



# Scotch-Weld™

## Structural Adhesive 7838 B/A

### Product Data Sheet

Updated : September 2022

Supersedes : July 1995

#### Product Description

7838 B/A is a thixotropic two-part epoxy based adhesive with the following advantages:

Room temperature curing. The cure rate may be accelerated by the application of mild heat.

Cured adhesive bonds exhibit excellent flexibility and high adhesion to metals, plastics and glass.

Cured adhesive bonds exhibit good strength retention after ageing in hostile environments.

Excellent peel strength.

Convenient 1:1 mix ratio.

Mixed adhesive is non-sag for ease of application.

#### Physical Properties

Not for specification purposes

	BASE	ACCELERATOR
<b>Base</b>	Modified Epoxy Resin	Modified Amine
<b>Specific Gravity</b>	1.45	1.20
<b>Mix Ratio</b>	100 by weight 100 by volume	100 by weight 120 by volume
<b>Consistency</b>	Thixotropic Paste	Thixotropic Paste
<b>Colour</b>	Off-White	Light Brown
<b>Work Life</b>	at 23°C (100 grams mixed) Approx 2 hours.	
<b>Standard 3M Shelf Life</b>	24 months from date of despatch by 3M when stored in the original carton at 21°C (70°F) & 50 % Relative Humidity	

#### Performance

##### Characteristics

Not for specification purposes

The following product performance data was obtained in the 3M Laboratory under the conditions specified.

General application methods and bonding procedures are described later.

Date : September 2022  
7838 B/A Structural Adhesive

**Performance Characteristics (Cont...)**

Not for specification purposes

**Overlap Shear Strength:**

Overlap shear specimens were made according to A.E.C.M.A. test method EN2243-1 using 1.6mm thick 2024 T3 clad

aluminium with the surface prepared by the optimised FPL etch method described below.

Testing was done at a jaw separation rate of 2.5mm/min.

Glue line thickness : 100 to 200 microns.

**Cure Cycles**

All values in MPa

Test Conditions	7 Days at RT	2 hours at 65°C
-55°C	20.6	25.9
23°C	26.5	23.8
82°C	7.2	7.8

**T-Peel Strength:**

T-Peel specimens were made using 2024 T3 clad aluminium. Bonded specimens were cut from 210mm x 210mm x 0.08mm sheets.

**Surface Preparation:**  
Optimised FLP etch.

**Jaw Separation rate:**  
500mm/min.

**Glue line thickness:**  
100 to 200 microns.

**Cure Cycle**

All values in N/25mm

Test Conditions	7 days at 23°C	2 hours at 65°C
RT	130	122

**Environmental Resistance**

Typical results obtained on etched 1.6mm thick 2024 T3 clad aluminium.

Overlap shear specimens were made according to A.E.C.M.A. test method EN2243-1 and exposed to the wet poultice test at 70°C

Testing, after ageing was done at room temperature at a jaw separation rate of 2.5mm/min. Results in MPa.

Duration of Test	Cure Cycle		Failure Mode
	7 days at 23°C	2 hours at 65°C	
Initial Value	26.5	23.8	100% Cohesive
7 days	20.5	23.0	100% Cohesive
14 days	20.8	21.0	100% Cohesive
21 days	19.1	17.8	100% Cohesive

Date : September 2022  
7838 B/A Structural Adhesive

**Directions for Use**

**Application/Curing:**  
Proper adhesive application is as important as proper bond design and adhesive choice to obtain maximum joint properties.

Improper adhesive application techniques can result in partial or complete failure of an assembly.

Scotch-Weld Structural Adhesive 7838 B/A will give excellent properties under many application conditions. The product performance data reported in the previous section was developed using the following recommended procedures. Variations from these recommended procedures should be fully evaluated to ensure bond properties are sufficient to meet the requirements of a particular assembly.

**Surface Preparation:**  
A thoroughly cleaned, dry, grease free surface is essential for maximum performance. Cleaning methods which will produce a breakfree water film on metal surfaces are generally satisfactory. Surface preparation techniques should be fully evaluated with the adhesive if resistance to specific environments is required.

Recommended cleaning procedures for aluminium:

Alkaline degrease - Oakite 164 water solution (10%) at 85 +/- 5°C for 10-20 minutes. Rinse immediately and thoroughly in cold running water.

Acid etch - place panels in the following solution for 10 minutes at 65 +/- 3°C.

Optimised FPL Etch (to make 1 litre)

Concentrated Sulphuric Acid: 332g.  
Sodium Dichromate: 44.8g.  
Distilled Water: adjust to 1 litre.  
2024 T3 aluminium grease free/drill chips\* 1.5g.

**Caution:** Use adequate ventilation and skin protection when using etch solutions:

\* Allow aluminium drill chips to dissolve before using the etch.

It is advisable to prime or bond the freshly cleaned surfaces within four hours after surface preparation.

**Mixing and Spreading of Adhesive**

Carefully read the caution statements that apply to this product.

