DTL REPORT NUMBER
110650026

Since 1903

DETROIT TESTING LABORATORY, INC.

PREPARED FOR
HORIZONS, INC.
18531 SOUTH MILES ROAD
CLEVELAND, OH 44128

ATTENTION
JAY KRYMOWSKI

CUSTOMER PURCHASE ORDER NUMBER
POI002194

REPORT DATE
OCTOBER 25, 2011

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REPORTED / APPROVED BY:

DETROIT TESTING LABORATORY, INC.

David Smith, Department Manager
Materials Testing

Timothy R. Geiger, Group Manager
Materials Testing

DS/TRG/mmj

PURPOSE

The purpose of this test report is to present the test results obtained during the performance of a test program. This report includes a brief description of the samples presented for test, a list of the documents presented as test instructions, and a summary of the testing performed and the results obtained. Applicable requirements and conclusions are based on the criteria provided by our client, or as specified in the reference document(s).

WORK REQUESTED / REFERENCE DOCUMENT(s)

Per A-A-50271(2/96):
Resistance to Thermal Shock per 3.6/3.6.1
Resistance to Corrosion per 3.7
Resistance to Solvent per 3.8
Resistance to Weathering per 3.9/3.9.1

SAMPLE DESCRIPTION

Three types of 4" x 4" identification plates identified as Dura Black (12 plates), Metalphoto (13 plates) and Dura Jet (12 plates)

SAMPLE CONDITIONING

Prior to testing, the samples were conditioned at 23 °C ±2 °C and 50% ±5% relative humidity, as applicable.

TESTING PERFORMED

RESISTANCE TO THERMAL SHOCK PER 3.6/3.6.1

Procedure	One (1) plate of type each, Dura Black, Metalphoto and Dura Jet were placed in a water bath at 175°F for three hours, then immediately transferred to a cold chamber at -65°F for one hour. This procedure was immediately repeated and the plates were visually examined.
Results	The copy on the plates were legible and the plate material showed no evidence of cracking, splitting, wrinkling, warping or any other injurious defects.
Requirements	The copy on the finished plate shall be legible and the plate material shall show no evidence of cracking, splitting, wrinkling, warping, or other injurious defects.
Conclusion	The specimens meet the stated requirements.

RESISTANCE TO CORROSION PER 3.7

Procedure	150 hours salt spray exposure per ASTM B117-09.
Results	Dura Black - No visual evidence of corrosion on either side after exposure. Metalphoto-No visual evidence of corrosion on either side after exposure. Dura Jet -No visual evidence of corrosion on either side after exposure.
Requirements	No corrosion on either side allowed after exposure.
Conclusion	The specimens meet the stated requirements.

TESTING PERFORMED CONTINUED

RESISTANCE TO SOLVENT PER 3.8

Procedure — One of each type of plates was immersed in one of the three solvent solutions specified in Paragraph 2.1 a, c, and d of MIL-STD-202G. Plaques were immersed for 3 minutes in solution, than brushed 10 strokes forward with a toothbrush. The procedure was repeated 2 more times. After air-blown dry or washing and air blown-dry, plaques were visually evaluated according with Paragraph 4.1 at 2X using an optivisor and 4.2 at 10X using a digital microscope.

Results

Panel type	Observation per Paragraph 4.1		
	Solvent solution “a”	Solvent solution ”c”	Solvent solution “d”
Dura Black	No visual change*	No visual change*	No visual change*
Metalphoto	No visual change*	No visual change*	No visual change*
Dura Jet	No visual change*	No visual change*	No visual change*

*Paragraph 4.1-No missing, faded, smeared, blurred, or shifted markings at 6 inches with a 2X optivisor at normal room lighting. (Finished plates are legible)

Panel type	Observation per Paragraph 4.2		
	Solvent solution “a”	Solvent solution ”c”	Solvent solution “d”
Dura Black	No visual change**	No visual change**	No visual change**
Metalphoto	No visual change**	No visual change**	No visual change**
Dura Jet	No visual change*	No visual change*	No visual change*

**Paragraph 4.2-No cracks, separations, crazing, swelling, softening, degradation or other damage at 10X magnification.

Requirements — The copy on the finished plates shall be legible after being subjected to the solvents specified in MIL-STD-202.

