DAYTON T. BROWN INC.
Founded 1950

ENGINEERING AND TEST DIVISION
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TEST REPORT NO.: 416440-99-04-R18-0891

DAYTON T. BROWN, INC. JOB NO.: 416440-99-000

CUSTOMER: LIFESAVING SYSTEMS CORP.
220 ELSBERRY ROAD
APOLLO BEACH, FL 33572

SUBJECT: ENVIRONMENTAL TESTING PERFORMED ON FIVE LIFE PRESERVERS AND 33 LIFE PRESERVER SAMPLE PARTS

PURCHASE ORDER NO.: 2146

ATTENTION: THOMAS BEACH

THIS REPORT CONTAINS: THREE PAGES AND FOUR ENCLOSURES

PREPARED BY	M. White **M. WHITE**
TEST ENGINEER	Ralph A. Calderaro **R. CALDERARO**
DEPARTMENT SUPERVISOR	Reyes Cortes **R. CORTES FOR T. ZIMOULIS**
DATE	16 OCTOBER 2018

INFORMATION CONTAINED HEREIN MAY BE SUBJECT TO EXPORT CONTROL LAWS. REFER TO INTERNATIONAL TRAFFIC IN ARMS REGULATION (ITAR) OR THE EXPORT ADMINISTRATION REGULATION (EAR) OF 1979. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO OBTAIN ANY REQUIRED LICENSES TO EXPORT ANY CONTROLLED DATA.

THE DATA CONTAINED IN THIS REPORT WAS OBTAINED BY TESTING IN COMPLIANCE WITH THE APPLICABLE TEST SPECIFICATION AS NOTED

TABLE OF CONTENTS

Subject	Paragraph	Page No.
Abstract	1.0	2
References	2.0	2
Administrative Information	3.0	3
Test Program Outline	4.0	3

Enclosures		Number of Pages
(1)	Operational and Extreme Temperature Initial Test and Results	8
(2)	Operational and Extreme Temperature Retest and Results	13
(3)	Salt Fog Test and Results	16
(4)	Fungus Resistance Test and Results	15

1.0 ABSTRACT

This test report details the results of the environmental testing performed on Life Preservers and Life Preserver Sample Parts, under reference (a) to the requirements of references (c) through (e). Any deviations are detailed in the applicable enclosure herein.

Results of the tests are detailed in the following text.

The test items were operated during portions of testing.

The operation of the test items was performed by Dayton T. Brown, Inc. personnel.

The test results recorded in this report relate only to those items tested.

This test report shall not be reproduced, except in full, without the written approval of Dayton T. Brown, Inc.

2.0 REFERENCES

(a)	Customer Purchase Order No.:	2146
(b)	Dayton T. Brown, Inc. Job No.:	416440-99-000
(c)	Test Specification:	Lifesaving Systems Corp. Document, TSO-C13G-Enviromental Testing.pdf
(d)	Test Specification:	RTCA/DO-160G, Section 14
(e)	Test Specification:	MIL-STD-810G, Method 508.6

3.0 ADMINISTRATIVE INFORMATION

Customer	Lifesaving Systems Corp. 220 Elsberry Road Apollo Beach, FL 33572	
Test Item Description	Life Preserver	Life Preserver Sample Parts
Quantity Received	5	33 (3 of each Part No.)
Part Nos.	497-VO	HI013, H089, H090, H087, H129, 487 - 12, HI003, HI014, 720-A, 384-2-F, 487-13-F
Serial Nos.	3866, 3827, 3814, 3749, 3736	DTB #1, DTB #2, DTB #3 (for each Part No.)
Date Received	16 July 2018	
Dates Tested	16 July 2018 through 22 September 2018	
Date Shipped	22 September 2018	
No Customer Representatives Were Present During Testing		

4.0 TEST PROGRAM OUTLINE

Test	Test Item Description	Results
Operational and Extreme Temperature Initial	Life Preservers, Part No. 497-VO, Serial Nos. 3866 and 3827	No anomalies noted.
Operational and Extreme Temperature Retest	Life Preservers, Part No. 497-VO, Serial Nos. 3814 and 3749	No anomalies noted.
Salt Fog	Life Preserver Sample Parts, Part Nos. HI013, H089, H090, H087, H129, 487 - 12, HI003, HI014, 720-A, 384-2-F, 487-13-F, Serial Nos. DTB #1, DTB #2, DTB #3 (for each Part No.)	See Enclosure 3 for details.
Fungus Resistance	Life Preserver, Part No. 497-VO, Serial No. 3736	No anomalies noted.

Enclosure 1

Operational and Extreme Temperature Initial Test and Results

TEST REQUIREMENT

The operational and extreme temperature test shall be conducted in accordance with reference (c).

TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.

All testing was performed in accordance with the referenced specification.

Refer to the following pages of this enclosure for the test data.

Note: This test needed to be repeated because the electronic data for the leakage resistance test was lost. The test was repeated on two new samples as per the customer's request. The leakage resistance test was rerun on two new samples after temperature testing was completed. (See Enclosure 2 for retest data).

The test items completed all phases of testing.

A post-test visual inspection of the test items revealed no anomalies due to testing.

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TEMPERATURE, OPERATIONAL & EXTREME TEST DATA SHEET

JOB NO.: 416440-01-000 **DATE** 18JUL18

Time	Test Time Hours	Required Chamber Ambient (°F)	Actual Chamber Ambient (°F)	Remarks	TECH.
1140	0	65 - 75	74.6	OPERATIONAL TEMPERATURE	SD
1255	0	-40	-40.8		SD
1455	2	-40	-41.5		SD
1655	4	-40	-41.7		C
1750	0	65 - 75	69.5		C
1810	1	65 - 75	71.8	Remove Vest and activate the manual inflation means. < 60 Minutes	C
1815				Replace Inflation Cylinder ✓	C
1820	0	65 - 75	70.3		C
1850	0	140	140.1		C
2050	2	140	139.6		C
2250	4	140	139.2		C
2300	0	65 - 75	72.9		C
2310	1	65 - 75	70.5	Remove Vest and activate the manual inflation means. < 24 Hours	C

COMMENTS

ENGINEER R. Celderaro

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TEMPERATURE, OPERATIONAL & EXTREME TEST DATA SHEET

JOB NO.: 416440-01-000 **DATE** 19 July 18

Time	Test Time Hours	Required Chamber Ambient (°F)	Actual Chamber Ambient (°F)	Remarks	TECH.
0855	0	65 - 75	73.3	EXTREME TEMPERATURE start to Low Temp	SM
1020	0	-60	-62.1		SM
1220	2	-60	~~-1.3 SM~~ -63.7		SM
1420	4	-60	-63.3		SM
1510	0	65 - 75	62.7		SM
1515	1	65 - 75	70.4	Remove Vest and activate the manual inflation means. < 24 Hours	SM
				Replace Inflation Cylinder ✓	
1520	0	65 - 75	70.0		SM
1620	0	160	158.5		C
1820	2	160	162.8		C
2020	4	160	163.0		C
2040	0	65 - 75	70.1		C
2105	1	65 - 75	69.7	Remove Vest and activate the manual inflation means. < 24 Hours	C

COMMENTS _____

ENGINEER R. Calderon

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

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Job Sub: 416440-01 **TEST: Temperature**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY	CAL DUE DATE
CHAMBER, TEMPERATURE	THERMOTRON	F144-CHV-30-30	04E-013	N/A	N.C.R.
DATA ACQUISITION SYSTEM, THERMOCOUPLE TYPE "T" & VOLTAGE	NATIONAL INSTRUMENTS	NI-4351	10-353	MFR	06/16/2019
RECORDER, CHART TRULINE 4 CHANNEL	Honeywell	DR4500A	12-30	RTD ± 0.5 °F; RH 0.2% RH	05/19/2019
CONTROLLER, ENVIRONMENTAL SYSTEM	JC SYSTEMS	600A	25-149	RTD ±1.08 °F; RH ± 1% RH	05/19/2019



