

ZENOVA LTD. TEST REPORT

SCOPE OF WORK

ASTM D4803 HEAT BUILDUP EVALUATION OF 0.048" STEEL WITH IR AND IP COATINGS

REPORT NUMBER

N7089.01-106-31 R0

TEST DATES

05/31/22

ISSUE DATE

06/15/22

RECORD RETENTION END DATE

05/31/26

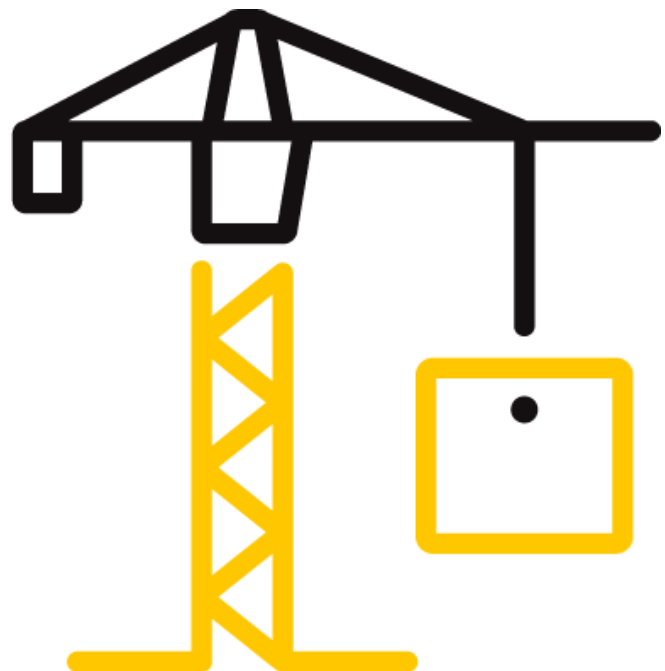
PAGES

9

DOCUMENT CONTROL NUMBER

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TEST REPORT FOR ZENOVA LTD.

Report No.: N7089.01-106-31 R0

Date: 06/15/22

REPORT ISSUED TO ZENOVA LTD.

15A Shenfield Road
Brentwood, Essex CM15 8AG
United Kingdom

SECTION 1 SCOPE

Products: IR Coating on 0.048" Steel, IP Coating on 0.048" Steel, and 0.048" Steel

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Zenova Ltd. to evaluate IR coating on 0.048" steel, IP coating on 0.048" steel, and 0.048" steel in accordance with ASTM D4803 for Heat Buildup. Results obtained are tested values and were secured by using the designated test method. Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

COMPLETED BY:	Nathan D. Brillhart	REVIEWED BY:	Dawn M. Chaney
TITLE:	Technician II Material Laboratory	TITLE:	Technician Team Lead Materials Laboratory
SIGNATURE:		SIGNATURE:	
DATE:	06/15/22	DATE:	06/15/22

NDB:dmc/alts

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TEST REPORT FOR ZENOVA LTD.

Report No.: N7089.01-106-31 R0

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SECTION 2

TEST METHOD

The specimens were evaluated in accordance with the following:

ASTM D4803-18, *Standard Test Method for Predicting Heat Buildup in PVC Building Products*

SECTION 3

MATERIAL SOURCE

The materials were provided by Zenova Ltd. The following was received in good condition on 05/23/2022:

- One 0.048" thick steel piece with IR coating applied, nominally 3" x 3" x 0.048" thick with IR coating at a 5 mm dry film thickness
- One 0.048" thick steel piece with IP coating applied, nominally 3" x 3" x 0.048" thick steel with IP coating at a 1.3 mm dry film thickness
- Two 0.048" thick steel pieces to use as controls, nominally 3" x 3" x 0.048" thick

Refer to the product description photo in Section 9. The materials were tested as received. Representative materials/test specimens will be retained by Intertek B&C for a minimum of four years from the test completion date.

SECTION 4

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Nathan D. Brillhart	Intertek B&C
Dawn M. Chaney	Intertek B&C

TEST REPORT FOR ZENOVA LTD.

Report No.: N7089.01-106-31 R0

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SECTION 5

TEST PROCEDURE

All conditioning of test specimens and test conditions were at standard laboratory conditions unless otherwise reported. Refer to the test related photos in Section 9. Calibration certificates are available upon request.

ASTM D4803 - Heat Buildup

Heat buildup was determined utilizing a temperature exposure box (ICN: 005925) equipped with a 250-watt white infrared heat lamp. The temperature was measured with a thermocouple attached to the center of the underside of the specimen and monitored with an Omega Model HH509 thermometer (ICN: INT01294). The heat source was energized, and the temperature monitored until such time that there was no increase in temperature over a period of ten minutes. The maximum temperature was recorded for each specimen. A heat buildup of a black body specimen was performed immediately prior to the specimens being tested.

