service chimie

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Fiche technique

TECHNICAL DATA SHEET
BR® 127 NC
PRIMER

BR® 127 NC

BR® 127 NC corrosion inhibiting primer is the non-chromated version of our standard BR® 127 corrosion inhibiting primer.

BR® 127 NC can be used with essentially all 250°F (121°C) epoxy-based film adhesives and has been designed to provide optimal structural performance at temperatures ranging from -67°F to 300°F (-55°C to 149°C). BR® 127 NC has favorable durability and corrosion resistance within the bond line, and can effectively be used as a protective coating outside bonded areas.

Recommended use with FM® 73, FM® 87, FM® 94, BR® 95, FM® 123-2, FM® 123-5, FM® 300, FM® 300-1, or FM® 300-2

Features and Benefits

- Excellent corrosion resistance
- No Chromates
- Compatible with a wide variety of adhesive systems
- Service temperature from -67ºF to 300ºF (-55ºC to 149ºC)
- Protective coating

CHARACTERISTICS

Table 1 | Product Availability

Solids ASTM D 2369	12% ± 1% 10% ± 1%
Color	Blue
Size	0.25 gal (0.95 L) 1.00 gal (3.79 L) 5.00 gal (18.9 L)

Table 2 | Physical Properties (Liquid Primer)

Shelf Life	12 months at or below 0ºF (-18ºC) from date of shipment	
Shop Life	10 days at 75ºF (23ºC) 5 days at 90°F (32°C)	
Density	12% Solids	7.0 lb/gal (0.84 g/cc)
	10% Solids	6.6 lb/gal (0.79 g/cc)
Volatile Organic Content (VOC) ASTM D 3960	12% Solids	5.9 lb/gal (0.70 g/cc)
	10% Solids	6.6 lb/gal (0.80 g/cc)
Out-gassing ASTM E 595	TML - 0.48%, CVCM - 0.03% WVR – 0.19 %	

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PROPERTIES

Table 3 | Mechanical Properties; FM® 73 M 0.06 psf (290 gsm) cured with BR® 127 NC, 0.2 mil (5 µm) primer thickness

Property	Test Temperature	Value	Substrate
Lap Shear ASTM D 1002	°F (°C)	psi (MPa)	0.063 in (1.60 mm) 2024-T3 aluminum bare (FPL + PAA)
	-67 (-55) 75 (24) 180 (82)	6066 (42) 6184 (43) 4311 (30)	
Floating Roller Peel ASTM D 3167	°F (°C)	lb/in (kN/m)	0.020 in (0.50 mm); 0.063 in (1.60 mm) 2024-T3 aluminum bare (FPL + PAA)
	-67 (-55) 75 (24)	64 (11.2) 88 (15.4)	

Table 4 | Mechanical Properties; FM® 94 M 0.03 psf (145 gsm) cured with BR® 127 NC, 0.2mil (5 µm) primer thickness

Property	Test Temperature	Value	Substrate
Floating Roller Peel ASTM D 3167	°F (°C)	lb/in (kN/m)	0.020 in (0.50 mm); 0.063 in (1.60 mm) 2024-T3 aluminum clad (FPL + PAA)
	-67 (-55) 75 (24) 180 (82)	52 (9.1) 49 (8.6) 53 (9.2)	

Table 5 | Effect of Various Primer Thickness, FM® 73 M 0.06 psf (290 gsm) cured with BR® 127 NC

Property	Test Temperature	Primer Thickness	Value	Substrate
Climbing Drum Peel ASTM D 1781	°F (°C)	mils (µm)	in-lb/in (Nm/m)	0.020 in (0.5 mm) and 0.040 in (1 mm) 2024-T3 aluminum bare (FPL + PAA)
	75 (24)	0.25 (6) 0.31 (8) 0.35 (9) 0.40 (10)	103 (460) 105 (467) 97 (430) 100 (445)	

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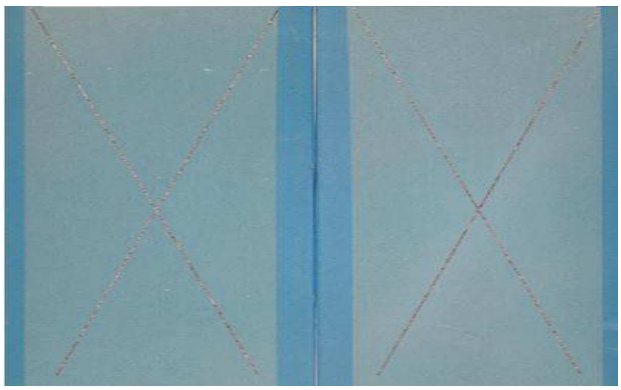

Figure 1 | Scribe Corrosion Test: 2000 Hours Exposure to Salt Spray per ASTM B 117 and ASTM D 1654 on 2024-T3 Aluminum Bare, 0.2 mil (5 µm) primer thickness

PROCESSING

Mixing

Allow the container to warm to room temperature, 75ºF (24ºC), before opening. Thoroughly mix BR® 127 NC upon opening, primer should be agitated lightly during application.