Photo 1 – File No. SD18-1063
ID Label for Serial No. 3866



Photo 2 – File No. SD18-1064
Setup Serial No. 3866



Photo 3 – File No. MJ18-0304
Low temperature setup



Photo 4 – File No. MJ18-0305
Setup Serial No. 3827

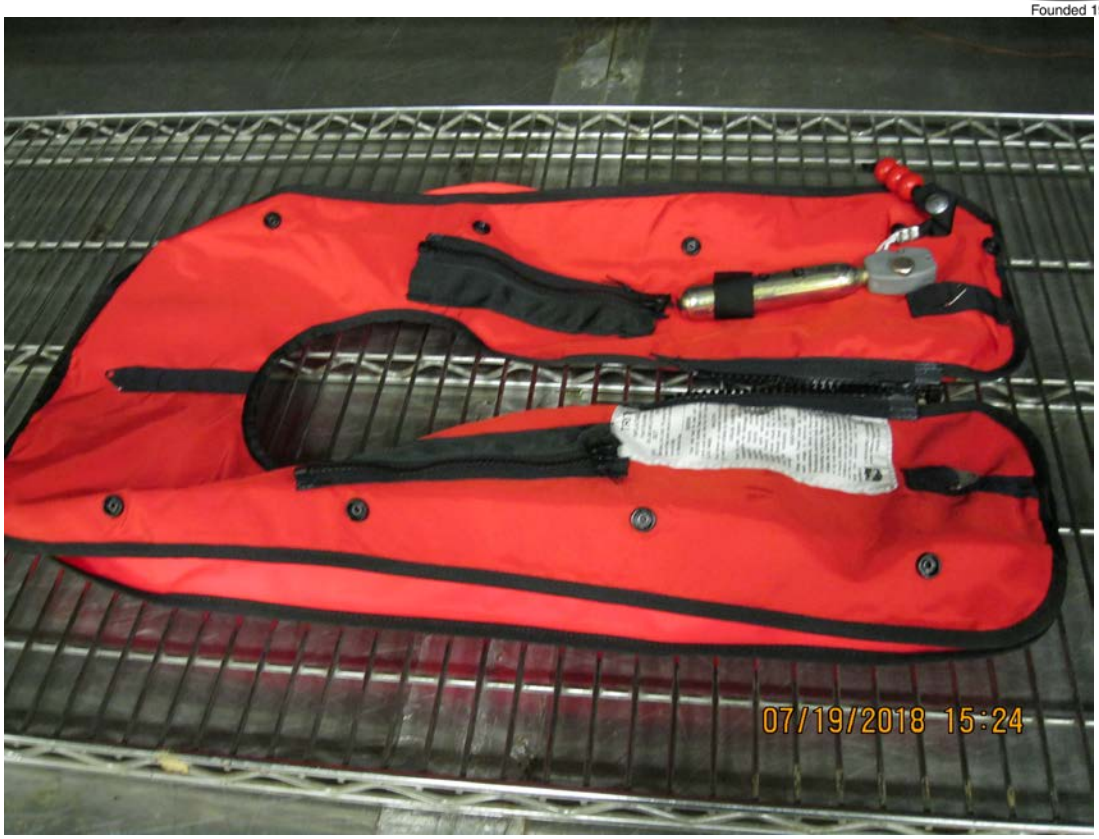


Photo 5 – File No. MJ18-0306
High temperature setup



Photo 6 – File No. MJ18-0307
Post-test



Photo 7 – File No. MJ18-0308
Post-test

Enclosure 2

Operational and Extreme Temperature Test and Results

TEST REQUIREMENT

The operational and extreme temperature test shall be conducted in accordance with reference (c).

TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.

All testing was performed in accordance with the referenced specification.

Note: During the leakage resistance test on Serial No. 3814, the pressure dropped below 2 psig. A leak in the setup was repaired and the 12-hour soak was restarted and completed without leakage below 0.5 psig.

Refer to the following pages of this enclosure for the test data.

The test items completed all phases of testing.

A post-test visual inspection of the test items revealed no anomalies due to testing.

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TEMPERATURE, OPERATIONAL & EXTREME TEST DATA SHEET

JOB NO.: 416440-01-000 **DATE** 13SEP18

Time	Test Time Hours	Required Chamber Ambient (°F)	Actual Chamber Ambient (°F)	Remarks	TECH.
1545	0	65 - 75	72.7	OPERATIONAL TEMPERATURE Unit S/N 3749	SD
1640	0	-40	-40.9	BEGIN 4 HR. SOAK	VD
1710	0	-40	-41.3	1700 ≈ -35.9°F, READJUST SETPT. -RESTART SOAK	VD
1910	2	-40	-43.0		VD
2110	4	-40	-43.8	END SOAK - SWITCH UNIT TO 70°F	VD
2115	0	65 - 75	70.0	BEGIN 60 ~~MIN~~ MID SOAK (MAX)	VD
2200	/	65 - 75	72.8	Remove Vest and activate the manual inflation means. < 60 Minutes ✓	VD
				Replace Inflation Cylinder ✓	VD
2205	0	65 - 75	73.3	ORS COMPLETE - RELOCATE UNIT TO 140°F	VD
2215	0	140	144.0	BEGIN 4 HR. SOAK	VD
0015	2	140	144.6		C
0215	4	140	144.7	End Soak - switch to 70°F	C
0217:21	0	65 - 75	73.6		C
0225	/	65 - 75	73.3	Remove Vest and activate the manual inflation means. < 24 Hours ✓	C

COMMENTS

ENGINEER R. Cullen

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TEMPERATURE, OPERATIONAL & EXTREME TEST DATA SHEET

JOB NO.: 416440-01-000 **DATE** 14 Sept 18

Time	Test Time Hours	Required Chamber Ambient (°F)	Actual Chamber Ambient (°F)	Remarks	TECH.
0925	0	65 - 75	70.6	~~OPERATIONAL TEMPERATURE~~ RC Unit S/N 3814	JM
1050	0	-60	-61.0		JM
1250	2	-60	-63.9		JM
1450	4	-60	-64.5		JM
1457	0	65 - 75	74.2		JM
1520	1	65 - 75	70.9	Remove Vest and activate the manual inflation means. < 60 Minutes ✓	JM
				Replace Inflation Cylinder ✓	JM
1535	0	65 - 75	71.3		JM
1630	0	160	165.3	BEGIN 4 HR. SOAK (MIN)	VD
1830	2	160	163.3		VD
2030	4	160	163.4	END SOAK - RELOCATE UNIT TO 70°F	VD
2035	0	65 - 75	71.1		VD
2045	1	65 - 75	71.5	Remove Vest and activate the manual inflation means. < 24 Hours ✓	VD

COMMENTS _____

ENGINEER R. Calderon

DAYTON T. BROWN, INC.
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TEMPERATURE, OPERATIONAL & EXTREME TEST DATA SHEET

JOB NUMBER: 416440-01-000 **DATE** 20 Sep 18

Time	Test Time Hours	PSIG ~~Ambient Temp (F) C~~	Required Unit Pressure PSIG	Remarks	TECH.
2210	0	2.067	>2	Unit S/N 3814	C
0010	2	2.017	>2		RS
0210	0/4	2.35	>2	PASS. GROUP TO PSIG 1.96 - INCREASE PRESSURE / RESTART SOAK	RS
0410	2 hrs	2.32	>2		RS
0610	4 hrs	2.25	>2		RS
0810	6 hrs	2.21	>2		SM
1010	8 hrs	2.18	>2		SM
1210	10	2.17	>2		SM
1410	12	2.16	>2	Dom unit - ok	SM

COMMENTS SN-3814

ENGINEER R. Celder

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: **Temperature**

SHEET: **DATA SHEET, BLANK**

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TEMPERATURE, OPERATIONAL & EXTREME TEST DATA SHEET

JOB NUMBER: 416440-01-000 **DATE** 21Sept18

Time	Test Time Hours	psig ~~Ambient Temp (F)~~	Required Unit Pressure PSIG	Remarks	TECH.
1810	0	2.599	> 2	Unit S/N 3749	HE
2010	2	2.545	> 2		HE
2210	4	2.484	> 2		HE
0010	6	2.457	> 2		SM
0210	8	2.379	> 2		SM
0410	10	2.376	> 2		SM
0610	12	2.339	> 2		SM

