



3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03

(Formerly known as 3M™ Developmental Material EAS 2890)

Product Description

3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03 is a two-part color matched epoxy that helps enable end users/customers product design flexibility to create a premium monolithic appearance of their electronic devices while maintaining excellent bond and physical properties after metal surface treatments such as anodization.

Key Features

- Color matched structural adhesive and inlay material
- Provides monolithic appearance for premium electronic devices
- Allows radio frequency (RF) transmission
- Strong adhesion and outstanding impact resistance
- Withstands anodization with a minimal color shift

Product Construction/Material Description

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03	
Property	Value
Product Form	400 mL Duo-Pak cartridges
	20 oz (591 mL) cartridges, packaged as 60 oz (1773 mL) set (set includes two 20 oz Part B and one 20 oz Part A cartridges)
Mix ratio (B:A)	2:1 (by volume)
	2.07:1 (by weight)
Color	Off-White Liquid (Part A Curing Agent)
	Black Liquid (Part B Colored Epoxy)
	Black (Cured Solid)

Note: Lots A and B are packaged as a set for which the color is matched when mixed with the 2:1 (B:A) volume ratio. Each Certificate of Analysis (CoA) color test result is certified by 3M and is a result of mixing the paired Lots A and B as specified on the CoA. Mixing unpaired lots could result in uncertified color results that are not warranted by 3M.

Typical Applications

- Antenna Cover
- Antenna Window
- Cosmetic Accent / Inlay

Application Techniques

3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03 is typically used in an automated dispense machine with a static mixer, plastic needle valve and dispensing tip. Alternatively, it can be dispensed using a manual dispensing

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applicator. Prior to use, material should be purged through the static mixer until the color is uniform. Typically, 2 – 3 times the volume contained in the static mixer is enough for purging volume.

Curing

3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03 can be cured using any of the cure schedules listed below. Cure time was determined with DSC ISOTHERM of the mixed Part A and Part B and reported as double the time to get to a heat flow of 0.04 W/g

80°C – 40 min
100°C – 38 min
120°C – 26 min

Note: Cure time will vary depending on cure temperature profile and heat transfer during curing. Testing the final properties for a specific application is recommended to define optimized cure profile and time.

Typical Physical Properties and Performance Characteristics

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes. Final product specifications and testing methods will be outlined in the product's Certificate of Analysis (COA) that is shipped with the commercialized product.

3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03		
Property	Method*	Value
Density	ASTM D4892 – 14. He Pycnometer – g/cm ³	1.38 – Part A Liquid
		1.45 – Part B Liquid
		1.45 – Cured Solid
Cure Shrinkage (Volumetric)		≈ 1.8 %
Overlap Shear**	ASTM D-1002-72	36 MPa
Glass Transition Temperature	ASTM E1356-08	76°C
Dielectric Constant (2.5 GHz)	ASTM D2520	3.5
Dielectric Loss Factor (2.5 GHz)	ASTM D2520	0.02
Notched Izod Toughness	ASTM D256	29 J/m
Ultimate Tensile Strength	ASTM 638-14	49 MPa
Tensile Elongation at Break	ASTM 638-14	4 %
Viscosity (@ 25 °C, 10 sec ⁻¹)	ASTM D3795 – 20	30 Pa s Part A
		25 Pa s Part B
		27 Pa s as Mixed (minimum)
Thixotropic Index	Viscosity at 0.1 sec ⁻¹ /Viscosity at 10 sec ⁻¹ (as Mixed)	3
Open Time / Work Life (@ 25 °C)	Time to double viscosity @25°C, 0.1 sec ⁻¹	45 min

*Methods listed as ASTM are tested in accordance with the ASTM method noted

** Etched Al substrate with a 0.15 mm bond thickness

Storage and Shelf Life

The shelf life of 3M™ Scotch-Weld™ Aesthetic Structural Material AS010BK03 is 12 months from the date of manufacture when stored in the original packaging materials and stored at 32-50°F (0 - 10°C).

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Certificate of Analysis (COA)

The 3M Certificate of Analysis (COA) for this product is established when the product is manufactured and deemed commercially available from 3M. The COA contains the 3M test methods, specifications limits and test results for the product's performance attributes that the product will be supplied against. Contact your local 3M representative for this product's COA.

Safety Data Sheet: Consult Safety Data Sheet before use.

Regulatory: For regulatory information about this product, contact your 3M representative.

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