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Report No. 8926-093

Material - Finishes and Coatings - Plastisol -
For Fabricated Parts Storage (Western Coating Co.,
Westoflex Plastisol)

Hardness, Blocking, Peel Strength, Heat Resistance

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Abstract

Duplicate SAE-1020 finish machined parts 8-96176-133, -141, -171 (Ground Run-up Screen) details were plastisol coated with Western Coating Co., Pasadena, California, Westoflex Plastisol compound. After coating, the hardness, blocking, peel strength and heat resistance of the coatings were tested in accordance with Paragraphs 4.5.3, 4.5.4, 4.5.5 and 4.5.6, Specification Mil-P-3999. The hardness of the applied coatings ranged from 65 to 75 Shore Durometer "A" hardness. Very slight blocking was observed along with a 12 to 18 pounds per inch peel strength. No hardness increase resulted from the heat resistance tests.

Reference: Mark, H., George, J. C., Keller, E. E.,
"Plastisol Coated Parts," General Dynamics/
Convair Report MP 58-402, San Diego,
California, 30 January 1959. (Reference
attached.)

ANALYSIS
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CHECKED BY George/Keller/Sutherland
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CONVAIR
SAN DIEGO

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MODEL F 106A/B
DATE 1-30-59

OBJECT:

To test the Plastisol coating, CVAC Chem 55, on various parts for conformance with Specification MIL-P-3999, paragraphs 4.5.3, hardness; 4.5.4, blocking; 4.5.5, peel strength and 4.5.6, heat resistance.

CONCLUSIONS:

The Plastisol coating on the parts tested conformed to Specification MIL-P-3999, paragraphs 4.5.3, 4.5.4, 4.5.5 and 4.5.6.

TEST SPECIMENS AND PROCEDURE:

Duplicate parts E-96176-133, E-96176-141 and E-96176-171 were coated at Convair with Plastisol coating CVAC Chem 55, as described in M.P.S. 14.04.

The sample coated parts were tested in accordance with Specification MIL-P-3999, paragraphs 4.5.3, 4.5.4, 4.5.5 and 4.5.6 for hardness, blocking, peel strength and heat resistance respectively.

Hardness

Durometer hardness measurements were obtained on the Plastisol coating with a Shore "A" Durometer Hardness instrument, after the coated parts had remained at room temperature for twenty-four (24) hours.

Blocking

The blocking test was conducted in accordance with Specification L-P-406, Method 1131. Glass plates 7" x 7" in size were coated with the Plastisol coating, using the same procedure as used for coating the parts, except that no primer was used. The finished coating was stripped from the glass plates and cut in sections 3" x 5" in size. A pile-up was made consisting of three sandwich combinations as described in L-P-406B Method 1131. The sandwich combinations were heated at 158°F. in an oven for twenty-four (24) hours, allowed to remain at room temperature for eight (8) hours, and examined for blocking as described in Specification L-P-406B Method 1131.

Peel Strength

Strips 0.2" x 1 1/2" in size were tested for peel strength by stripping from the coated parts, using a horizontal power driven peel test machine. The entire apparatus and procedure is described in Convair Report No. 8-07310.

Heat Resistance

The coated specimens were heated in an oven at 350°F. for two (2) hours. They were allowed to come to and remain at room temperature for twenty-four (24) hours. Durometer hardness measurements were then made using a Shore "A" Durometer Hardness instrument.

ANALYSIS
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Heat Resistance (Continued)

These durometer hardness measurements were compared with those obtained before heating.

RESULTS:

The results of this test are shown in Table I.

NOTE: The data from which this report was prepared are recorded in Engineering Test Laboratory Data Book No. 991.

TABLE I

Property	Specimen						Specification Mil-P-3999 Requirements
	8-96176-133 I	8-96176-133 II	8-96176-141 I	8-96176-141 II	8-96176-171 I	8-96176-171 II	
Hardness, Shore Durometer "A"	75	70	70	65	65	65	65-75
Blocking	Very Slight	Very Slight	Very Slight	Very Slight	Very Slight	Very Slight	Very (Maximum) Slight
Heat Resistance (Durometer "A")	75	70	70	67	67	65	Maximum 5 Increase
Peel Strength lbs/in.	* —	* —	12	12	18	18	Minimum 3

Note: Specimens was not tested due to configuration.

* The Plastisol Mastoflex Coating was manufactured by Western Coating Co., 85 W Union St., Pasadena, Calif.