

# Ceratech Test Report

2018-11-27 - by Christiaan Neethling

## Background:

The purpose of this report is to evaluate any thermal improvement that Ceratech paint makes after applied to a 20 foot shipping container, by comparing the drop in temperature readings before and after application.

This report contains the data of various temperature readings taken inside an exposed 20' containers in Victoria, Seychelles, during the months of June and July 2016. Prior to readings in the 20 foot container, a few readings were taken in a 40 foot container for comparison.

During days and periods of consistent rainfall, no readings were taken since the surface temperature of the container drops remarkably then.

The temperature readings and the data collected were:

1. Surface temperatures of all the internal sides of the container;
2. Ambient Temperature inside;
3. Thermal imaging inside – photos
4. Weather Data collected from the Seychelles Meteorological Bureau.

## Headline Summary and Findings:

The average surface temperatures fell by around 20°C to 25°C. This was fairly consistent to all times of day and in overcast conditions the surfaces temperatures decreased by 10°C to 15°C.

The average ambient temperature decreased to the point where the interior ambient temperature was similar to slightly higher than the external environmental temperature.

From a purely experiential point of view, regardless the data readings and findings, the interior feels much cooler after the paint is applied. Even though the ambient temperatures dropped to slightly higher than the external ambient temperatures, the loss in heat radiation from the sides and in particular the roof is dramatic.

## Data Readings – 20 foot Container

The following two graphs is a summary of the readings, which is followed up by the daily readings with infrared images for illustrative purposes.

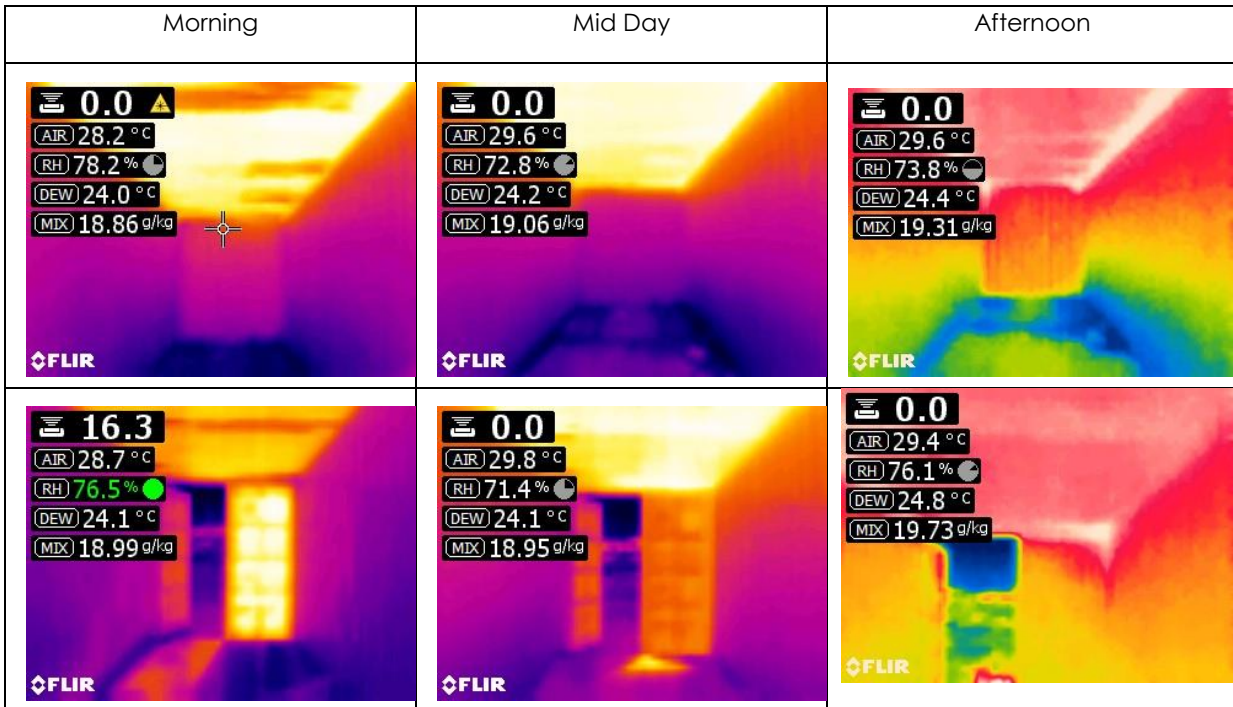
Ceratech Paint Readings – Less than 50% Cloud Cover – Predominantly Sunny at time of Reading									
Date	Painted	Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
2016-06-05	No	Midday	31	60	47	52	40	43	<50%
2016-06-08	No	Morning	29	44	48	45	37	36	<50%
2016-06-11	No	Midday	31	52	47	40	38	40	<50%
2016-06-13	No	Morning	31	52	43	60	42	42	<50%
2016-06-13	No	Midday	33	58	53	47	44	47	<50%
2016-06-14	No	Morning	29	43	37	48	36	35	<50%
2016-06-15	No	Morning	31	50	41	53	40	38	<50%
2016-06-15	No	Midday	31	60	58	42	40	45	<50%
2016-07-08	Yes	Morning	29	35	34	38	34	32	<50%
2016-07-08	Yes	Midday	32	36	36	35	34	34	<50%
2016-07-08	Yes	After	27	28	30	30	30	30	<50%
2016-07-11	Yes	Morning	27	29	28	32	29	28	<50%
2016-07-11	Yes	Midday	32	37	37	36	34	34	<50%
2016-07-13	Yes	Midday	31	38	38	35	35	36	<50%
2016-07-14	Yes	Midday	30	36	38	34	34	46	<50%