Conclusion — The specimens the meet the stated requirements.

TESTING PERFORMED CONTINUED

RESISTANCE TO WEATHERING PER 3.9/3.9.1

Procedure 50 Hours@ 63°C with water spray 18 minutes per every 2 hours of exposure

Results

Specimens	Visual Evaluations
Dura Black-1D	No obvious evidence of visual change.
Metalphoto-1D	A very mild amount of yellowing was observed.
Dura Jet-1D	No obvious evidence of visual change.

Requirements The test plates shall show no appreciable change in color, clarity or legibility.

Conclusion The specimens meet the stated requirements.

SAMPLE DISPOSITION

Samples will be retained at Detroit Testing Laboratory, Inc. for 30 days and then disposed of, unless otherwise specified by Horizons, Inc.

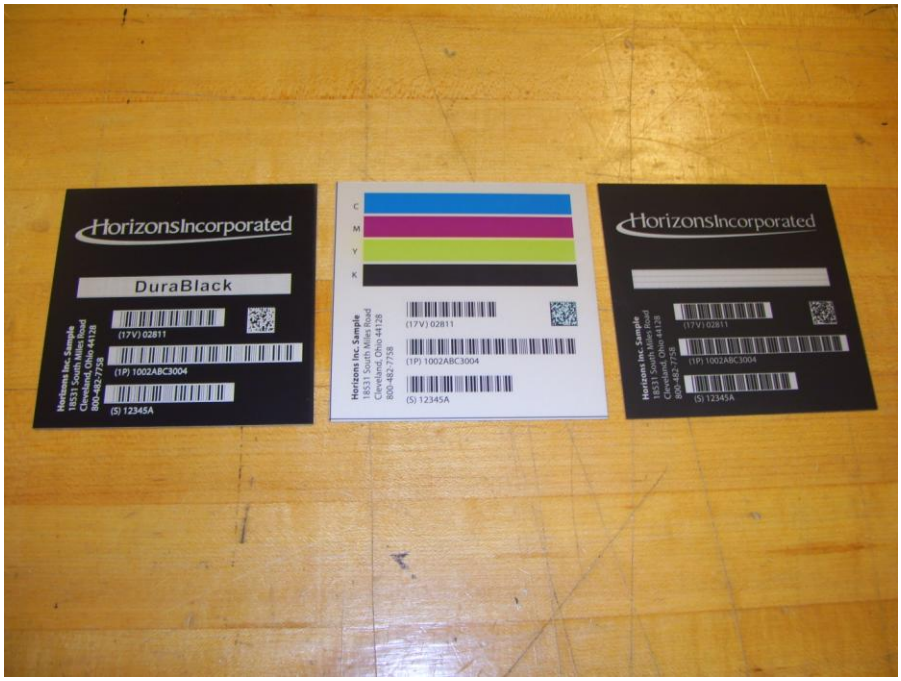
TEST EQUIPMENT

Detroit Testing Laboratory, Inc.'s calibration system meets the requirements of ISO 17025:2005.

