Pratt Industries
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LABORATORY TEST REPORT

Test Report No.	T2012366	Test Date	6-Nov-12
Pratt Location	Lincoln, NE - Converting Division		
Pratt Contact	Mike Benes - Sales		
Email / Phone			
Test File No.	MP Global Packaging Products - T2012366 - 6PK Wine Shipper		

Customer	**MP Global Products LLC**
Requester	Roger Borgman - National Sales Mgr
Address	2500 Old Hadar Road
City / State	Norfolk, NE 68701
Phone / Fax	(888) 379-9695 / (402) 379-9737

Item Number	MP Global Thermal Packaging Product	Design No.	1106028 REV A(1)	Pkg Wgt (lbs)	22.7

Reason for Test: Determine if packaging is sufficient to protect the product from damage.

Test Procedure - ISTA Procedure 3A - Packaged-Products for Parcel Delivery System Shipment 70 kg (150 lb) or Less
Test Version (Year) - 2012

Test Description - Test Procedure 3A is a general simulation test for individual packaged-products shipped through a parcel delivery system. The test is appropriate for four different types of packages commonly distributed as individual packages, either by air or ground. The types include standard, small, flat and elongated packages.

Tests Performed - Conditioning (Ambient) - Test Lab Conditions
Shock (9 Drops) - LAB Free-Fall Drop Tester
Vibration (Random with and without load) - Lansmont Vibration Test System
Shock (8 Drops with hazard) - LAB Free-Fall Drop Tester

Package Failure - Package must remain in overall good shape and MP Global box liner inserts prevent product damage.

Product Failure - Wine Bottles break

PACKAGE DESCRIPTION

CSSC (center-special slotted carton); Singlewall C flute; 275 Mullen
ID 16-1/8 x 9-3/8 x 14
Glue inside manufacturers joint
Top & bottom flaps sealed with single strip of 3" clear pressure senstive tape

Top & Bottom Pad; Singlewall C flute; 44ect
OD 13 x 7 (use x 2)

Die Cut Partitions; Singlewall C flute; 50ect
Large Partition: 22-3/16 x 13-1/8 (use x 1); Small Partition: 22-3/16 x 6-3/8 (use x 3)

MP Global Box Liner Part A / Part B
Part A = 44 x 10 x 1-1/2" thick Part B = 36-1/2 x 12 x 2" thick

Gel Packs: Polar Tech Industries; ICE BRIX # IB17; OD 10 X 3-1/4 (use x 2)

Wine Bottle	Capacity (ml)	Diameter	Height
A	750	2.875	12.25
B	750	2.875	12.25
C	750	2.875	12.3125
D	750	3.125	11.875
E	750	3.125	11.625
F	750	3.000	11.3125

Bottle location within carton

C	**D**
Gel Pack	**B**
A	**Gel Pack**
E	**F**





Wine bottle on far right was to tall for the RSC and was replaced with a shorter 750ml bottle.


Test Summary

The 6PK Wine Shipper PASSED the ISTA 3A test procedures. The RSC shipper experienced normal scuffing and denting that occurs with free-fall drop testing and random vibration with top-load. There was no breakage of any wine bottles within the RSC. The die cut insert partition kept the bottles separated and prevented damage. There was one spot on the top of the PART A MP Global box liner where it was punctured during the test.




RSC Shipper after testing.

Small puncture in MP Global box liner

No damage to wine bottles

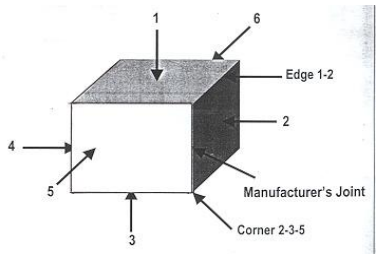
Atmospheric Conditioning

Conditions	Time (Hours)	Temperature (F°)	Humidity (% RH)
Ambient	12	Test Lab ambient conditions	
Controlled	72	N/A	N/A

Drop Test (free-fall)

STANDARD PKG < 32 kg (70 lb)

Drop Number	Package Orientation	Drop Description	Drop Height (inches)	Status
1	Edge	Bottom 3-4	18	Performed
2	Edge	Bottom 3-6	18	Performed
3	Edge	Depth 4-6	18	Performed
4	Corner	Bottom 3-4-6	18	Performed
5	Corner	Bottom 2-3-5	18	Performed
6	Edge	Bottom 2-3	18	Performed
7	Edge	Top Edge 1-2	18	Performed
8	Face	Bottom 3	36	Performed
9	Face	Bottom 3	18	Performed



The faces, edges, and corners of the test package are identified using the diagram to the left.