Be sure to thoroughly mix the adhesive until it attains a uniform colour. Thorough mixing is important in achieving the ultimate properties of this material.

Mixing Ratio	By Weight	By Volume
Parts base B (off-white)	100	100
Parts hardener A (light brown)	100	120

**Storage Conditions**

Store the product at 23°C or lower maximum storage life. Rotate stock on a "first in - first out" basis.

Upon request, your 3M Specialty Tapes & Adhesives Sales Representative will be pleased to advise the anticipated shelf life of this

product under the applicable storage conditions.

Date : September 2022  
7838 B/A Structural Adhesive

---

**Directions for Use  
(Cont...)**

**Work Life:**

The work life of mixed 7838 B/A structural adhesive is approximately 120 minutes in a mass of 100 grams at an ambient temperature of 23°C. The work life if the mixed adhesive will be lengthened by reducing the temperature or the amount of adhesive and will be shortened by higher temperatures or larger amounts of adhesive.

**Spreading:**

The mixed adhesive may be applied by means of a spatula, notched trowel, or by suitable extrusion equipment.

**Clean Up:**

Excessive adhesive and equipment may be cleaned up, prior to curing with Ketone\* type solvent. \* When using solvent extinguish all sources of ignition in the area and observe proper precautionary measures for handling such materials.

**Cure Cycle:**

**Bonding Pressure:**

The only pressure needed during the cure of 7838 B/A structural adhesive is that required to keep the parts in alignment to ensure squeeze out of the adhesive to cover the area to be

bonded, and to overcome distortion and thermal expansion of the adherents. The data reported in the Product Performance section was developed using a bond pressure of 10 to 20 KPa.

**Cure Time and Temperature:**

The following cure times and temperatures are required to get the typical values listed under product performance.

7 days at 23 +/- 2°C

2 hours at 65 +/- 5°C

---

**Automotive Disclaimer**

Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, including, but not limited to, automotive electric powertrain battery or high voltage applications. This product does not fully adhere to typical automotive design or quality system requirements, such as IATF 16949 or VDA 6.3. This product may not be manufactured in an IATF certified facility and may not meet a Ppk of 1.33 for all properties. The product may not undergo an automotive production part approval process (PPAP). Customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer's automotive application and for conducting incoming inspections before use of the product. Failure to do so may result in injury, death, and/or harm to property. No written or verbal statement, report, data or recommendation by 3M related to automotive use of the product shall have any force or effect unless in an agreement signed by the Technical Director of 3M's Automotive Division. Customer assumes all responsibility and risk if customer chooses to use this product in an automotive electric powertrain battery or high voltage application, and 3M will not be liable for any loss or damage arising from or related to the 3M product or customer's use of the product, whether direct, indirect, special, incidental, or consequential (including, but not limited to, lost profits or business opportunity or recall costs), regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability. In no event shall 3M be liable for any damages in excess of the purchase price paid for the product.

NOTWITHSTANDING ANY OTHER STATEMENT TO THE CONTRARY, 3M MAKES NO REPRESENTATIONS, WARRANTIES OR CONDITIONS WHATSOEVER, EXPRESS OR IMPLIED, REGARDING THE PRODUCT IF USED IN AN AUTOMOTIVE ELECTRIC POWERTRAIN BATTERY OR HIGH VOLTAGE APPLICATION, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTY ON PERFORMANCE, LONGEVITY, SUITABILITY, COMPATIBILITY, OR INTEROPERABILITY, OR ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.

Date : September 2022  
7838 B/A Structural Adhesive

---

**Precautionary Information**

Refer to product label and Material Safety Data Sheet for health and safety information before using the product.

For information please contact your local 3M Office.

[www.3M.com](http://www.3M.com)

**Important Notice**

All statements, technical information and recommendations contained in this document are based upon tests or experience that 3M believes are reliable. However, many factors beyond 3M's control can affect the use and performance of a 3M product in a particular application, including the conditions under which the product is used and the time and environmental conditions in which the product is expected to perform. Since these factors are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method or application. All questions of liability relating to this product are governed by the terms of the sale subject, where applicable, to the prevailing law

3M and Scotch-Weld are trademarks of the 3M Company.

Values presented have been determined by standard test methods and are average values not to be used for specification purposes. Our recommendations on the use of our products are based on tests believed to be reliable but we would ask that you conduct your own tests to determine their suitability for your applications.

This is because 3M cannot accept any responsibility or liability direct or consequential for loss or damage caused as a result of our recommendations.

3M United Kingdom PLC  
3M House,  
28 Great Jackson Street,  
Manchester,  
M15 4PA

**Product Information :**

Tel 0870 60 800 50  
Fax 0870 60 700 99

3M Ireland Limited  
The Iveagh Building  
The Park, Carrickmines  
Dublin 18,  
Ireland

**Customer Service :**

Tel (01) 280 3555  
Fax (01) 280 3509