838AR Liquid

Total Ground™ Carbon Conductive Paint

838AR is an economical conductive paint that consists of a 1-part, solvent-based acrylic lacquer, pigmented with highly conductive carbon powder. It is smooth, durable, and abrasion resistant. It can be easily applied by brush or spray. It has a quick dry time, with no heat cure necessary. It adheres strongly to most injection-molded plastics, such as ABS, PBT and PVA. It provides strong corrosion resistance and is suitable for use in marine environments.

838AR is excellent for creating grounded surfaces and in low frequency RFI shielding applications, such as pickup cavities on electric guitars. It is also perfect for shielding metal detectors and other devices where a metal-filled conductive paint would cause malfunction.



Features & Benefits

Provides >52 dB of RFI shielding at frequencies <1 MHz

Quick dry time, no heat cure required, and easy to apply

Strong corrosion resistance

Mild solvent system, safe on polystyrenes

Does not contain toluene, xylene, or MEK

Also available in aerosol (838AR-340G) and pen (838AR-P) formats, see separate TDSs

Cure Instructions

Allow to dry at room temperature for 24 hours, or after letting sit for 3 minutes, cure the paint in an oven for 30 minutes @ 65 ˚C.

Available Packaging

Part #	Packaging	Net Vol.	Net Wt.
838AR-55ML	Bottle	55 mL	48.9 g
838AR-900ML	Can	850 mL	755 g
838AR-3.78L	Can	3.60 L	3.20 kg
838AR-18.9L	Pail	18.9 L	16.8 kg

Storage and Handling

Store between -5 and 27 ˚C in a dry area, away from sunlight (see SDS).

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Liquid Properties

Chemistry	Acrylic	—
Density	0.9 g/mL	ASTM D1475
Viscosity @ 25 ˚C	114 cP	Brookfield Engineering labs Inc. IPCTM-65- Method 2.4.24.4
Recoat Time	3 min	—
Film Thickness	50 µm (Recommended) 25 µm (Minumum)	—
Percent Solids	15 %	—
Calculated VOC	519 g/L	—
Theoretical Coverage @ Recommended Thickness [a]	20 016 cm^2/L	Calculated
Shelf Life	3 y	—