Vibration Test (Random under Dynamic Load)

Test Description: Test Procedure 3A is a random vibration test.

The boxes were tested with a top load applied to simulate freight that might be encountered in the overnight delivery system. The load apparatus consisted of a corrugated fiberboard box stretch wrapped to the test carton. A plywood sheet was placed inside and bags of sand were used for weight. The weight calculations are as follows:

Top-Load (TL-H) with face 3 down = (108 - H) x L x W x 0.0035
Top-Load (TL-W) with face 4 down = (108 - W) x L x H x 0.0035
Top-Load (TL-L) with face 6 down = (108 - L) x W x H x 0.0035

TL = Total Weight of the Top-Load Apparatus
108 = Height of typical trailer
H = Height of shipping unit (inches)
L = Length of shipping unit (inches)
W = Width of shipping unit (inches)
0.0035 = Loading Factor: 50% of the average density of freight

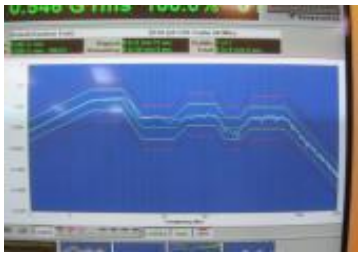
Top-Load (TL-H) with face 3 down = (108 - 14.75) x 16.4375 x 9.625 x 0.0035 = 51.6 round up = 55 lbs
Top-Load (TL-W) with face 4 down = (108 - 9.625) x 16.4375 x 14.75 x 0.0035 = 83.5 round up = 85 lbs
Top-Load (TL-L) with face 6 down = (108 - 16.4375) x 9.625 x 14.75 x 0.0035 = 45.5 round up = 50 lbs

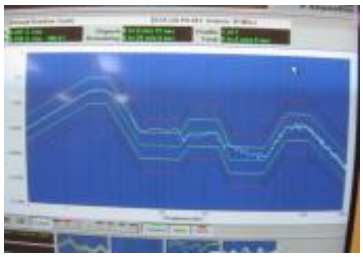
STANDARD PKG < 32 kg (70 lb)

ISTA 3A - Over-the-Road Trailer

Test Cycle	Time (minutes)	Grms Level	Wgt Applied	Face Down
1st	60	0.53	55.6	3
2nd	30	0.53	86.3	4
3rd	30	0.53	53.3	6

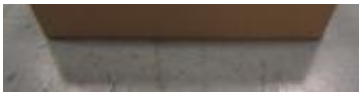
When the calculated top load is less than 25 lbs no weight is applied during vibration testing.





ISTA 3A - Pick-Up and Delivery Vehicle

Test Cycle	Time (minutes)	Grms Level	Wgt Applied	Face Down
4th	30	0.46	None	3



Drop Test (free-fall)

STANDARD PKG < 32 kg (70 lb)

Drop Number	Package Orientation	Drop Description	Drop Height (inches)	Status
10	Edge	Bottom 3-4	18	Performed
11	Edge	Bottom 3-6	18	Performed
12	Edge	Depth 1-5	18	Performed
13	Corner	Bottom 3-4-6	18	Performed
14	Corner	Top 1-2-6	18	Performed
15	Corner	Top 1-4-5	18	Performed
16	Most Critical Flat Orientation	Bottom 3	36	Performed
17	Face - on hazard	Bottom 3	18	Performed

Hazard Block - Located parallel to the shortest dimension of face 3

Block dimensions - Height = 0.75 - 1.0 inch

Length = 8.0 inch longer than the 2nd shortest pkg dimension

Top edges rounded to a radius equal to height of the block









Saving Trees - Minimizing Landfills - Preserving Fresh Water - Using Energy Efficiently - Harvesting the Urban Forest

Report approved by Lab Manager	*Stacy Thomas*	Completion Date	November 7, 2012

6-23-11 Wine Bottle A.MP_Lgr

DataSet 3:

Data Source

C:\Documents and Settings\All Users\Documents\MDAS-PRO\Data\6-23-11 Wine Bottle A.MP_Lgr

