



PERFORMANCE REPORT

ARL L/N 50446C

Client:

**InOvate Dryer Products
250 S. Central Blvd., Suite 207
Jupiter, FL 33458**

Test Method:

Miami-Dade County Protocol TAS 114, Appendix E (1995)

Products:

DryerWallVent, DryerWallVent Frame

Lab Number: 50446C

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REPORT OF TEST

1 INTRODUCTION

- 1.1 InOvate Dryer Products, of Jupiter, FL, retained Applied Research Laboratories (ARL) to conduct a performance testing according to Miami-Dade County Protocol TAS 114, Appendix E: Test Procedure for Corrosion Resistance of Fasteners, Batten Bars and Stress Distribution Plates, on samples of a DryerWallVent and DryerWallVent Frame.
- 1.2 A performance test was performed by ARL Engineer E. John Lanager from Friday, August 7, 2020, thru Tuesday, September 22, 2020.
- 1.3 The testing program was authorized by an ARL Work Authorization Form (Form WAF-05) received from Mr. James Ortiz, VP of Operations on Monday, July 20, 2020.

2 PRODUCT DESCRIPTION

- 2.1 One (1) sample of each product were supplied by the client.

2.2 The following samples were provided:

Model: DryerWallVent
 Manufacturer: InOvate Dryer Products
 ARL Sample ID #: 20-0612

Model: DryerWallVent Frame
 Manufacturer: InOvate Dryer Products
 ARL Sample ID #: 20-0613

2.3 Photographs of the untested samples are shown below.



Photograph 1
DryerWallVent (Unexposed)
ARL Sample ID #20-0612



Photograph 2
DryerWallVent (Unexposed)
ARL Sample ID #20-0612



Photograph 3
DryerWallVent Frame (Unexposed)
ARL Sample ID #20-0613



Photograph 4
DryerWallVent Frame (Unexposed)
ARL Sample ID #20-0613

3 TEST PROCEDURE

- 3.1 Cyclic Corrosion Test Chamber – The ARL Cyclic Corrosion Test Chamber was utilized to accommodate the parameters of TAS 114, Appendix E, for the purpose of testing the nails. The Chamber, Model CCT10-MB-8AD, was manufactured by Singleton Corporation. The sample space volume is 21 ft³. The inside dimensions are 48 x 33 x 24 inches. The Chamber has a temperature range of ambient - 140°F and a humidity range of ambient - 100%.



Photograph 5
Cyclic Corrosion Test Chamber



Photograph 6
Cyclic Corrosion Test Chamber

- 3.2 For this test the Chamber must expose the test samples to 500 cycles consisting of one (1) hour of spray and one (1) hour of drying. Each cycle is two (2) hours. Total test time is 1000 hours (approximately 11 days, 16 hours).
- 3.3 For the spray cycle, the temperature inside the chamber was maintained at $75 \pm 6^{\circ}\text{F}$. The fogging was achieved by using a single nozzle connected to an air supply. The solution was drawn out of the main reservoir to a secondary reservoir inside the sample space and then atomized by the nozzle and released into the chamber, thus exposing the Roofing to the salt fog.
- 3.4 During the drying cycle, the temperature inside the chamber was maintained at $95 \pm 3^{\circ}\text{F}$. The Chamber is capable of reaching the required temperature within 45 minutes as required by TAS 114, Appendix E. The drying was aided by evacuating the chamber of all sprayed solution and then beginning the heating process. The evacuation lasts approximately 5 minutes. All visible moisture was removed from the samples. Heating is accomplished by two (2) heater elements located in the bottom of the Chamber.