Ceratech Paint Readings - More than 50% Cloud Cover – Predominantly Cloudy at time of Reading									
Date	Painted	Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
2016-06-06	No	Midday	28	42	38	38	35	35	>50%
2016-06-07	No	Midday	29	47	42	40	36	36	>50%
2016-06-08	No	Midday	30	39	44	42	38	39	>50%
2016-06-13	No	After	27	30	32	30	30	31	>50%
2016-06-14	No	Midday	30	40	40	36	35	37	>50%
2016-06-16	No	Midday	29	45	39	42	37	37	>50%
2016-07-12	Yes	Midday	28	29	29	29	29	29	>50%
2016-07-13	Yes	Morning	26	28	28	28	28	28	>50%

2016-05-31

Weather Conditions:: The day's weather had long sunny periods with passing showers over a few areas.				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
55%	30°C	SE to SW	25-40	

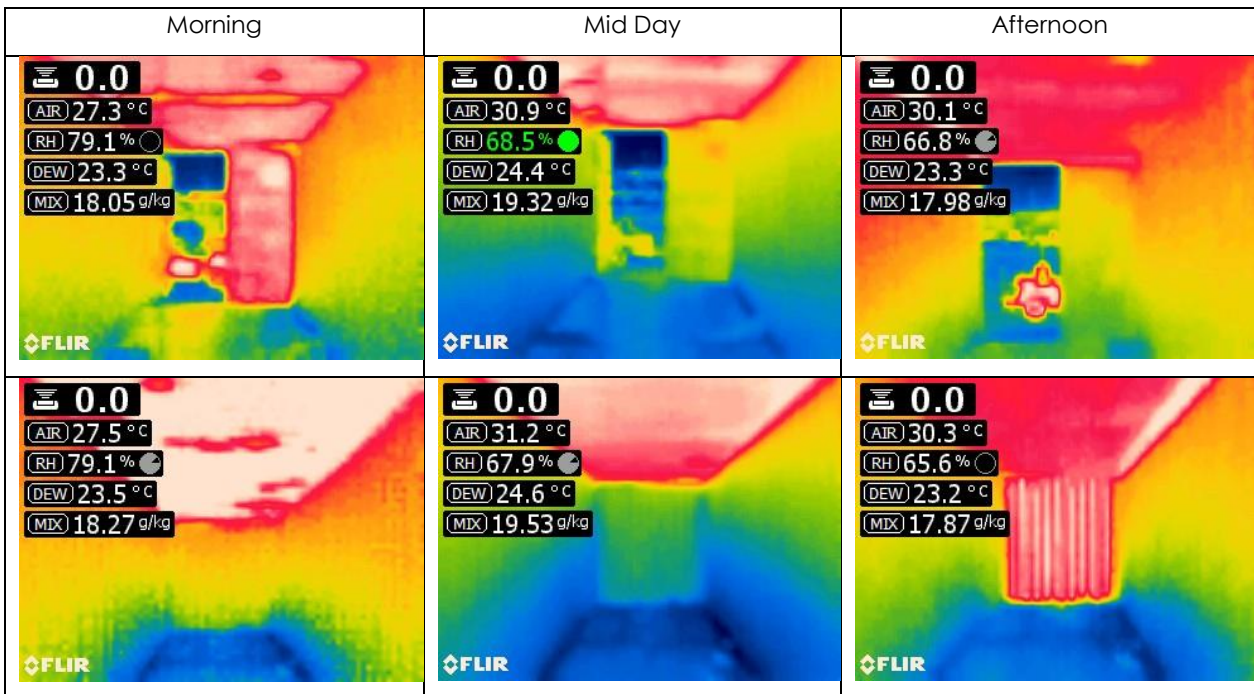