Logger

Serial Number:	11020101
Tracking Number:	11020101
Description:	
Final Comment:	
Data Imported	False
FirmWare Version	1.82
Model Number	65540
Read by DLL Version	1.0.285
Logger Type	MicroDL
Logger Sensor	Thermistor
Pushbutton Stop Enable	False
Specific Stop Enable	True
Specific Stop Count	None

Time

Start Time:	6/21/2011 9:09:50 AM Central Daylight Time
Stop Time:	6/23/2011 9:09:50 AM Central Daylight Time
Elapsed Time:	2Days
Delay Interval Before Start	2Min
Date Logger First Read	6/23/2011 11:02:04 AM Central Daylight Time
Date Logger Was Read	6/23/2011 10:58:36 AM Central Daylight Time
Logger Internal Time When Read	6/23/2011 11:02:04 AM Central Daylight Time

Measurements

Sample Interval:	10Min
Compression Efficiency:	99.3%
Number of Measurements:	289
Continuous Memory	False
Number of Channels	1
Number of Active Channels	1

Probe Temperature

Highest Temperature:	71.2F
Lowest Temperature:	60.6F
Median Temperature:	64.0F
Average Temperature:	64.6F
Mean Kinetic Temperature:	64.8F

Alarm	Settings	Results
Probe Temperature		
High Temperature :	Disabled	
High Time :		
Low Temperature :	Disabled	
Low Time :		
Alarm Occured	False	

Note

DataSet 2:

Data Source

C:\Documents and Settings\All Users\Documents\MDAS-PRO\Data\6-23-11 Ambient Temperature.MP_Lgr

Logger

Serial Number:	11020103
Tracking Number:	11020103
Description:	
Final Comment:	
Data Imported	False
FirmWare Version	1.82
Model Number	65540
Read by DLL Version	1.0.285
Logger Type	MicroDL
Logger Sensor	Thermistor
Pushbutton Stop Enable	False
Specific Stop Enable	True
Specific Stop Count	None

Time

Start Time:	6/21/2011 9:02:46 AM Central Daylight Time
Stop Time:	6/23/2011 9:02:46 AM Central Daylight Time
Elapsed Time:	2Days
Delay Interval Before Start	2Min
Date Logger First Read	6/23/2011 10:55:36 AM Central Daylight Time
Date Logger Was Read	6/23/2011 10:56:44 AM Central Daylight Time
Logger Internal Time When Read	6/23/2011 10:55:36 AM Central Daylight Time

Measurements

Sample Interval:	10Min
Compression Efficiency:	97.6%
Number of Measurements:	289
Continuous Memory	False
Number of Channels	1
Number of Active Channels	1

Probe Temperature

Highest Temperature:	102.0F
Lowest Temperature:	69.0F
Median Temperature:	85.0F
Average Temperature:	84.4F
Mean Kinetic Temperature:	88.6F

Alarm	Settings	Results
Probe Temperature		
High Temperature :	Disabled	
High Time :		
Low Temperature :	Disabled	
Low Time :		
Alarm Occured	False	

Note

DataSet 1:

Data Source

C:\Documents and Settings\All Users\Documents\MDAS-PRO\Data\6-23-11.MP_Lgr

Logger

Serial Number:	11020102
Tracking Number:	11020102
Description:	
Final Comment:	
Data Imported	False
FirmWare Version	1.82
Model Number	65540
Read by DLL Version	1.0.285
Logger Type	MicroDL
Logger Sensor	Thermistor
Pushbutton Stop Enable	False
Specific Stop Enable	True
Specific Stop Count	None

Time

Start Time:	6/21/2011 9:02:52 AM Central Daylight Time
Stop Time:	6/23/2011 9:02:52 AM Central Daylight Time
Elapsed Time:	2Days
Delay Interval Before Start	2Min
Date Logger First Read	6/23/2011 11:03:30 AM Central Daylight Time
Date Logger Was Read	6/23/2011 11:03:54 AM Central Daylight Time
Logger Internal Time When Read	6/23/2011 11:03:30 AM Central Daylight Time

Measurements

Sample Interval:	10Min
Compression Efficiency:	99.3%
Number of Measurements:	289
Continuous Memory	False
Number of Channels	1
Number of Active Channels	1