COMMENTS SN# 3749

ENGINEER R. Allen

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

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Job Sub: **416440-01** **TEST: Temperature**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY	CAL DUE DATE
CHAMBER, 4 FT. TEMPERATURE/ALTITUDE	THERMOTRON	FA-64-CH-15-15	04E-053	-	N.C.R.
CHAMBER, 6' T/A	RUSSELLS	RHD-96-30-30-WC-LN2	04E-090	-	N.C.R.
DATA ACQUISITION SYSTEM, THERMOCOUPLE TYPE "T" & VOLTAGE	NATIONAL INSTRUMENTS	NI-4351	10-353	MFR	06/16/2019
RECORDER, CHART TRULINE 3 CHANNEL	Honeywell	DR4500A	12-230	RTD ± 0.5°F, RH ± 0.2%, ALT ± 0.1% + 0.01	10/07/2018
RECORDER, CHART TRULINE 4 CHANNEL - 6ft T/A	Honeywell	DR4500	12-40	MFR	12/16/2018
CONTROLLER, ENVIRONMENTAL SYSTEM "Hg	JC SYSTEMS	600	25-127	RTD ± 1.08°F, ± 1% + 1 Digit "hg	10/07/2018
CONTROLLER, ENVIRONMENTAL SYSTEM	RUSSELLS	VS-1	25-210	MFR	03/31/2019
TIMER, DIGITAL	FISHER SCIENTIFIC	14-649-17	47-57	± 8.64 Sec/24 hr	06/02/2019
GAUGE, DIGITAL 15 PSI	CRYSTAL ENGINEERING	15PSIXP2I	60-728	± 0.1% of reading	03/31/2019



Photo 1 – File No. JW18-1045
Setup



Photo 2 – File No. JW18-1046
ID Label



Photo 3 – File No. JM18-2158
Post-extreme temperature test, Serial No. 3814, inflated, cylinder side



Photo 4 – File No. JM18-2159
Post-extreme temperature test, Serial No. 3814, inflated, non-cylinder side



Photo 5 – File No. JM18-2160
Post-extreme temperature test, Serial No. 3814, label



Photo 6 – File No. JM18-2161
Post-extreme temperature test, Serial No. 3814, deflated, cylinder side



Photo 7 – File No. JM18-2162
Post-extreme temperature test, Serial No. 3814, deflated, non-cylinder side



Photo 8 – File No. JW18-1052
Setup Serial No. 3814



Photo 9 – File No. JW18-1053
Setup Serial No. 3814



Photo 10 – File No. JW18-1054
Setup Serial No. 3814



Photo 11 – File No. JW18-1055
Setup Serial No. 3814



Photo 12 – File No. JW18-1056
Setup Serial No. 3814



Photo 13 – File No. JW18-1057
Setup Serial No. 3749

Enclosure 3

Salt Fog Test and Results

TEST REQUIREMENT

The salt fog test shall be conducted in accordance with references (c) and (d).

TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.

All testing was performed in accordance with the referenced specifications with the exception that one additional salt fog cycle was run due to a low collection rate in two out of the four collection receptacles during the first cycle.

A certificate for the fungus spores is attached.

Refer to the following pages of this enclosure for the test data.

The test items completed all phases of testing.

A post-test visual inspection of the test items revealed rust and/or green corrosion on various exterior surfaces due to testing.

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SALT FOG
COLLECTION DATA

JOB NO.: 416440-03-000 DATE: 16 Jul 18

TEST PARAMETERS

ENTER "X" TO INDICATE THE REQUIREMENT	SPECIFICATION	SPECIFIC GRAVITY @ 77°F FOR REFERENCE ONLY	CHAMBER TEMPERATURE TOLERANCE °F	COLLECTION RATE ML/DISH/HR	pH OF COLLECTED SOLUTION
	MIL-STD-810G	1.0242 TO 1.0372	+/- 4	1.0 - 3.0	6.5 - 7.2
	MIL-STD-810F	1.0250 TO 1.0395	+/- 4	1.0 - 3.0	6.5 - 7.2
	MIL-STD-810C	1.025 TO 1.0395	+/- 2.5	0.5 - 3.0	6.5 - 7.2
X	RTCA/DO-160G	1.025 TO 1.039	+/-5.4	1.0 - 3.0	6.5 - 7.2
	RTCA/DO-160D	1.025 TO 1.039	+/- 4.0	0.5 - 3.0	6.5 - 7.2
	ASTM B117 - 07a	1.0255 TO 1.0400	+/- 3	1.0 - 2.0	6.5 - 7.2
	ASTM B117 - 11	1.0242 TO 1.0372	+/- 3	1.0 - 2.0	6.5 - 7.2
	MIL-STD-202G	1.0245 TO 1.0395	+/- 5	0.5 - 3.0	6.5 - 7.2
	ASTM G85, Annex A4	1.0255 TO 1.0400	+2, -3	1.0 - 2.0	2.5 - 3.2

WATER DATA:	DATE	CONDUCTIVITY
DEIONIZED	16 Jul 18	3.10 (microsiemens) (MUST be less than 5.0)

PRETEST SOLUTION MEASUREMENTS		
Temp °F	SPECIFIC GRAVITY	pH
74.0	1.035	6.82

DATE AND TECH	SPRAY START	SPRAY STOP	TOTAL COLLECTION HOURS	COLLECTION RATE ML/DISH/HOUR				SOLUTION MEASUREMENTS RESERVOIR TEMP °F	RESERVOIR SPECIFIC GRAVITY	RESERVOIR pH	COLLECTIONS TEMP °F	COLLECTIONS SPECIFIC GRAVITY	COLLECTIONS pH
16 Jul 18 TE	1305		24	17	11	24	30						
17 Jul 18	1305			0.70	0.45	1.00	1.25	78.9	1.036	6.80	82.3	1.037	6.81
18 Jul 18	1625		24	30	30	37	30						
19 Jul 18 VD	1635			1.25	1.25	1.54	1.25	78.7	1.036	6.78	84.0	1.037	6.84
20 Jul 18 VD	1730		24	28	35	28	35						
21 Jul 18 VD	1730			1.17	1.46	1.17	1.46	78.5	1.036	6.80	84.1	1.036	6.82

ENGINEER: R. Calderon

DAYTON T. BROWN INC.
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SALT FOG DATA

JOB NO.: 416440-03-000 **DATE:** 16 July 18

TIME	HOURS INTO TEST	CHAMBER AMBIENT °F	AIR PRESS PSI	WATER TOWER TEMP °F	WATER TOWER LEVEL	SALT RESERVOIR LEVEL	TECH
1305	0	95.2	15	111.7	✓	✓	TE
1505	2	95.3	15	110.6	✓	✓	TE
1705	4	94.1	15	111.1	✓	✓	[illegible]
1905	6	95.1	15	108.1	✓	✓	[illegible]
2105	8	94.6	15	112.6	✓	✓	[illegible]
2305	10	94.6	15	112.9	✓	✓	[illegible]
0105	12	95.2	15	114.3	✓	✓	BD
0305	14	95.2	15	113.6	✓	✓	[illegible]
0505	16	94.6	15	112.6	✓	✓	BD
0705	18	94.2	15	112.2	✓	✓	[illegible]
0905	20	94.3	15	112.5	✓	✓	SD
1105	22	95.2	15	110.9	✓	✓	SD
1305	24	~~94~~ 94.9	15	113.6	✓	✓	SD

COMMENTS: _____

ENGINEER R. Ellen

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: **Salt Fog**

SHEET: **DSHT, SALT FOG SPRAY**

DAYTON T. BROWN INC.
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SALT FOG DRYING PERIOD

JOB NO: 416440-03-000 DATE: 17 July 18

TIME	HOURS INTO TEST	REQ. TEMP °F	ACTUAL TEMP °F	REQ. %RH	ACTUAL %RH	REMARKS	TECH
1310	0	77 ± 18	73.2	0 - 50	48.6		SD
1710	4	77 ± 18	76.5	0 - 50	25.2		C
2110	8	77 ± 18	76.5	0 - 50	24.8		C
0110	12	77 ± 18	77.4	0 - 50	25.1		BO
0510	16	77 ± 18	77.6	0 - 50	25.2		BO
0910	20	77 ± 18	76.6	0 - 50	24.6		JM
1310	24	77 ± 18	76.8	0 - 50	24.8		JM

ENGINEER R. Calderon

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SALT FOG DATA

JOB NO.: 416440-03-000 **DATE:** 18 July 18

TIME	HOURS INTO TEST	CHAMBER AMBIENT °F	AIR PRESS PSI	WATER TOWER TEMP °F	WATER TOWER LEVEL	SALT RESERVOIR LEVEL	TECH
1635	0	95.4	15	113.4	✓	✓	C
1835	2	93.9	15	112.9	✓	✓	C
2035	4	94.1	15	112.0	✓	✓	C
2235	6	94.8	15	113.0	✓	✓	C
0035	8	94.1	15	110.1	✓	✓	RO
0235	10	94.0	15	112.2	✓	✓	R
0435	12	95.0	15	112.9	✓	✓	RO
0635	14	94.3	15	113.6	✓	✓	R
0835	16	95.0	15	112.8	✓	✓	JM
1035	18	93.2	15	112.6	✓	✓	JM
1235	20	94.0	15	112.2	✓	✓	JM
1435	22	95.2	15	113.9	✓	✓	JM
1635	24	94.6	15	110.8	✓	✓	VP