40' Container Readings – Not Painted							
Time	Ambient	Roof	Side 1 *	Side 2 *	Door -E	Back – W	Cloud %
± 8:30	28°C	48°C	32°C	32°C	45°C	30°C	30%
± 12:00	29°C	52°C	36°C	36°C	43°C	36°C	50%
±16:00	29°C	33°C	31°C	31°C	31°C	31°C	70%



2016-06-01

Weather Conditions: Overcast, Raining.				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
50%	27°C	210°	20-40	5,6mm

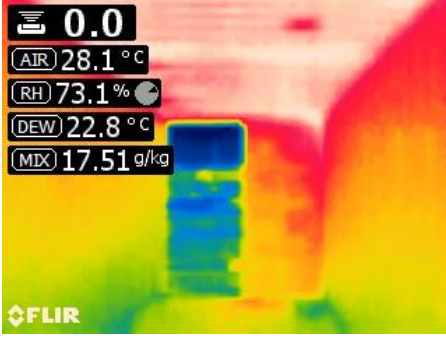
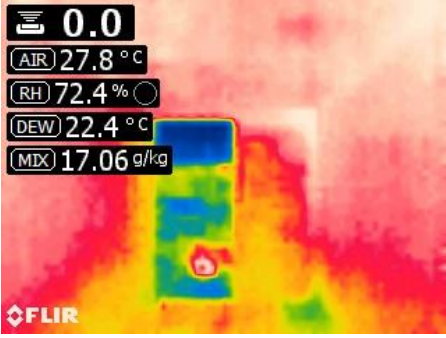
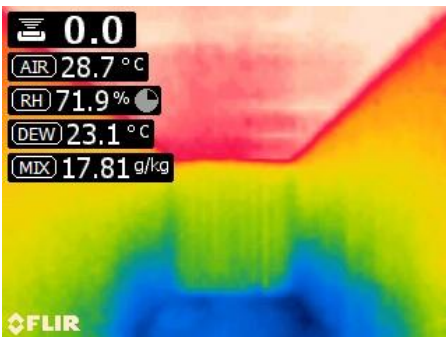
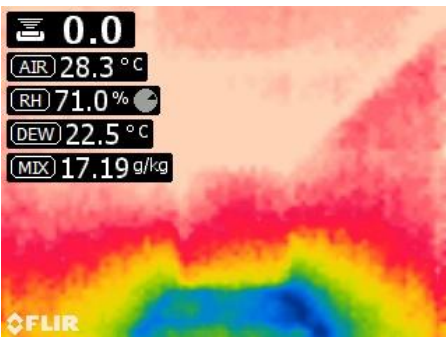
40' Container Readings – Not Painted							
Time	Ambient	Roof	Side 1 *	Side 2 *	Door -E	Back – W	Cloud %
± 8:30	27°C	32°C	29°C	29°C	32°C	29°C	50%
± 12:00	30°C	46°C	36°C	36°C	38°C	36°C	50%
± 16:00	30°C	35°C	32°C	32°C	30°C	32°C	50%