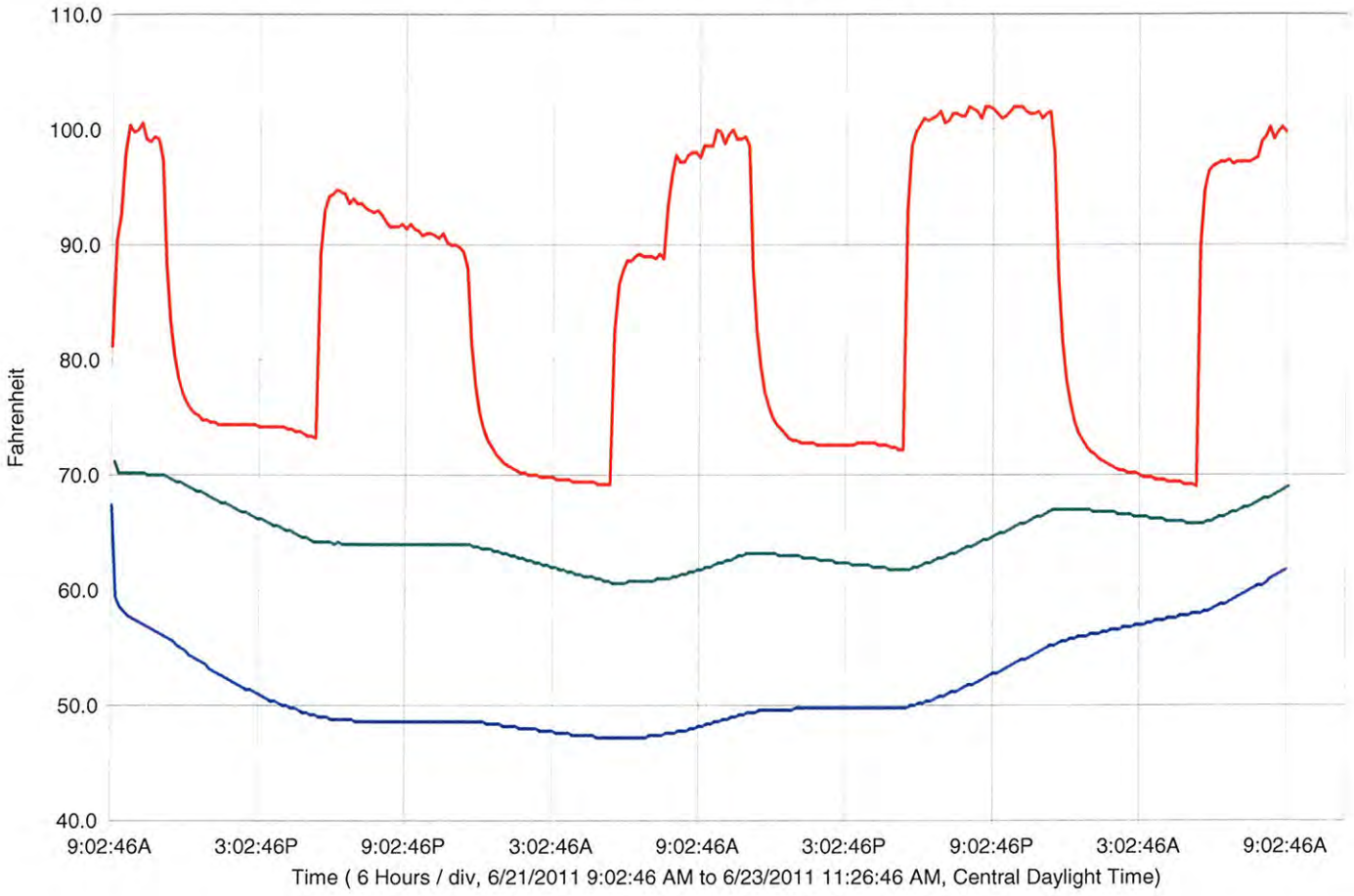
Probe Temperature

Highest Temperature:	67.4F
Lowest Temperature:	47.2F
Median Temperature:	49.8F
Average Temperature:	51.8F
Mean Kinetic Temperature:	52.4F

Alarm	Settings	Results
Probe Temperature		
High Temperature :	Disabled	
High Time :		
Low Temperature :	Disabled	
Low Time :		
Alarm Occured	False	