COMMENTS: _____

ENGINEER R. Calderari

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SALT FOG DRYING PERIOD

JOB NO: 416440-03-000 **DATE:** 19 JUL 18

TIME	HOURS INTO TEST	REQ. TEMP °F	ACTUAL TEMP °F	REQ. %RH	ACTUAL %RH	REMARKS	TECH
1640	0	77 ± 18	78.1	0 - 50	39.5	BEGIN DRY SOAK	VD
2040	4	77 ± 18	78.5	0 - 50	39.3		VD
0040	8	77 ± 18	78.6	0 - 50	42.0		BO
0440	12	77 ± 18	78.1	0 - 50	42.9		BO
0840	16	77 ± 18	77.8	0 - 50	43.4		SM
1240	20	77 ± 18	77.9	0 - 50	40.4		SM
1640	24	77 ± 18	79.8	0 - 50	37.6	END DRY SOAK	VP

ENGINEER R. Clement

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: **Salt Fog**

SHEET: **DSHT, SALTFOG DRY 50%RH OR LESS**

DAYTON T. BROWN INC.
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SALT FOG DATA

JOB NO.: 416440-03-000 **DATE:** 20 JUL 18

TIME	HOURS INTO TEST	CHAMBER AMBIENT °F	AIR PRESS PSI	WATER TOWER TEMP °F	WATER TOWER LEVEL	SALT RESERVOIR LEVEL	TECH
1730	0	92.5	15	111.0	✓	✓	VD
1930	2	95.1	15	112.1	✓	✓	VD
2130	4	94.7	15	112.3	✓	✓	VD
2330	6	94.5	15	111.3	✓	✓	VD
0130	8	94.1	15	111.2	✓	✓	JM
0330	10	95.1	15	110.8	✓	✓	JM
0530	12	94.3	15	112.5	✓	✓	JM
0730	14	95.0	15	111.8	✓	✓	JM
0930	16	94.9	15	112.5	✓	✓	TE
1130	18	94.9	15	111.2	✓	✓	TE
1330	20	94.3	15	112.4	✓	✓	VD
1530	22	95.0	15	111.0	✓	✓	VD
1730	24	95.3	15	110.5	✓	✓	VD

COMMENTS:

ENGINEER R. Calderon

DAYTON T. BROWN INC.
Founded 1950

SALT FOG DRYING PERIOD

JOB NO: 416440-03-000 DATE: 21 JUL 18

TIME	HOURS INTO TEST	REQ. TEMP °F	ACTUAL TEMP °F	REQ. %RH	ACTUAL %RH	REMARKS	TECH
1735	0	77 ± 18	79.0	0 - 50	36.6	BEGIN DRY SOAK	VD
(VD) 2135	4	77 ± 18	79.1	0 - 50	40.1		VD
0135	8	77 ± 18	79.3	0 - 50	43.0		AM
0535	12	77 ± 18	79.4	0 - 50	42.8		BD
0935	16	77 ± 18	79.7	0 - 50	42.8		SD
1335	20	77 ± 18	80.1	0 - 50	43.2		SD
1735	24	77 ± 18	80.6	0 - 50	44.1	END SOAK / TEST RUN	VD

ENGINEER R. Calderon

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: Salt Fog

SHEET: DSHT, SALTFOG DRY 50%RH OR LESS

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

Founded 1950

Job Sub: **416440-03** **TEST:** **Salt Fog**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY	CAL DUE DATE
CHAMBER, SALT FOG	INDUSTRIAL FILTER & PUMP	4 FT	04E-018	-	N.C.R.
RECORDER, CHART TRULINE 2 CHANNEL	Honeywell	DR4500A	12-56	Type T ± 0.7° F	11/11/2018
CONTROLLER, UNIVERSAL DIGITAL	Honeywell	UDC 3300	25-143	± 1.7°F	08/12/2018
HYDROMETER, 1.000 - 1.250 SP. GR.	H-B INSTRUMENT	08298-50	39-128	± .005 SP. G	N.P.C.R.
GAUGE, 60 PSI	OMEGA	PGS-35L-60	60-174	± 2% of F.S.	01/13/2019
PYREX DISH, CRYSTALLIZING 100 x 50 mm	CORNING	NO. 3140	64-32	5% DIA. NOM.	N.P.C.R.
GRADUATED CYLINDER, 100 ML	FISHER SCIENTIFIC	08-557D	64-389	± 1ML	N.P.C.R.
PYREX DISH, CRYSTALLIZING 100 x 50 mm	CORNING	NO. 3140	64-420	5% DIA. NOM.	N.P.C.R.
PYREX DISH, CRYSTALLIZING 100 x 50 mm	CORNING	NO. 3140	64-423	5% DIA. NOM.	N.P.C.R.
PYREX DISH, CRYSTALLIZING 100 X 50 mm	CORNING	NO. 3140	64-445	5% DIA. NOM.	N.P.C.R.
STANDARD SOLUTION, PH4 REFERENCE MATERIAL	COLE-PARMER	PH4	8-17	± 0.02 PH	03/01/2019
STANDARD SOLUTION, PH7 REFERENCE MATERIAL	COLE-PARMER	PH7	8-18	± 0.02 PH	03/01/2019
STANDARD SOLUTION, PH10 REFERENCE MATERIAL	COLE-PARMER	PH10	8-19	± 0.02 PH	03/01/2019
REFRACTOMETER, DIGITAL	MISCO	PA202X	8-23	MFR	11/04/2018

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

Job Sub: **416440-03** **TEST:** **Salt Fog**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY	CAL DUE DATE
METER, CONDUCTIVITY	FISHER SCIENTIFIC	15-077-977	92-6	± 1% of range + 1 LSD	09/16/2018
CONTROLLER, CONDUCTIVITY W/ PROBE	EUTECH INSTUMENTS	1000 SERIES	92-8	± 0.5% of F.S.	11/18/2018