Heat Buildup is the increase in temperature above the ambient air temperature due to the amount of energy absorbed by the specimen from the sun (heat lamp in a laboratory setting). The horizontal heat buildup is the maximum temperature rise above the ambient air temperature for a 45° or horizontal surface when the sun is perpendicular to the surface. The vertical heat buildup is the maximum temperature rise above the ambient air temperature for a vertical surface.

SECTION 6

TEST SPECIMEN DESCRIPTIONS

TEST PROCEDURE	NUMBER OF SPECIMENS	NOMINAL SPECIMEN DIMENSIONS	VISUAL CHARACTERISTICS
ASTM D4803 Heat Buildup	1	3" x 3" x 0.2"	IR coating, white
	1	3" x 3" x 0.09"	IP coating, white
	1	3" x 3" x 0.047"	Steel control, uncoated

TEST REPORT FOR ZENOVA LTD.

Report No.: N7089.01-106-31 R0

Date: 06/15/22

SECTION 7

TEST RESULTS

ASTM D4803 - Heat Buildup

0.048" Steel with 5 mm IR Coating

SPECIMEN ID	THICKNESS (in.)	MAX. TEMP. (°F)	TEMP. RISE ABOVE AMBIENT (°F)	HORIZONTAL HEAT BUILDUP (°F)	VERTICAL HEAT BUILDUP (°F)
Steel with IR	0.2	122.9	54.9	40.7	33.5
Black Body	0.060	188.3	121.3	N/A	N/A

0.048" Steel with 1.3 mm IP Coating

SPECIMEN ID	THICKNESS (in.)	MAX. TEMP. (°F)	TEMP. RISE ABOVE AMBIENT (°F)	HORIZONTAL HEAT BUILDUP (°F)	VERTICAL HEAT BUILDUP (°F)
Steel with IP	0.09	122.2	54.2	40.2	33.1
Black Body	0.060	188.3	121.3	N/A	N/A

0.048" Steel Control

SPECIMEN ID	THICKNESS (in.)	MAX. TEMP. (°F)	TEMP. RISE ABOVE AMBIENT (°F)	HORIZONTAL HEAT BUILDUP (°F)	VERTICAL HEAT BUILDUP (°F)
Steel Control	0.047	149.9	81.6	60.5	49.8
Black Body	0.060	188.3	121.3	N/A	N/A

SECTION 8

CONCLUSION

The requested test method does not contain specific performance requirements. Results are reported as obtained.

TEST REPORT FOR ZENOVA LTD.

Report No.: N7089.01-106-31 R0

Date: 06/15/22

SECTION 9 PHOTOGRAPHS



Photo No. 1
Specimens, As Received (Bottom Side for Identification)

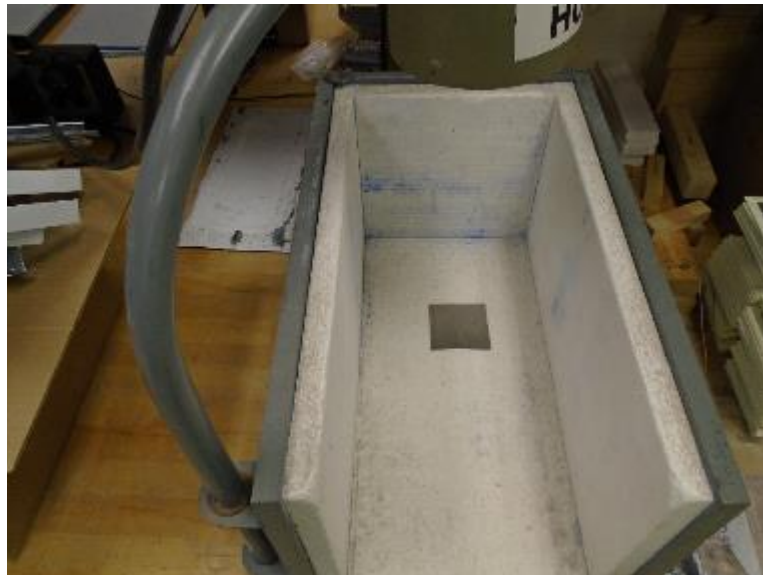


Photo No. 2
ASTM D4803 Heat Buildup, Test Setup

TEST REPORT FOR ZENOVA LTD.

Report No.: N7089.01-106-31 R0

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Photo No. 3

ASTM D4803 Heat Buildup, Steel Control Specimen Testing in Progress



Photo No. 4

ASTM D4803 Heat Buildup, IP Coated Steel Specimen Testing in Progress

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Photo No. 5

ASTM D4803 Heat Buildup, IR Coated Steel Specimen Testing in Progress



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TEST REPORT FOR ZENOVA LTD.

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Date: 06/15/22

SECTION 10

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	06/15/22	N/A	Original Report Issue