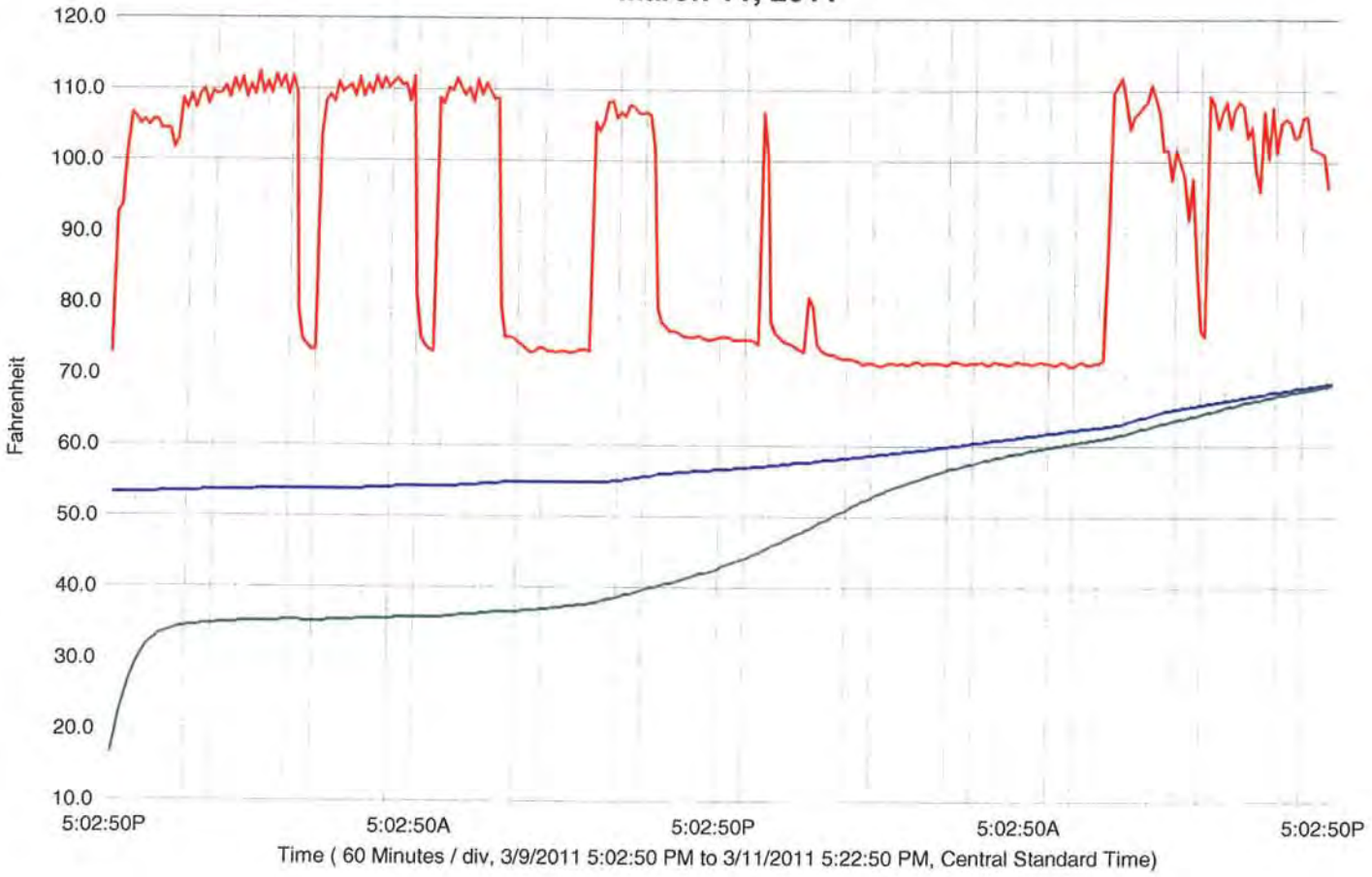
Note

Marathon Electronic Data Logger



{Name | Location}	File Name
DataSet 1: {Classic edl | Local}	6-23-11.MP_Lgr
DataSet 2: {Classic edl | Local}	6-23-11 Ambient Temperature.MP_Lgr
DataSet 3: {Classic edl | Local}	6-23-11 Wine Bottle A.MP_Lgr