Photo 1 – File No. RC18-0185
Test items setup in the chamber

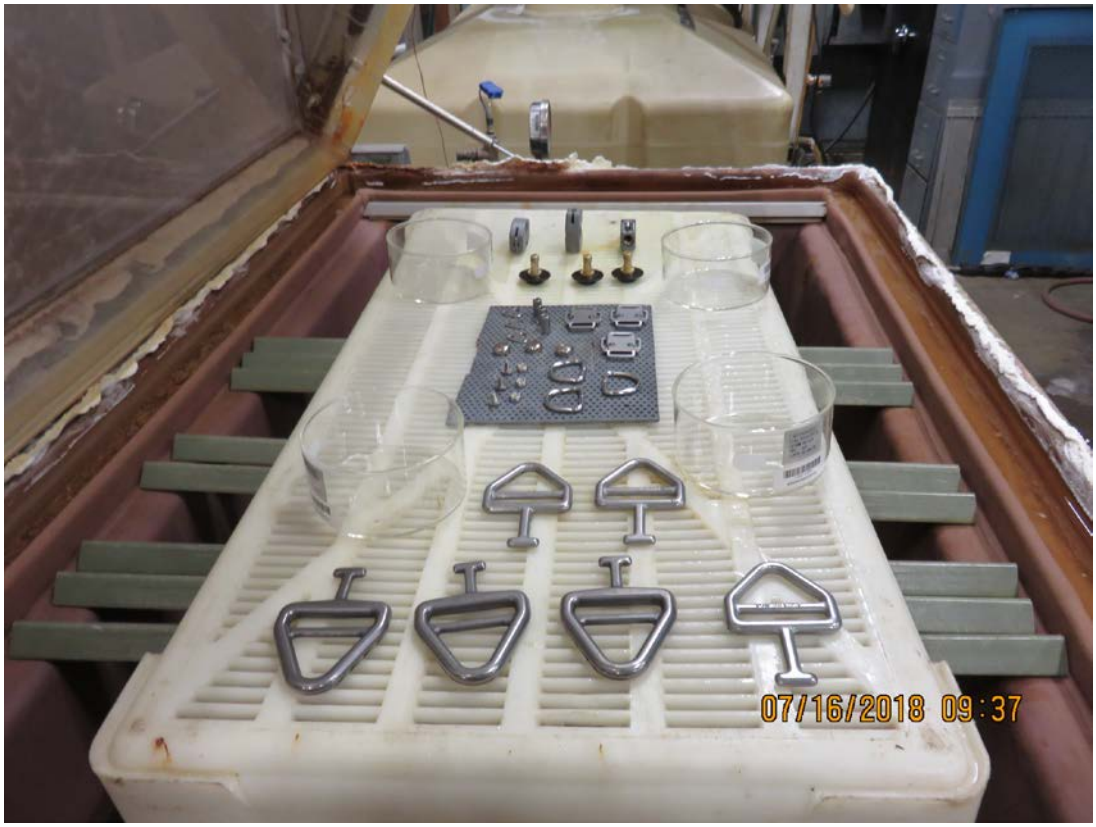


Photo 2 – File No. RC18-0186
Test items setup in the chamber

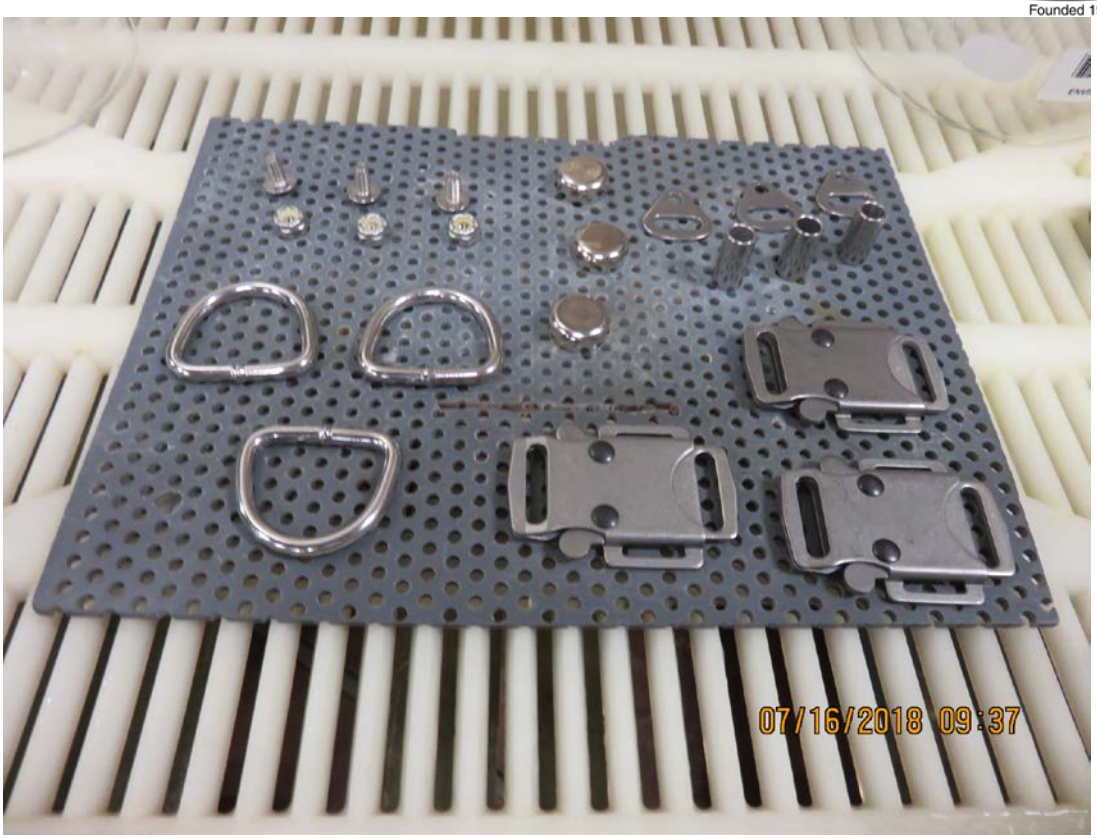


Photo 3 – File No. RC18-0187
Test items setup in the chamber



Photo 4 – File No. JM18-1737
Post-test, overall

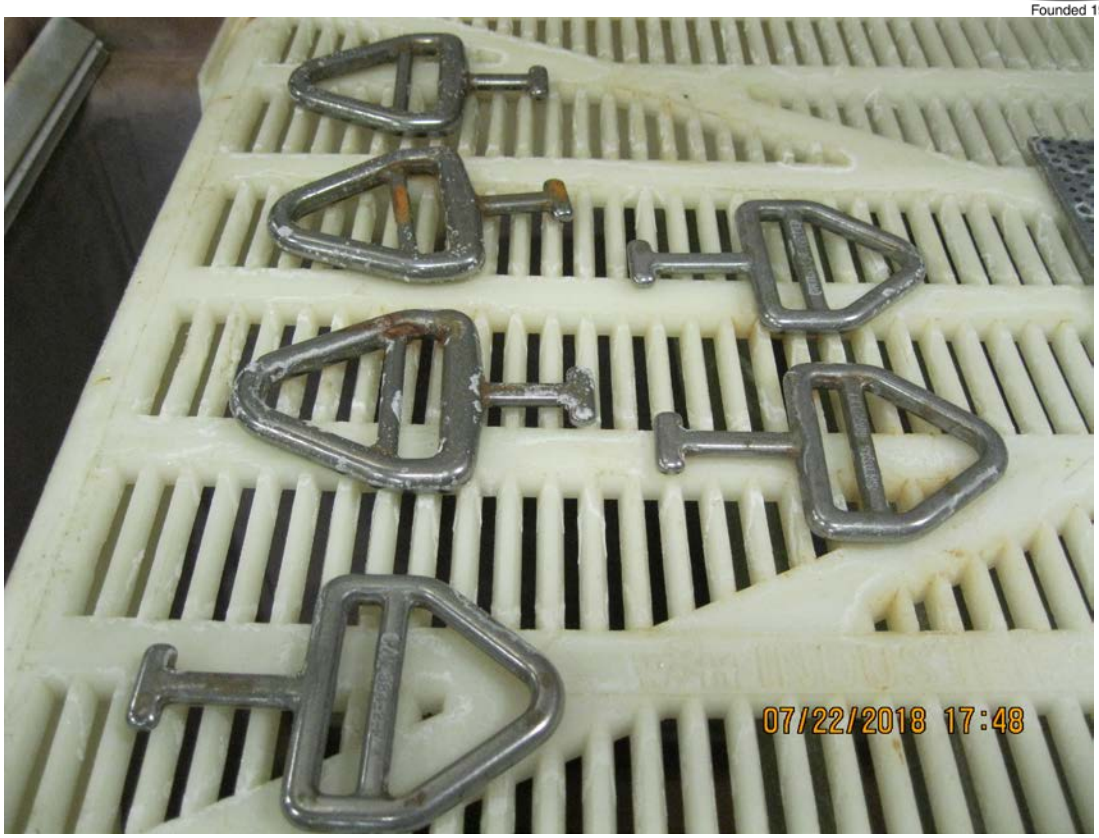


Photo 5 – File No. JM18-1738
Post-test, close up of Triangular D-Rings



Photo 6 – File No. JM18-1739
Post-test, close up of D-Rings, Hardware, Latches and Sleeves