- 3.5 Solution – The solution used in the testing was an electrolyte solution containing 0.05% sodium chloride and 0.35% ammonium sulphate by mass. The pH of the solution was between 5.0 and 5.4. The salinity was 5%. Water used to manufacture the solution conformed to ASTM G85-11, Section 6 and was substantially free of nickel and copper and did not contain, on a dry basis, more than 1% sodium iodide and not more than 0.3% total impurities. ARL obtained the solution from National Exposure Testing, Inc., of Sylvania, OH, which has the above solution available and labelled as “Dade County Salt Spray Solution.” A certificate of conformance was furnished with the solution. The lot numbers of the solution used are DE60520.1, manufactured on 6/5/2020, and DE61220.3, manufactured on 6/12/2020. The Certificates of Compliance provided with the solution manufacturer is maintained at ARL.
- 3.6 Temperature – The Chamber monitored and adjusted all temperatures automatically to pre-programmed values.
- 3.7 Quantity of Fog – The quantity of fog was controlled by adjusting the position of the spray nozzle.
- 3.8 Before samples were mounted in the Chamber, the collection rate of the Chamber was determined. Two (2) glass, 100mL graduated cylinders, each fitted with a glass funnel having an area of 80 cm² mounted in a rubber stopper, were placed in the Chamber and positioned according to ASTM G85-11, Section 4.3.2, with one cylinder as near as possible to the nozzle and one as far as possible from the nozzle, and the chamber manufacturer’s instructions. The chamber manufacturer recommends that a cylinder not be within 10 cm of any wall or nozzle. Cylinder #1 was placed 10 cm from the nozzle in the 7 o’clock position from the nozzle. Cylinder #2 was placed 10 cm from the far wall in the 2 o’clock position from the nozzle.
- 3.9 The Chamber was programmed to produce a continuous spray for 16 hours with a sample space temperature of 75°F. After 16 hours, the collected solution was measured and the collection rate calculated. The collection rate was calculated to be 1.375 mL/hr for Cylinder #1 and 1.875 mL/hr for Cylinder #2. TAS 114, Appendix E specifies a collection rate between 1-2 mL/hr.
- 3.10 Each test sample was mounted on nylon trays that provided drainage.
- 3.11 The Chamber was then programmed for the TAS 114, Appendix E test. All samples underwent 500 cycles of testing. The samples were then removed from the chamber and cleaned using deionized water.
- 3.12 See Table 1 in Section 5 for results for the corrosion resistance test result.

4 AFTER EXPOSURE PHOTOGRAPHS



Photograph 7
DryerWallVent (Exposed)
ARL Sample ID #20-0612



Photograph 8
DryerWallVent (Exposed)
ARL Sample ID #20-0612



Photograph 9
DryerWallVent Frame (Exposed)
ARL Sample ID #20-0613



Photograph 10
DryerWallVent Frame (Exposed)
ARL Sample ID #20-0613

5 RESULTS

5.1 The following tables contain the results of all testing.

Table 1
 Results of Corrosion Test
 Dates Performed: 8/7/2020 thru 9/22/2020

Model / Sample ID #	Amount of Corrosion	Verdict ¹
DryerWallVent / 20-0612	<5%	Pass
DryerWallVent Frame / 20-0613	<5%	Pass

¹ Corrosion must not exceed 5% of the total surface area of any one sample for each model tested.

5.2 Test was paused on Cycle 33 due to air compressor failure.

5.2.1 Failure discovered at approximately 9:00 am on Monday, August 10, 2020.

5.2.2 New air compressor was purchased and installed.

5.2.3 Test resumed at Cycle 33 on Wednesday, August 12, 2020.

5.3 DryerWallVent Frame was inserted into the corrosion chamber at the start of Cycle 33 on Wednesday, August 12, 2020. DryerWallVent Frame underwent 467 cycles of testing.

5.4 Test was paused on Cycle 105 due to faulty pressure switch on compressor.

5.4.1 Failure was discovered at approximately 8:30 am on Tuesday, August 18, 2020.

5.4.2 Compressor was repaired.

5.4.3 Test was resumed at Cycle 105 on Thursday, August 20, 2020.

6 EQUIPMENT

Table 2
 Test Equipment Used

Description	ARL ID #	Calibration Due Date
Cyclic Corrosion Test Chamber	1967	4/29/22
100mL Graduated Cylinder	2020	9/30/20
100mL Graduated Cylinder	2021	9/30/20

7 REMARKS

- 7.1 These test results pertain only to the samples tested and may not be representative of on-going production.
- 7.2 Values obtained represent the recorded results of the actual samples tested and do not constitute opinion, certification, or endorsement.
- 7.3 These products are not covered by the ARL Listing, Labelling and Follow-up Service Program and are not considered to be ARL Listed.
- 7.4 Samples tested will be retained by ARL for a minimum of six (6) months.

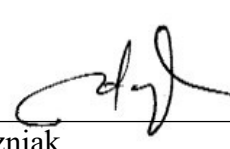
END OF REPORT

Report by:

Reviewed by:



 E. John Lanager
 Technical Manager



 Robert Wozniak
 Principal Engineer

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