Wine Shipper Lab Test
March 11, 2011



{Name | Location}	File Name
DataSet 1: {Classic edl | Local}	Wine shipper bottle - 48 hr- 3-11-11.MP_Lgr
DataSet 2: {Classic edl | Local}	wine shipper ambient temp -48 hr - 3-11-11.MP_Lgr
DataSet 3: {Classic edl | Local}	Wine shipper refrigerant 2.66lb 48 hr - 3-11-11.MP_Lgr

Wine shipper refrigerant 2.66lb 48 hr - 3-11-11.MP_Lgr

DataSet 1:

Data Source

C:\Documents and Settings\All Users\Documents\MDAS-PRO\Data\Wine shipper refrigerant 2.66lb 48 hr - 3-11-11.MP_Lgr

Logger

Serial Number:	11020103
Tracking Number:	11020103
Description:	Wine Shipper
Final Comment:	
Data Imported	False
FirmWare Version	1.82
Model Number	65540
Read by DLL Version	1.0.285
Logger Type	MicroDL
Logger Sensor	Thermistor
Pushbutton Stop Enable	False
Specific Stop Enable	True
Specific Stop Count	None

Time

Start Time:	3/9/2011 5:11:20 PM Central Standard Time
Stop Time:	3/11/2011 5:11:20 PM Central Standard Time
Elapsed Time:	2Days
Delay Interval Before Start	2Min
Date Logger First Read	3/12/2011 4:42:40 PM Central Standard Time
Date Logger Was Read	3/12/2011 4:34:44 PM Central Standard Time
Logger Internal Time When Read	3/12/2011 4:42:40 PM Central Standard Time

Measurements

Sample Interval:	10Min
Compression Efficiency:	98.6%
Number of Measurements:	289
Continuous Memory	False
Number of Channels	1
Number of Active Channels	1

Probe Temperature

Highest Temperature:	68.6F
Lowest Temperature:	16.8F
Median Temperature:	43.0F
Average Temperature:	47.0F
Mean Kinetic Temperature:	52.0F

Alarm	Settings	Results
Probe Temperature		
High Temperature :	Disabled	
High Time :		
Low Temperature :	Disabled	
Low Time :		
Alarm Occured	False	

Note

DataSet 2:

Data Source

C:\Documents and Settings\All Users\Documents\MDAS-PRO\Data\Wine shipper bottele 2.66 lb refrigerant 48 hr 3-11-11.MP_Lgr

Logger

Serial Number:	11020101
Tracking Number:	11020101
Description:	Wine Shipper
Final Comment:	
Data Imported	False
FirmWare Version	1.82
Model Number	65540
Read by DLL Version	1.0.285
Logger Type	MicroDL
Logger Sensor	Thermistor
Pushbutton Stop Enable	False
Specific Stop Enable	True
Specific Stop Count	None

Time

Start Time:	3/9/2011 5:11:12 PM Central Standard Time
Stop Time:	3/11/2011 5:11:12 PM Central Standard Time
Elapsed Time:	2Days
Delay Interval Before Start	2Min
Date Logger First Read	3/12/2011 4:49:28 PM Central Standard Time
Date Logger Was Read	3/12/2011 4:41:42 PM Central Standard Time
Logger Internal Time When Read	3/12/2011 4:49:28 PM Central Standard Time

Measurements

Sample Interval:	10Min
Compression Efficiency:	99.%
Number of Measurements:	289
Continuous Memory	False
Number of Channels	1
Number of Active Channels	1

Probe Temperature

Highest Temperature:	68.8F
Lowest Temperature:	53.2F
Median Temperature:	56.6F
Average Temperature:	58.2F
Mean Kinetic Temperature:	58.8F

Alarm	Settings	Results
Probe Temperature		
High Temperature :	Disabled	
High Time :		
Low Temperature :	Disabled	
Low Time :		
Alarm Occured	False	

Note

wine shipper ambient temp 2.66lb refrigerant - 48 hr - 3-11-11.MP_Lgr

DataSet 3:

Data Source

C:\Documents and Settings\All Users\Documents\MDAS-PRO\Data\wine shipper ambient temp 2.66lb refrigerant - 48 hr - 3-11-11.MP_Lgr