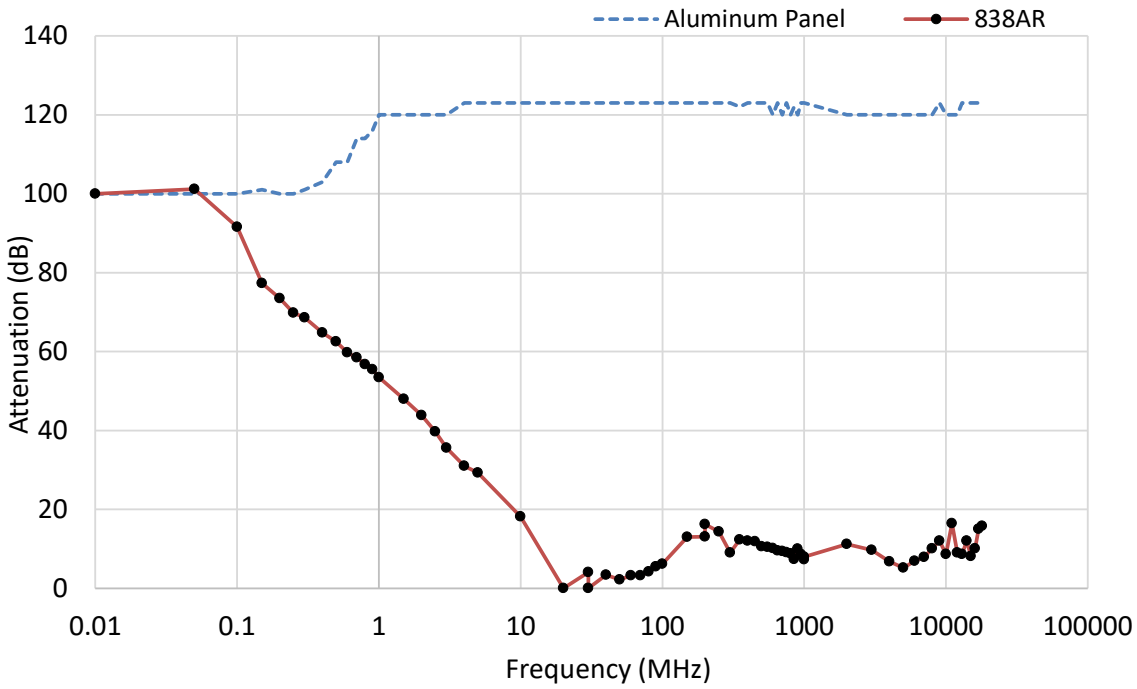
[a] Based on 99% transfer efficiency

Cured Properties

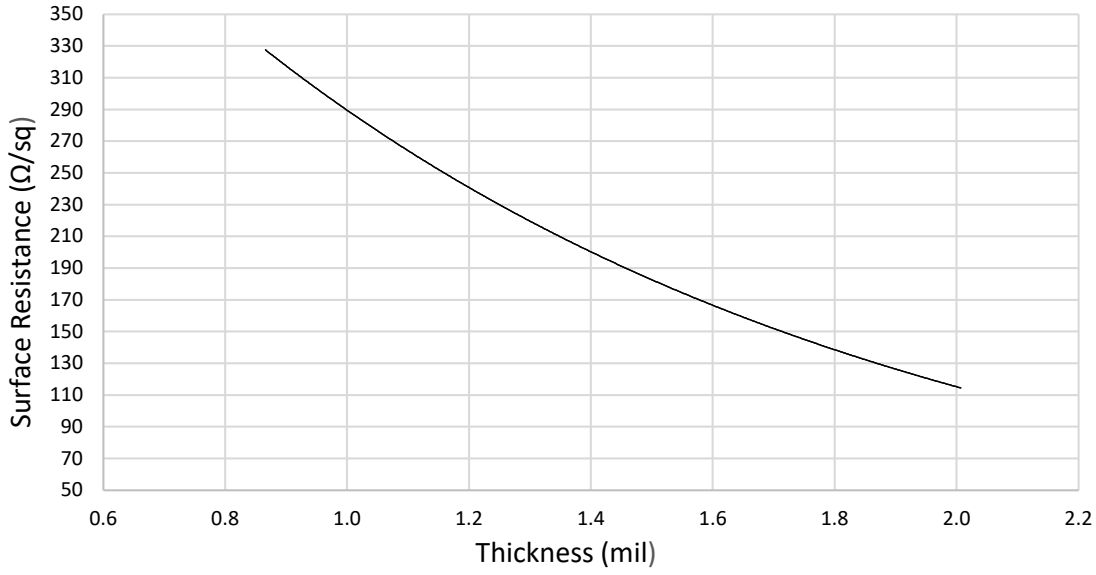
Color	Black	—
Magentic Class	Diamagnetic (non-magnetic)	—
Service Temperature Range	-40–120 °C	—
Resistivity	6.3 x 10^{-1} Ω·cm	MIL-STD-883J
Surface Resistance @ 50 µm	100 Ω/sq	Calculated
Salt Fog @ 35 °C, 96 h	Excellent	ASTM B117
Adhesion	5B (ABS) 0B (Aluminum) 0B (Copper) 5B (Polycarbonate) 1B (Polyamide) 0B (Glass) 5B (PVC) 0B (FR4) 0B (Stainless steel)	ASTM D3359
Pencil Hardness	H, hard	ISO 15184

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Shielding Attenuation



Surface Resistance by Paint Thickness



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Application Instructions

Read the product SDS and Application Guide for more detailed instructions before using this product.

Recommended Preparation

Plastic—Clean the substrate with Isopropyl Alcohol, MG #824, so the surface is free of oils, dust, and other residues.

Recommended Thinner

When applying to polycarbonate or ABS, thin with MG #4351 Thinner 1. For other substrates, use MG #435 Thinner.

Brush

Thinning is not required for most brush applications. Use a foam brush or MG #855 horse hair brush.

Manual Spray Guns

Dilute 2-parts paint with 1-part thinner. Use a standard fluid nozzle gun to spray the diluted paint. The settings listed below are recommendations; however, performance will vary with different brands:

	LVMP	HVLP
Nozzle tip diamter	1.2–1.4 mm	1.2–1.4 mm
Inlet pressure	5–15 psi	5–15 psi
Air flow	10–15 SCFM	8.3 SCFM
Air cap	5–10 psi	5–10 psi

When using a pressure pot and agitator, keep the agitator at low mixing speed with air pressure of 20–50 psi. Use the lowest pressure necessary to keep the particles suspended.

Selective Coating

For higher volume applications, paint can be applied via selective coating equipment. Use a system with constant fluid recirculation to keep the particles from settling in the lines. A fluid nozzle ranging from 1.2 mm–1.4 mm diameter and 5–10 psi fluid pressure is recommended depending on nozzle size. Thin the paint to adjust the viscosity to the level appropriate for the valve being used.

Clean-up

Clean spray system and equipment with MEK or acetone, MG # 434.

Disclaimer: This information is believed to be accurate. It is intended for professional end-users who have the skills required to evaluate and use the data properly. M.G. Chemicals Ltd. does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.