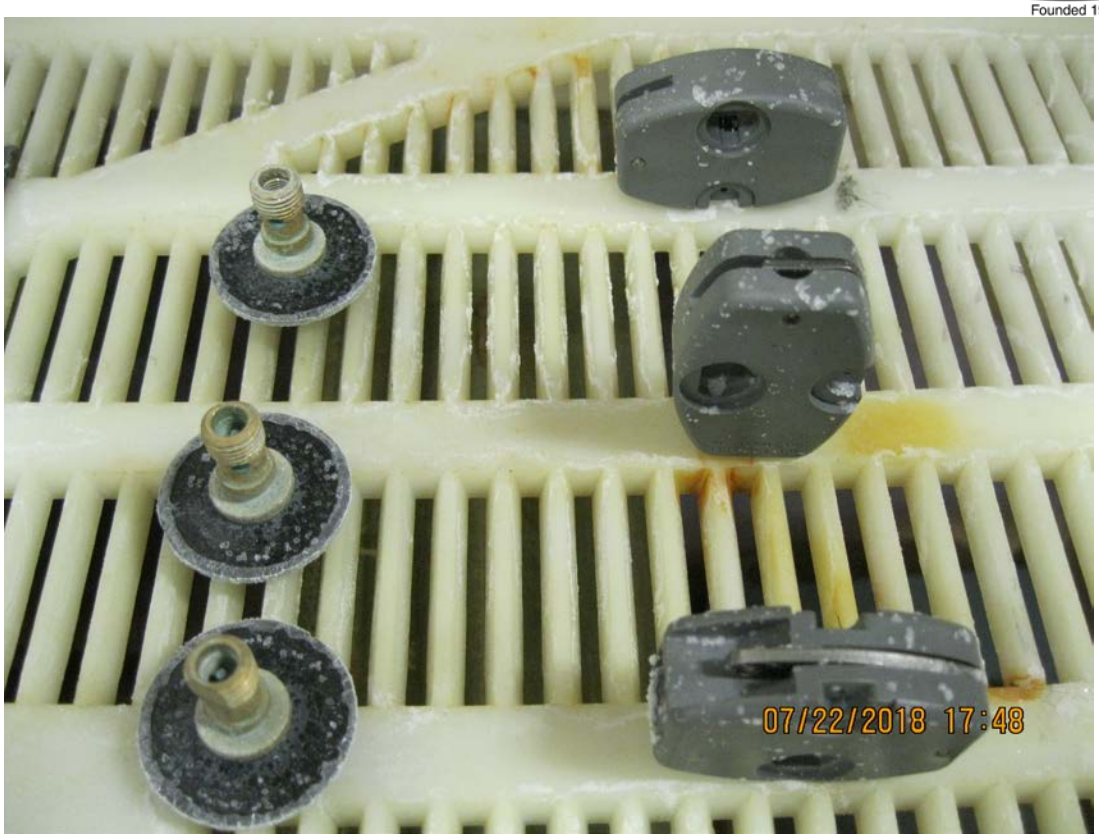


Photo 7 – File No. JM18-1740
Post-test, close up of Inflator Cylinders, Deflator Cylinders



Photo 8 – File No. JM18-1741
Post-test, close up of D-Ring rust



Photo 9 – File No. JM18-1742
Post-test, close up of small D-Ring rust



Photo 10 – File No. JM18-1743
Post-test, close up of Latch rust



Photo 11 – File No. JM18-1744
Post-test, close up of Inflator showing green corrosion

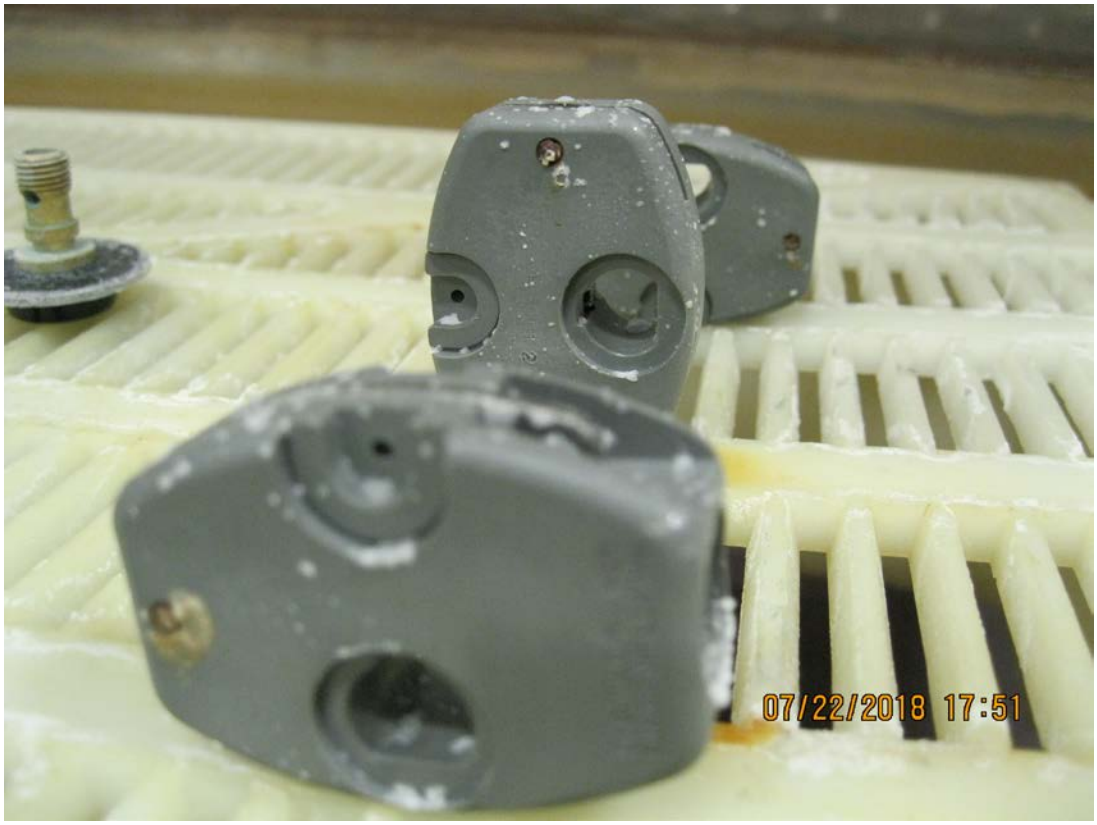


Photo 12 – File No. JM18-1745
Post-test, close up of Latch Assembly pin bar rust

Enclosure 4

Fungus Resistance Test and Results

TEST REQUIREMENT

The fungus resistance test shall be conducted in accordance with reference (c).

TEST RESULTS

A pretest visual inspection of the test items revealed no anomalies.

All testing was performed in accordance with the referenced specification.

The spore suspension certificate is included on page 11 of this enclosure.

Refer to pages 2 through 10 of this enclosure for the test data.

The test items completed all phases of testing.

A detailed post-test inspection was performed by Dr. Robert Elgart, a microbiologist at SUNY Farmingdale; refer to page 12 of this enclosure for the inspection results.

DAYTON T. BROWN, INC.
Founded 1950

FUNGUS RESISTANCE TEST DATA SHEET

JOB NO.: 416440-02-000 **DATE** 23 Aug 18

Time	Test Time Hours	Required Chamber Ambient (°F)	Actual Chamber Ambient (°F)	Required Chamber Humidity (%RH)	Actual Chamber Humidity (%RH)	Remarks	TECH.
1445	0	86	86.2	90 - 99	97.9		BC
1545 ~~1645C~~	1	86	86.0	90 - 99	94.3		C
1645	2	86	85.6	90 - 99	94.7		C
1745	3	86	85.6	90 - 99	94.4		C
1845	4	86	85.5	90 - 99	94.8		C

COMMENTS

ENGINEER R. Gilden

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 Test: Fungus Resistance Date: 2354/18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	86.2	90 - 100	95.0		C
2300	4	86	86.0	90 - 100	96.1		C
0300	8	86	86.3	90 - 100	97.1		
0700	12	86	86.4	90 - 100	97.7		
1100	16	86	86.0	90 - 100	95.5		SD
1500	20	86	86.0	90 - 100	95.7		
1900	24	86	85.6	90 - 100	95.8	Cycle 1 of 28	VD
1900	0	86	85.6	90 - 100	95.8		VD
2300	4	86	86.2	90 - 100	96.7		VD
0300	8	86	86.0	90 - 100	96.7		
0700	12	86	86.3	90 - 100	97.8		
1100	16	86	85.8	90 - 100	96.7		SM
1500	20	86	85.8	90 - 100	95.3		SM
1900	24	86	86.3	90 - 100	96.0	Cycle 2 of 28	VD
1900	0	86	86.0	90 - 100	96.0		VD
2300	4	86	86.1	90 - 100	95.0		VD
0300	8	86	86.3	90 - 100	97.3		
0700	12	86	86.5	90 - 100	96.9		
1100	16	86	86.0	90 - 100	94.7		SD
1500	20	86	86.0	90 - 100	94.4		SD
1900	24	86	86.0	90 - 100	95.1	Cycle 3 of 28	C
1900	0	86	86.0	90 - 100	95.1		C
2300	4	86	85.6	90 - 100	95.6		C
0300	8	86	86.1 X	90 - 100	96.8		
0700	12	86	86.3	90 - 100	96.3		
1100	16	86	86.0	90 - 100	97.7		SM
1500	20	86	86.0	90 - 100	96.6		SM
1900	24	86	86.0	90 - 100	95.6	Cycle 4 of 28	C