Surface Preparation

A clean, dry, grease-free surface is required for bonding. BR® 127 NC is used with standard cleaning techniques involving a four step procedure of solvent degreasing, alkaline cleaning, chemical deoxidizing (etching), and phosphoric acid anodizing*. General guidance for etching and phosphoric acid anodizing can be found in ASTM D 2651 and ASTM D 3933, respectively.

*Boeing patent 4,085,012 April 1978. Phosphoric acid anodizing is now being used by a large number of aircraft manufacturers due to the improved surface bond durability it provides.

Equipment

BR® 127 NC may be sprayed using a variety of equipment including hand-held, automated, or conventional air-atomizing HVLP spray equipment. Parts may be racked for spray and cured in any position convenient for the process.

Primer Thickness

Spray a dry primer thickness of 0.0001 in to 0.0003 in (0.0025 mm to 0.0076 mm) for optimum mechanical properties. Spray technique consists of applying smooth and even coats. The primer should be applied using two to three thin box coats (4 - 6 cross coats) to obtain the final film thickness. Additional coats of primer may be sprayed and cured onto previously cured areas without loss of properties.

Spraying

For uniform coating, apply one thin coat of primer to cover the entire part and allow to dry completely (primed portion color will change to blue when dry). Then spray additional box coats on top to achieve the desired primer thickness. Allow 30 to 60 seconds drying between each box coat.

Dry Time

15 to 60 minutes at 75ºF (24ºC) and less than 55% relative humidity is recommended.

Primer Cure Cycle

Allow the primed surface to dry at room temperature per instructions above before curing at elevated temperature. Dry primer coatings are to be cured at 250°F ± 10°F (121°C ± 6°C) for 30 minutes to obtain a surface which is scratch and MEK resistant. Assemblies primed with BR® 127 NC and then cured may be stored for six months or longer without degradation of

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the final bond strength. Assemblies that have been primed and cured should be protected from dust and oil by wrapping in protective sheeting such as Kraft paper. Stored assemblies should be wiped with a suitable solvent prior to bonding.

Bonding cycles

Primed details may be exposed to up to three 60 minute 250ºF (121ºC) cure cycles with no significant loss of primer properties.

Spray Gun Cleaning

If using a gun in which a water based material has been used, the spray gun must be rinsed and sprayed for at least 1 minute with a suitable solvent (Acetone or MEK) prior to loading the gun with BR® 127 NC primer.

Clean the gun immediately after use by rinsing and spraying with a suitable solvent (Acetone or MEK).

Spray Gun Settings

Table 6 | Settings for Binks 95 Model

Fan Adjustment	0.5 to 1 counter-clockwise turn
Fluid Control (needle adjustment screw)	2 to 2.5 counter-clockwise turns
Needle	Part #665
Air Cap Model	66SD
Cup Pressure	8-12 psi (0.056-0.082 MPa)
Fluid Tip	Model 66SS
Spraying Distance (nozzle to panel)	14 in – 16 in (36 cm – 41 cm)
Room Temperature	70ºF – 90ºF (21ºC - 32ºC)
Humidity	< 65%
Air Supply Pressure	35-50 psi (0.24-0.34 MPa)

Table 7 | Settings for Devilbiss Spray Gun (HVLP) Model GTi H05

Fan Adjustment	1 to 1.25 counter-clockwise turns
Fluid Control (needle adjustment screw)	1 to 1.5 counter-clockwise turns
Needle	Part # GTI-413
Air Cap Model	2000
Cup Pressure	7 psi (0.05 MPa)
Fluid Tip	2.0
Spraying Distance (nozzle to panel)	14 in – 16 in (36 cm – 41 cm)
Room Temperature	70ºF – 90°F (21ºC - 32ºC)
Humidity	< 65%
Air Supply Pressure	35-50 psi (0.24-0.34 MPa)

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Table 8 | Settings for SATA Jet 4000 B RP

Fan Adjustment	± 45º
Fluid Control (needle adjustment screw)	2 to 2.5 counter-clockwise turns
Needle	Jet 4000 B RP 1.0
Air Cap Model	Jet 4000 B RP 1.0
Cup Pressure	5-10 psi (0.034-0.069 MPa)
Fluid Tip	Jet 4000 B RP 1.0
Spraying Distance (nozzle to panel)	8 in – 14 in (20 cm – 36 cm)
Room Temperature	70ºF – 90°F (21ºC - 32ºC)
Humidity	< 65%
Air Supply Pressure	25-35 psi (0.172-0.241 MPa)

HEALTH & SAFETY

Please refer to the product SDS for safe handling, personal protective equipment recommendations and disposal considerations.

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TDS BR® 127 NC_2019_1_9

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