

3M™ Structural Adhesive SA9816AOV

Two Part Epoxy Adhesive

Technical Data Sheet

Description

3M™ Structural Adhesive SA9816AOV is a two-part epoxy adhesive formulated for galvanized steel or aluminum hem flange bonding applications involving very high draw lubricant coating weights with good induction reactivity, an important factor in achieving fast lock-up.

The adhesive can also offer a special feature of compatibility with dry film lubricants used on aluminum and steel surfaces. It is particularly important that the adhesive has a long dwell time capability before E-coat bake. 3M Structural Adhesive SA9816AOV can offer the following additional features:

- Low activation temperatures to minimize panel distortion
- Broad off-ratio and over-bake tolerance
- Structural bond strength, on as-received (draw lubricated) steel and aluminum.



This product facilitates geo-setting of automotive panels assemblies in the body construction facility, hence can offer the opportunity to eliminate the need for Body-in-White ovens and additional fixturing outside of the hemming cell.

The product is designed for use in hem flange applications, as well as battery metal and composite house bonding applications. Application feasibility should be assessed by 3M application engineering and the customer. For more information contact your 3M Sales Representative.

In addition to the product features and benefits, 3M offers a global presence and numerous services including material-level testing, process consulting, and sampling of products.

Product Construction

This is a two-component structural adhesive dispensed in the ratio of 4:1 by volume. Typical forms of packaging are available for the product with both bulk and cartridge formats. Bulk application is typically by robotic applicator using a doser to accurately dispense the two-component adhesive through a static mixing nozzle. The product is also suitable for handheld cartridge application.

Physical Properties

Properties	Part A (accelerator)	Part B (base)	A+B Mixed
Color	Light brown ¹	black	black
Solids (%)	>99	>99	>99
Density (g/cm ³ @+23°C)	0.95 - 1.11	0,80 - 0,94	n.a
Viscosity (Pa*s @ +23°C)	340 - 1560	620 - 1420	n.a

¹ Possibly some superficial discoloration – which does not impact the adhesive's final performance

Container sizes

Standard Container Sizes (component content)	Part A (accelerator)	Part B (base)
Drums	182 L in 200 L	182 L in 200 L
Pails	48 L in 50 L	48 L in 50 L
Pails	18 L in 20 L	18 L in 20 L
Dual-Pack Cartridges	400 mL	

Typical Performance Properties

Typical performance of 3M™ Structural Adhesive SA9816AOV is shown below. These values are for reference only. The following technical information and data is based upon limited 3M testing conditions and should not be used for specification purposes.

3M understands that development of automotive applications is typically driven by specification requirements and performance. Each OEM has their own unique criteria and 3M continues to develop suitable products to meet those demands. Please contact your 3M application engineer for support and to obtain specific test data.

Performance data²

Aluminum: Oil coating 2 g/m² ; Overlap shear @13 mm/min

Exposure	Over-Lap Shear Strength (MPa) (mean average)		Failure Mode (Cohesive/Adhesive/Substrate)
	Min bake ³	Max bake ³	
Room Temperature (+23 °C)	16.7	17.5	Cohesive
Elevated Temperature (+82 °C)	12.1	9.3	Cohesive
Low Temperature (-40 °C)	20.8	19.5	Cohesive/Adhesive
Thermal cycling 10x (+90°C@4hrs/+38°C@98%rh@4hrs/-14°C@16hrs)	13.9	14.8	Cohesive
Salt-Spray @2'000 hrs	14.1	14.4	Cohesive

² The values displayed are the result of illustrative lab test measures made according to the indicated external norm and shall not be considered as a commitment from 3M.

³ Min bake: 20 min @ +170 °C, Max bake: 40 min @ +205 °C

Peel resistance: @100mm/min

Exposure	Over-Lap Shear Strength (N/1 mm) (mean average of min/max bake)	Failure Mode (Cohesive/Adhesive/Substrate)
Room Temperature (+23 °C)	Average Plateau Load: 6.5	Cohesive

Steel: Oil coating 2 g/m²; Overlap shear @13 mm/min

Exposure	Over-Lap Shear Strength (MPa) (mean average)		Failure Mode (Cohesive/Adhesive/Substrate)
	Min bake	Max bake	
Room Temperature (+23 °C)	17.4	17.8	Cohesive/Adhesive
Elevated Temperature (+82 °C)	11.7	9.4	Cohesive
Low Temperature (-40 °C)	19.5	20.8	Cohesive
Thermal cycling 10x (+90°C@4hrs/+38°C@98%rh@4hrs/-14°C@16hrs)	16.9	15.8	Cohesive

Peel resistance: @100 mm/min

Exposure	Over-Lap Shear Strength (N/1 mm) (mean average of min/max bake)	Failure Mode (Cohesive/Adhesive/Substrate)
Room Temperature (+23 °C)	Average Plateau Load: 7.7	Cohesive/Adhesive

Shelf Life Statement

Both Part A and Part B materials stored in pails or cartridges should be used within twelve (12) months from manufacturing date. It is recommended that products with an expired shelf life be discarded. Material should be stored in unopened packaging between +10°C to +30°C.

Transport Conditions

The adhesive should never be exposed to temperatures under -10°C and above +60°C. In addition, the above-mentioned storage conditions should be aimed for transport.

Regulatory Information

Please refer to the product label and Safety Data Sheet (SDS) for health and safety information before using. The SDS can be found on https://www.3m.com/3M/en_WW/sds-search-select-location/.

Contact Information

The information provided in this technical document is intended as a guide for these products. For more information or help in selecting a 3M product for an application, please contact your 3M technical service representative or call 1-800-328-1684.

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