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Subject: Polymer® Jet Topcoat Testing to Boeing Material Specifications BMS 10-60M  
(6/5/98 Rev.)

Dear Jose

IMR Test Labs has completed testing of the Polymer® Jet Topcoat to Boeing Material Specifications MBS 10-60M (6/5/98 Rev.). The test results are documented in IMR Report # 20023680, dated 5/20/03. The Polymer® Jet Topcoat meets all the requirements tested.

Note 1 - Viscosity testing was performed as specified in Boeing Material Specifications BMS 10-60M (6/5/98 Rev.).

Note 2 - Storage testing, a complete retest after 12 months of storage.

Congratulations on meeting the requirements tested!

Sincerely,

A handwritten signature in black ink that reads "R.J. Parrington".

Ronald J. Parrington, P.E.  
VP-Materials Engineering  
IMR Test Labs



## RESULTS

Number	Test	Method	Requirement	Observations / Results	Pass / Fail
1	Odor and Toxicity	Not Applicable	The material shall be noninjurious to health during mixing, application and cure when used as specified by the supplier.		Pass
2	Condition in the Container	FED-STD-141 Method 3011.1	The material, both as individual and as mixed components, shall show no caking and shall be free of skins, livering, gelled particles and contamination when viewed on the glass plate.		Pass
3	Storage	Section 8.2.1	The material shall meet all requirements of this specification after 12 months storage in unopened containers maintained between 40 and 100F.		Pass
4	Pot Life of Mixed Material	Section 8.2.2	The mixed material shall meet all the requirements of this specification when applied at 4 hours.		Pass
5	Nonvolatile Content	ASTM D2369	Base component – QPL value $\pm$ 2.0%		Pass
		ASTM D1353	25 milligrams per 100 milliliters		Pass
6	Weight per Gallon	ASTM D1475	Type I base component - QPL value $\pm$ 0.2lbs. per gallon		Pass
7	Viscosity	Section 8.2.3	QPL value $\pm$ 20%		Pass
8	Spraying Properties	FED-STD-141 Method 4331.1	The material, catalyzed and reduced as recommended by the supplier and applied at a distance of 8 to 10 inches from the panel, shall have good leveling characteristics and shall show no wrinkling, sagging, bubbling, streaking, solvent popping, or other irregularities		Pass

Number	Test	Method	Requirement	Observations / Results	Pass / Fail
9	Color	Section 8.2.4	The applied, dry material shall match the applicable Boeing Color Standard or FED-STD-595 Color Standard		Pass
10	Luster	Section 8.2.5	Initially applied material: Gloss: 90 minimum Semigloss: 20 to 40 units Flat: 5 units maximum	Gloss: 91.8 Semigloss: 31.9 Flat: 5.5	Pass Pass Pass
			Applied at pot life: Gloss: 87 minimum Semigloss: 20 to 40 units Flat: 5 units maximum	Gloss: 91.1 Semigloss: Flat: 4.2	Pass Pass
11	Hiding or Contrast Ratio	Section 8.2.6	The applied, dry material shall have a maximum contrast ratio of 0.95 at 0.0024 inch maximum dry film thickness.		Pass
12	Resistance to Marring by Tape	Section 8.2.7	No staining and only a slight visible mark when tape is applied to it being dried for 6 hours at 90F.		Pass
13	Pencil Hardness	Section 8.2.8	HB minimum	3H Pencil hardness	Pass
14	Adhesion	Section 8.2.9.1 and 8.2.9.2	7 Minimum	No Loss of adhesion was noted	Pass
15	Metal Anchorage	Section 8.2.10	No adhesion failure. No cracking, flaking or loss of adhesion beyond 0.5 inch from the 0.125 inch diameter end of a conical mandrel.	No cracking, flaking, or loss of adhesion beyond 0.5 inches	Pass
16	Impact Adhesion	Section 8.2.12	No cracking, flaking, or loss of adhesion at 40 inch lbs forward, 80 inch lbs reverse.	No cracking, flaking, or loss of adhesion	Pass

Number	Test	Method	Requirement	Observations / Results	Pass / Fail
17	Fluid Resistance	Section 8.2.13	DI water – 7 days, no blisters larger than No. 8	No blistering, Loss of Adhesion	Pass
			BMS3-11 – 30 days, B pencil hardness	2H pencil hardness	Pass
			MIL-H-5606 – 30 days, 2 B pencil hardness	3B pencil hardness	Pass
			MIL-L-7808 – 14 days, no film failure	No film failure	Pass
			TT-S-735 – 14 days, no film failure	No film failure	Pass
18	Weather Resistance	Section 8.2.14.1	Gloss > 70 after 500 hours exposure		
		Section 8.2.14.2	Gloss > 60 after 300 hours exposure	93.2 after exposure	Pass
19	Low Temperature Shock	Section 8.2.9.1 and 8.2.14	No cracking, peeling or loss of adhesion after 24 cycles		Pass
20	Corrosion Resistance	Section 8.2.16	No corrosion beyond 1/8 inch after 3000 hours	No corrosion beyond 1/8 inch	Pass
21	Electrical Resistance	Section 8.2.17	3 megohm-cm minimum when measured with a Graco 722-886/722-860		Pass