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ RC RC

ENGINEER R. Cullen

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 Test: Fungus Resistance Date: 27 Jul 18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	86.0	90 - 100	95.6		C
2300	4	86	85.6	90 - 100	95.2		C
0300	8	86	86.0	90 - 100	96.5		SM
0700	12	86	85.6	90 - 100	96.3		SM
1100	16	86	86.2	90 - 100	95.8		SD
1500	20	86	86.0	90 - 100	96.2		SD
1900	24	86	85.8	90 - 100	94.9	Cycle 5 of 28	AR
1900	0	86	85.8	90 - 100	94.9		AR
2300	4	86	86.0	90 - 100	96.7		AR
0300	8	86	86.3	90 - 100	96.2		RB
0700	12	86	85.9	90 - 100	94.2		R
1100	16	86	86.0	90 - 100	95.2		SD
1500	20	86	86.3	90 - 100	94.9		SD
1900	24	86	85.9	90 - 100	95.6	Cycle 6 of 28	VD
1900	0	86	85.9	90 - 100	95.6		VD
2300	4	86	86.0	90 - 100	95.2		VD
0300	8	86	86.4	90 - 100	96.7		RB
0700	12	86	86.1	90 - 100	95.8		RB
1100	16	86	86.4	90 - 100	96.9		SM
1500	20	86	85.6	90 - 100	93.7		SM
1900	24	86	86.4	90 - 100	96.7	Fungus growth on Cycle 7 of 28	C
1900	0	86	86.4	90 - 100	96.7		C
2300	4	86	85.6	90 - 100	96.9		C
0300	8	86	86.4	90 - 100	97.2		RB
0700	12	86	86.0	90 - 100	93.5		R
1100	16	86	85.6	90 - 100	95.0		SD
1500	20	86	86.0	90 - 100	95.4		SD
1900	24	86	85.6	90 - 100	95.3	Cycle 8 of 28	C

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ RC

ENGINEER R. Calderon

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: Fungus

SHEET: DSHT, FUNGUS 810G CN1

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 Test: Fungus Resistance Date: 3/JUL/18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	85.6	90 - 100	95.3		C
2300	4	86	86.0	90 - 100	95.9		C
0300	8	86	86.1	90 - 100	95.2		R
0700	12	86	86.1	90 - 100	94.7		RO
1100	16	86	86.0	90 - 100	97.5		SO
1500	20	86	86.2	90 - 100	95.9		SO
1900	24	86	85.6	90 - 100	96.4	Cycle 9 of 28	VD
1900	0	86	85.6	90 - 100	96.4		VD
2300	4	86	86.0	90 - 100	95.1		VD
0300	8	86	86.3	90 - 100	95.1		R
0700	12	86	86.4	90 - 100	96.1		RO
1100	16	86	85.8	90 - 100	96.5		SO
1500	20	86	86.2	90 - 100	96.7		SO
1900	24	86	86.0	90 - 100	95.0	Cycle 10 of 28	VD
1900	0	86	86.0	90 - 100	95.0		VD
2300	4	86	85.9	90 - 100	95.7		VD
0300	8	86	86.0	90 - 100	94.1		RO
0700	12	86	85.9	90 - 100	95.2		RO
1100	16	86	86.0	90 - 100	96.2		SO
1500	20	86	84.8	90 - 100	94.8		JP
1900	24	86	85.6	90 - 100	94.8	Cycle 11 of 28	VD
1900	0	86	85.6	90 - 100	94.8		VD
2300	4	86	86.0	90 - 100	97.0		VD
0300	8	86	86.0	90 - 100	96.4		C
0700	12	86	85.6	90 - 100	95.5		C
1100	16	86	85.6	90 - 100	95.9		SO
1500	20	86	86.0	90 - 100	95.0	READING OFF CHART	VD
1900	24	86	85.8	90 - 100	95.5	Cycle 12 of 28	

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ RC

ENGINEER R. Coldwell

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 **Test:** Fungus Resistance **Date:** 4 AUG 18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	85.8	90 - 100	95.5		VO
2300	4	86	85.8	90 - 100	94.7		VO
0300	8	86	85.7	90 - 100	93.2		RJ
0700	12	86	86.3	90 - 100	91.5		BO
1100	16	86	86.2	90 - 100	97.1		SO
1500	20	86	85.6	90 - 100	95.9		SD
1900	24	86	85.6	90 - 100	94.9	Cycle 13 of 28	VO
1900	0	86	85.6	90 - 100	94.9		VO
2300	4	86	85.9	90 - 100	94.9		VO
0300	8	86	86.0	90 - 100	94.7		BO
0700	12	86	86.0	90 - 100	94.9		BO
1100	16	86	85.8	90 - 100	96.0		SM
1500	20	86	85.8	90 - 100	96.8		SM
1900	24	86	86.0	90 - 100	97.0	Cycle 14 of 28	C
1900	0	86	86.0	90 - 100	97.0		C
2300	4	86	85.6	90 - 100	94.6		C
0300	8	86	86.1	90 - 100	95.3		RO
0700	12	86	86.4	90 - 100	96.1		RO
1100	16	86	86.2	90 - 100	94.7		SM
1500	20	86	85.5	90 - 100	94.6		SM
1900	24	86	85.8	90 - 100	95.2	Cycle 15 of 28	VO
1900	0	86	85.8	90 - 100	95.2		VO
2300	4	86	85.2	90 - 100	92.0		VO
0300	8	86	85.0	90 - 100	99.4		RJ
0700	12	86	85.3	90 - 100	98.7		RO
1100	16	86	86.0	90 - 100	97.3		VR
1500	20	86	85.0	90 - 100	96.9		VR
1900	24	86	86.0	90 - 100	98.2	Cycle 16 of 28	VO

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ RC

ENGINEER R. Alden

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 Test: Fungus Resistance Date: 8 AUG 18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	86.0	90 - 100	98.2		VD
2300	4	86	85.8	90 - 100	97.6		VD
0300	8	86	86.4	90 - 100	97.1		
0700	12	86	86.3	90 - 100	97.9		
1100	16	86	86.4	90 - 100	97.8		NB
1500	20	86	86.0	90 - 100	98.3		NB
1900	24	86	85.2	90 - 100	97.7	Cycle 17 of 28	VD
1900	0	86	85.2	90 - 100	97.7		VD
2300	4	86	86.3	90 - 100	97.8		VD
0300	8	86	86.2	90 - 100	96.7		
0700	12	86	86.3	90 - 100	97.9		
1100	16	86	86.0	90 - 100	97.5		NB
~~1500~~ 1400 NB	20	86	86.2	90 - 100	98.4		NB
1900	24	86	86.6	90 - 100	98.2	Cycle 18 of 28	VD
1900	0	86	86.6	90 - 100	98.2		VD
2300	4	86	85.9	90 - 100	97.0		VD
0300	8	86	86.0	90 - 100	97.5		
0700	12	86	86.1	90 - 100	97.2		
1100	16	86	86.0	90 - 100	97.0		
1500	20	86	86.3	90 - 100	96.3		
1900	24	86	86.0	90 - 100	96.7	Cycle 19 of 28	
1900	0	86	86.0	90 - 100	96.7		
2300	4	86	86.1	90 - 100	95.2		
0300	8	86	86.0	90 - 100	97.3		
0700	12	86	86.3	90 - 100	98.1		
1100	16	86	85.6	90 - 100	98.2		NB
~~1500~~ 1500	20	86	85.6	90 - 100	98.0		NB
1900	24	86	85.6	90 - 100	97.1	Cycle 20 of 28	C