**2016-06-02**

Weather Conditions:Overcast. Raining.				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
50%	28°C	270°	10	0,1mm

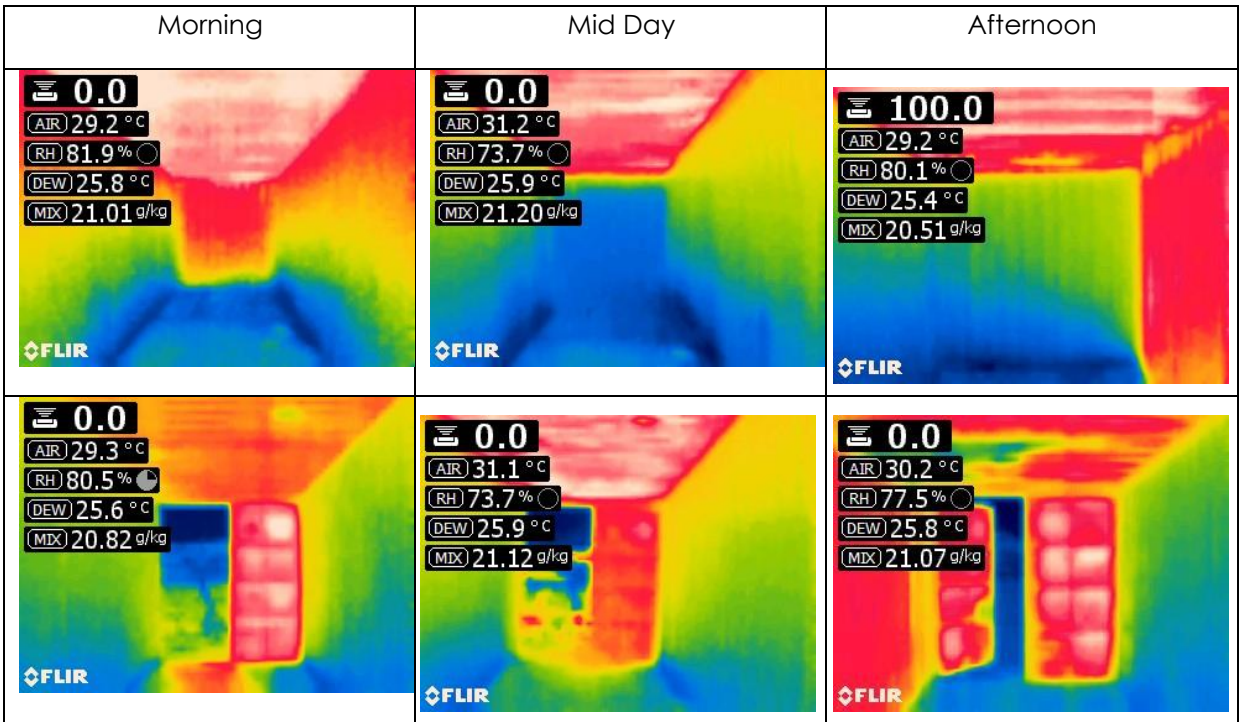
40' Container Readings – Not Painted							
Time	Ambient	Roof	Side 1 *	Side 2 *	Door -E	Back – W	Cloud %
± 8:30	28°C	50°C	36°C	36°C	50°C	36°C	50%
± 12:00	28°C	40°C	34°C	34°C	34°C	34°C	50%
±16:00	°C	32°C	30°C	30°C	30°C	30°C	50%

