3M Scotch-Brite™ 7447. Abrading should be followed by a second degreasing treatment, e. g. with 3M 08984 Adhesive Cleaner. The results given in this data sheet were determined using an optimized FPL etching process: 1) Degrease with methyl ethyl ketone. 2) Immerse 10 to 20 minutes in alkaline degreasing 8 % Oakite 164 solution at 85 ± 5 °C. 3) Rinse in tap water.

Process step	Instruction
	4) Sulfochromic immersion (10 minutes) at 70 ± 2 °C: 27.5 wt.% of H_2SO_4; 7.5 wt.% of $Na_2Cr_2O_7 \cdot 2\ H_2O$; 65 wt.% of demineralised water; 0.5 g/l aluminium; 1.5 g/l $CuSO_4 \cdot 5\ H_2O$. 5) Rinse in tap water. 6) Dry 15 minutes at 23 ± 2 °C. 7) Dry 10 minutes at 70 ± 2 °C. **Caution:** *Use adequate respiratory, eye and skin protection when using etch solutions.* A structural adhesive primer may be used to further improve the corrosion resistance of a bonded metal joint.
Application	This product consists of two parts. Unless cartridges or other mixing devices with static mixers are used, mix part B and part A in a separate container just prior to application in the specified proportions. Mix both components thoroughly until a uniform colour is obtained. **Note:** Mix ratio deviations can have significant influence on material performance. When using a new static mixer, purge the first milliliters until a uniform colour is obtained. **Important:** Be careful when mixing larger quantities, because exothermic reaction may occur. Dual cartridge applications provide maximum accuracy and easy handling. Apply mixed material to substrates before end of work life. **Note:** Work life depends on temperature and to some extent on mixed quantity and the shape of the container. Optimum application temperature is around room temperature. The substrates should be assembled immediately after the adhesive has been applied, in order to reach optimum mechanical performance. Maximum shear strength is obtained with 0.10 – 0.20 mm bond line thickness.
Suggested cure cycle	Larger quantities and/or higher temperatures will reduce the work life. Join the surfaces coated with mixed material and let it cure according to mentioned cure cycles. Avoid moving of parts until handling strength is reached. The following times will result in a full cure: ▪ 72 hours at 23 ± 2 °C
Storage	Shelf life at 15 – 25 °C is 6 months from date of shipment in the original unopened containers.

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