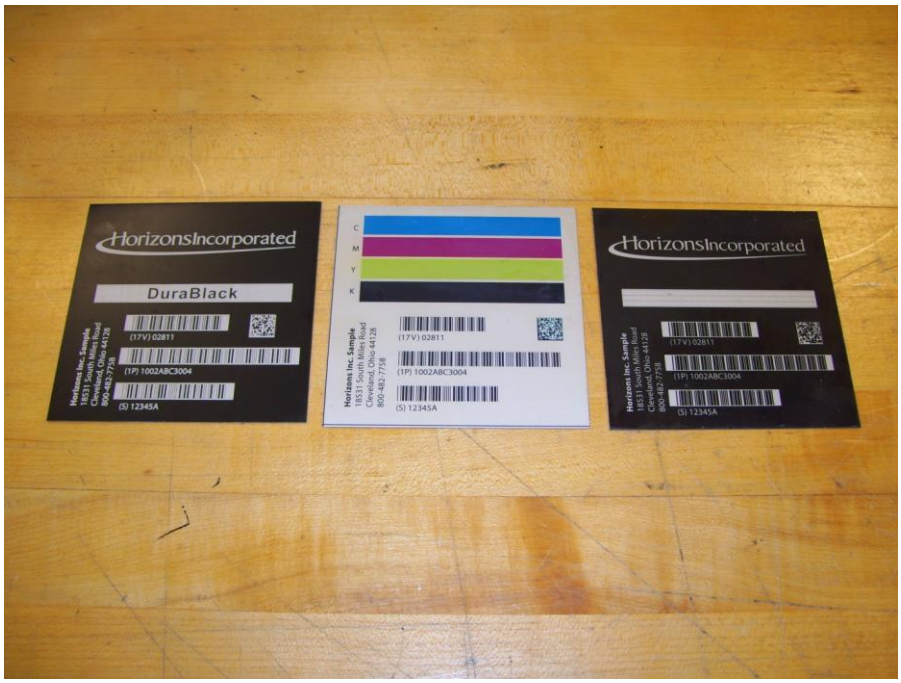
DTL ID	Description	Manufacturer	Model	Calibration Due
07161	Oven	Blue M	OV-500C-2	NCR
10890	Hydra Data Bucket	Fluke	2625A	02/29/12
EC171	Environmental Chamber	Ecosphere	EC612 (16612H)	02/29/12
12878	Three Channel Timer	VWR International	62344912	10/31/11
EC122	Salt Spray Chamber	Singleton	22	07/31/12
10600	Dual Timer	VWR	6116-340	12/31/11
12350	Digital Microscope	Motic	Moticam 2300	10/31/11
12207	Thermometer	Omega	HH81	07/31/12
EC071	Carbon-Arc Weatherometer	Atlas Electronic Devices Co.	XW	NCR
12307	Thermometer, Black Panel	Atlas Electronic Devices Co.	(0 to 100)°C	02/29/12

NCR= No calibration required

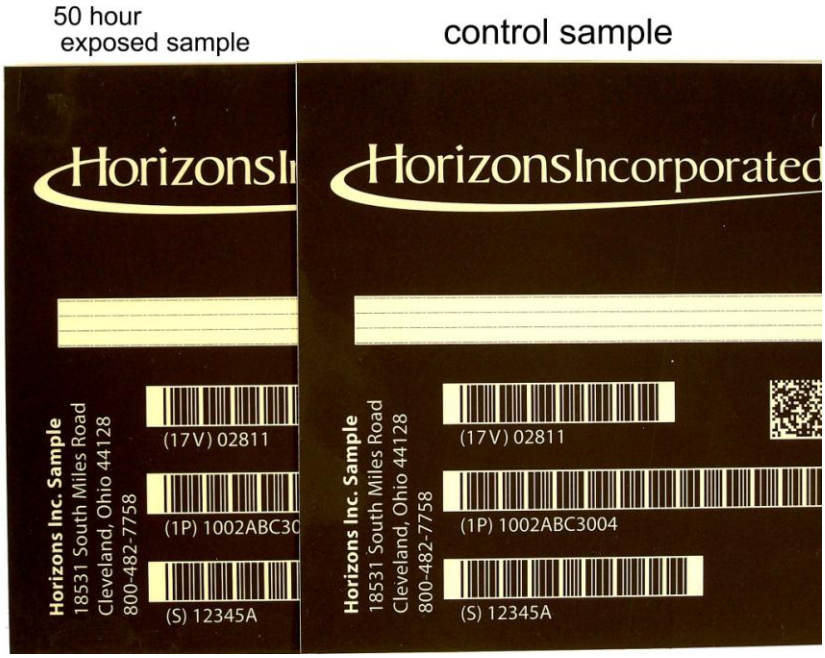
APPENDICES: Appendix A: Photographs



Horizons 110650026-1B Resistance to Corrosion Pre-test



Horizons 110650026-1B Resistance to Corrosion Post test



Weathering exposure comparison of metalphoto sample