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ AC

ENGINEER R. Colleen

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 Test: Fungus Resistance Date: ~~13 Aug~~ 13 Aug 18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	85.6	90 - 100	97.1		C
2300	4	86	86.0	90 - 100	98.5		C
0300	8	86	86.2	90 - 100	98.7		MS
0700	12	86	86.4	90 - 100	98.4		MS
1100	16	86	85.6	90 - 100	96.4		SD
1500	20	86	85.6	90 - 100	97.1		SD
1900	24	86	86.0	90 - 100	98.3	Cycle 2 of 28	C
1900	0	86	86.0	90 - 100	98.3		C
2300	4	86	86.0	90 - 100	97.9		C
0300	8	86	85.9	90 - 100	96.6		MS
0700	12	86	86.4	90 - 100	98.6		MS
1100	16	86	86.0	90 - 100	97.9		SD
1500	20	86	85.8	90 - 100	97.2		SD
1900	24	86	86.2	90 - 100	98.0	Cycle 22 of 28	C
1900	0	86	86.2	90 - 100	98.0		C
2300	4	86	86.2	90 - 100	97.7		C
0300	8	86	86.0	90 - 100	98.0		MS
0700	12	86	86.4	90 - 100	97.1		MS
1100	16	86	85.8	90 - 100	97.8		SD
1500	20	86	86.0	90 - 100	98.4		SD
1900	24	86	86.2	90 - 100	97.8	Cycle 23 of 28	C
1900	0	86	86.2	90 - 100	97.8		C
2300	4	86	85.6	90 - 100	~~96.2~~ 96.9		C
0300	8	86	86.0	90 - 100	98.2		MS
0700	12	86	86.1	90 - 100	98.4		MS
1100	16	86	85.6	90 - 100	97.4		SD
1500	20	86	85.6	90 - 100	96.8		SD
1900	24	86	86.0	90 - 100	98.1	Cycle 24 of 28	C

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ RC

ENGINEER R. Allen

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: Fungus

SHEET: DSHT, FUNGUS 810G CN1

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 Test: Fungus Resistance Date: 17 Aug 18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	86.0	90 - 100	98.1		C
2300	4	86	86.0	90 - 100	98.2		VD
0300	8	86	86.2	90 - 100	98.0		JM
0700	12	86	86.0	90 - 100	97.5		JM
1100	16	86	86.0	90 - 100	97.5		TE
1500	20	86	86.2	90 - 100	98.0	From Chart	
1900	24	86	85.5	90 - 100	96.8	Cycle 25 of 28	
1900	0	86	85.5	90 - 100	96.8		
2300	4	86	85.8	90 - 100	97.5		
0300	8	86	86.3	90 - 100	98.6		
0700	12	86	85.9	90 - 100	98.0		
1100	16	86	86.0	90 - 100	97.9		SD
1500	20	86	86.0	90 - 100	97.8		SD
1900	24	86	86.4	90 - 100	98.1	Cycle 26 of 28	VD
1900	0	86	86.4	90 - 100	98.1		VD
2300	4	86	86.3	90 - 100	97.4		VD
0300	8	86	86.4	90 - 100	98.1		
0700	12	86	86.3	90 - 100	97.8		
1100	16	86	86.0	90 - 100	98.2		JM
1500	20	86	85.8	90 - 100	98.1		HE
1900	24	86	86.0	90 - 100	97.5	Cycle 27 of 28	HE
1900	0	86	86.0	90 - 100	97.6		HE
2300	4	86	85.8	90 - 100	97.9		HE
0300	8	86	86.3	90 - 100	98.2		
0700	12	86	85.9	90 - 100	97.0		
1100	16	86	86.0	90 - 100	97.6		SD
1500	20	86	85.9	90 - 100	97.3		SD
1900	24	86	85.6	90 - 100	97.6	Cycle 28 of 28	C

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED AT DAY 14, THE TEST IS INVALID.~~ RC

ENGINEER R. Calderon

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: Fungus

SHEET: DSHT, FUNGUS 810G CN1

DAYTON T. BROWN INC.
Founded 1950

ALL TEMPERATURES IN DEGREES F
Temperature Tolerance ± 3.6°F

Job No: 416440-02-000 **Test:** Fungus Resistance **Date:** 21 Aug 18

TIME	TEST TIME HOURS	REQ'D TEMP °F	ACTUAL TEMP °F	REQ'D RH %	ACTUAL RH %	REMARKS	TECH
1900	0	86	85.6	90 - 100	97.6		C
2300	4	86	86.0	90 - 100	98.6		C
0300	8	86	86.1	90 - 100	98.4		[illegible]
0700	12	86	86.0	90 - 100	97.0		[illegible]
1100	16	86	86.1	90 - 100	96.3		[illegible]
~~—~~	~~20~~	~~86~~	~~—~~	~~90 - 100~~	~~—~~	~~—~~	~~—~~
~~—~~	~~24~~	~~86~~	~~—~~	~~90 - 100~~	~~—~~	~~Cycle 29 of 28~~	~~—~~
	0	86		90 - 100			
	4	86		90 - 100			
	8	86		90 - 100			
	12	86		90 - 100			
	16	86		90 - 100			
	20	86		90 - 100			
	24	86		90 - 100		Cycle of 28	
	0	86		90 - 100			
	4	86		90 - 100			
	8	86		90 - 100			
	12	86		90 - 100			
	16	86		90 - 100			
	20	86		90 - 100			
	24	86		90 - 100		Cycle of 28	
	0	86		90 - 100			
	4	86		90 - 100			
	8	86		90 - 100			
	12	86		90 - 100			
	16	86		90 - 100			
	20	86		90 - 100			
	24	86		90 - 100		Cycle of 28	

~~NOTE: GROWTH ON CONTROL STRIPS MUST BE INSPECTED AND PHOTOGRAPHED EVERY 7 DAYS. AFTER THE FIRST 7 DAYS VERIFY FUNGAL GROWTH PER PARA 4.5.2, STEP 2. AFTER 14 DAYS VERIFY THE FUNGAL GROWTH IS GREATER THAN THAT OBSERVED AT DAY 7 PER PARA. 4.5.2, STEP 3. IF ADDITIONAL GROWTH IS NOT NOTED~~ AT DAY ~~14, THE TEST IS INVALID.~~ RC

ENGINEER R. Colleran

Dept 04 Standard Test Paperwork, Released 22 SEPT 2017
FILE NAME: **Fungus**

SHEET: **DSHT, FUNGUS 810G CN1**

Farmingdale
State College
State University of New York

TO: Greg Pinto
FROM: Bob Elgart, SUNY
RE: Test spore suspension
DATE: July 16, 2018

Certified, Robert Elgart, PhD

A mixed fungal spore suspension was prepared.

Concentration of spores, as determined by viability test and microscopic counts:

Aspergillus niger (ATCC 9642) = 6.7×10^6 CFU/mL
Aspergillus flavus (ATCC 9643) = 1.0×10^7 CFU/mL
Aspergillus versicolor (ATCC 11730) = 1.1×10^7 CFU/mL
Penicillium finiculosum (ATCC 11797) = 4.6×10^6 CFU/mL
Chaetomium globosum (ATCC 6205) = 4.8×10^6 CFU/mL

A total of 100 mL of the suspension was prepared for aerosolization.

Farmingdale
State College

To: G. Pinto

From: R. Elgart

Re: Post-test evaluation of 8/22/18

Date: 9/20/18

Job # 416440

Item: Life vest (red, nylon) with metal and plastic components.

Controls exhibited extensive fungal growth.

While mot areas wer devoid of any possible fungal colonization, a gray, diffuse patch was discovered on the letters "SOLAS." Closer microscopic examination of this area indicated no presence of fungal growth.

Hence all materials were fungal resistant.

Comparison of RTCA/DO 160E specifications to that of MIL-STD-810G procedures indicates similarity in both cultures and methods that we have employed to prepare spore suspensions for chamber testing of materials. Essentially, the specs are the same.

Test equipment utilized for the program reported herein was within its assigned interval of calibration.
Details are on file at Dayton T. Brown, Inc. and will be made available upon request.

Founded 1950

Job Sub: **416440-02** **TEST:** **Fungus**

ITEM	MANUFACTURER	MODEL	DTB NO.	ACCURACY	CAL DUE DATE
CHAMBER, 4 FT TEMPERATURE/HUMIDITY	THERMOTRON	F64CHM 7 1/2	04E-012	-	N.C.R.
RECORDER, CHART TRULINE	Honeywell	DR4500A	12-229	± 0.85°F, ± 0.2% RH	08/11/2019
CONTROLLER, ENVIRONMENTAL SYSTEM	JC SYSTEMS	600-RTD	25-64	RTD ± 1.08°F; RH ± 1% RH	04/07/2019
TRANSMITTER, TEMPERATURE & HUMIDITY	Vaisala	HMT335	31-173	± 1% RH (0 to 90 % RH) ± 1.7% RH (90 to 100 % RH)	12/02/2018



Photo 1 – File No. SD18-1067
ID Label



Photo 2 – File No. SD18-1068
Setup



Photo 3 – File No. JW18-1043
Post-test