Logger

Serial Number:	11020102
Tracking Number:	11020102
Description:	Wine Shipper
Final Comment:	
Data Imported	False
FirmWare Version	1.82
Model Number	65540
Read by DLL Version	1.0.285
Logger Type	MicroDL
Logger Sensor	Thermistor
Pushbutton Stop Enable	False
Specific Stop Enable	True
Specific Stop Count	None

Time

Start Time:	3/9/2011 5:02:50 PM Central Standard Time
Stop Time:	3/11/2011 5:02:50 PM Central Standard Time
Elapsed Time:	2Days
Delay Interval Before Start	2Min
Date Logger First Read	3/12/2011 4:44:28 PM Central Standard Time
Date Logger Was Read	3/12/2011 4:44:36 PM Central Standard Time
Logger Internal Time When Read	3/12/2011 4:44:28 PM Central Standard Time

Measurements

Sample Interval:	10Min
Compression Efficiency:	98.3%
Number of Measurements:	289
Continuous Memory	False
Number of Channels	1
Number of Active Channels	1

Probe Temperature

Highest Temperature:	112.4F
Lowest Temperature:	71.2F
Median Temperature:	94.6F
Average Temperature:	90.4F
Mean Kinetic Temperature:	97.6F

Alarm	Settings	Results
Probe Temperature		
High Temperature :	Disabled	
High Time :		
Low Temperature :	Disabled	
Low Time :		
Alarm Occured	False	

Note

3/9/2011 5:11:12 PM	53.2F
3/9/2011 7:01:12 PM	53.4F
3/9/2011 8:41:12 PM	53.6F
3/9/2011 10:51:12 PM	53.8F
3/10/2011 3:11:12 AM	54F
3/10/2011 4:21:12 AM	54.2F
3/10/2011 6:51:12 AM	54.4F
3/10/2011 7:41:12 AM	54.6F
3/10/2011 8:31:12 AM	54.8F
3/10/2011 12:51:12 PM	55F
3/10/2011 1:21:12 PM	55.2F
3/10/2011 1:41:12 PM	55.4F
3/10/2011 2:01:12 PM	55.6F
3/10/2011 2:31:12 PM	55.8F
3/10/2011 2:41:12 PM	56F
3/10/2011 3:21:12 PM	56.2F
3/10/2011 4:01:12 PM	56.4F
3/10/2011 4:51:12 PM	56.6F
3/10/2011 5:41:12 PM	56.8F
3/10/2011 6:21:12 PM	57F
3/10/2011 7:01:12 PM	57.2F
3/10/2011 7:31:12 PM	57.4F
3/10/2011 8:01:12 PM	57.6F
3/10/2011 8:51:12 PM	57.8F
3/10/2011 9:11:12 PM	58F
3/10/2011 9:51:12 PM	58.2F
3/10/2011 10:21:12 PM	58.4F
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3/11/2011 9:11:12 AM	63.4F
3/11/2011 9:21:12 AM	63.6F
3/11/2011 9:31:12 AM	63.8F
3/11/2011 9:41:12 AM	64F
3/11/2011 10:01:12 AM	64.2F
3/11/2011 10:11:12 AM	64.4F
3/11/2011 10:21:12 AM	64.6F
3/11/2011 10:31:12 AM	64.8F
3/11/2011 10:41:12 AM	65F
3/11/2011 11:01:12 AM	65.2F
3/11/2011 11:21:12 AM	65.4F
3/11/2011 11:41:12 AM	65.6F
3/11/2011 12:01:12 PM	65.8F
3/11/2011 12:21:12 PM	66F
3/11/2011 12:41:12 PM	66.2F
3/11/2011 1:01:12 PM	66.4F
3/11/2011 1:21:12 PM	66.6F
3/11/2011 1:41:12 PM	66.8F
3/11/2011 2:01:12 PM	67F
3/11/2011 2:21:12 PM	67.2F
3/11/2011 2:41:12 PM	67.4F
3/11/2011 2:51:12 PM	67.6F
3/11/2011 3:21:12 PM	67.8F
3/11/2011 3:41:12 PM	68F
3/11/2011 3:51:12 PM	68.2F
3/11/2011 4:21:12 PM	68.4F
3/11/2011 4:41:12 PM	68.6F
3/11/2011 5:01:12 PM	68.8F
3/11/2011 5:11:12 PM	68.8F