Morning	Mid Day	Afternoon
 <p> <b>0.0</b>                  AIR 28.1 °C                  RH 73.1 %                  DEW 22.8 °C                  MIX 17.51 g/kg                  FLIR             </p>	 <p> <b>0.0</b>                  AIR 27.8 °C                  RH 72.4 %                  DEW 22.4 °C                  MIX 17.06 g/kg                  FLIR             </p>	
 <p> <b>0.0</b>                  AIR 28.7 °C                  RH 71.9 %                  DEW 23.1 °C                  MIX 17.81 g/kg                  FLIR             </p>	 <p> <b>0.0</b>                  AIR 28.3 °C                  RH 71.0 %                  DEW 22.5 °C                  MIX 17.19 g/kg                  FLIR             </p>	

2016-06-03 \*\*

Weather Conditions: Overcast. Raining. Cleared up late afternoon.				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
73%	28°C	200°	6	5,7mm

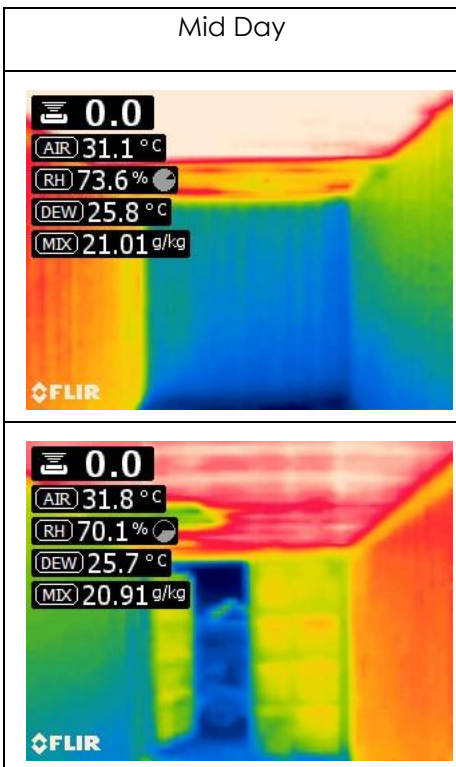
40' Container Readings – Not Painted							
Time	Ambient	Roof	Side 1 *	Side 2 *	Door -E	Back – W	Cloud %
± 8:30	29°C	35°C	30°C	30°C	30°C	30°C	70%
± 12:00	31°C	37°C	30°C	30°C	30°C	30°C	70%
± 16:00	29°C	48°C	38°C	38°C	53°C	38°C	20%



2016-06-05

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
10%	28°C	160	7,4	0,2mm

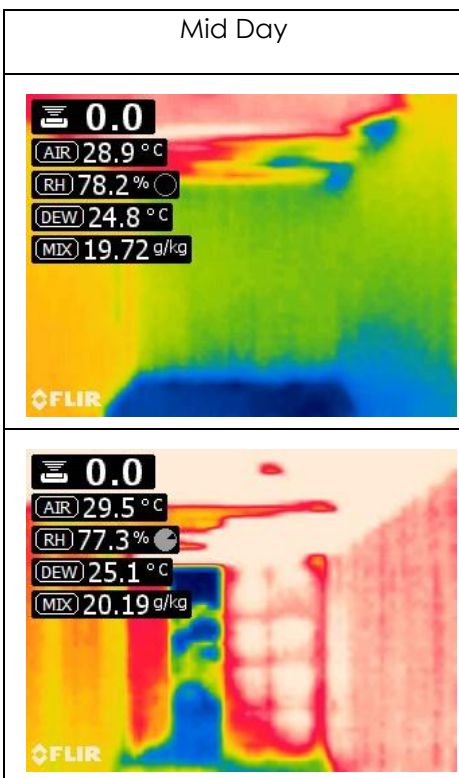
20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 12:00	31	60	47	52	40	43	10%



2016-06-06

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
81%	27°C	150	7,5	25mm

20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 12:00	28	42	38	38	35	35	100%

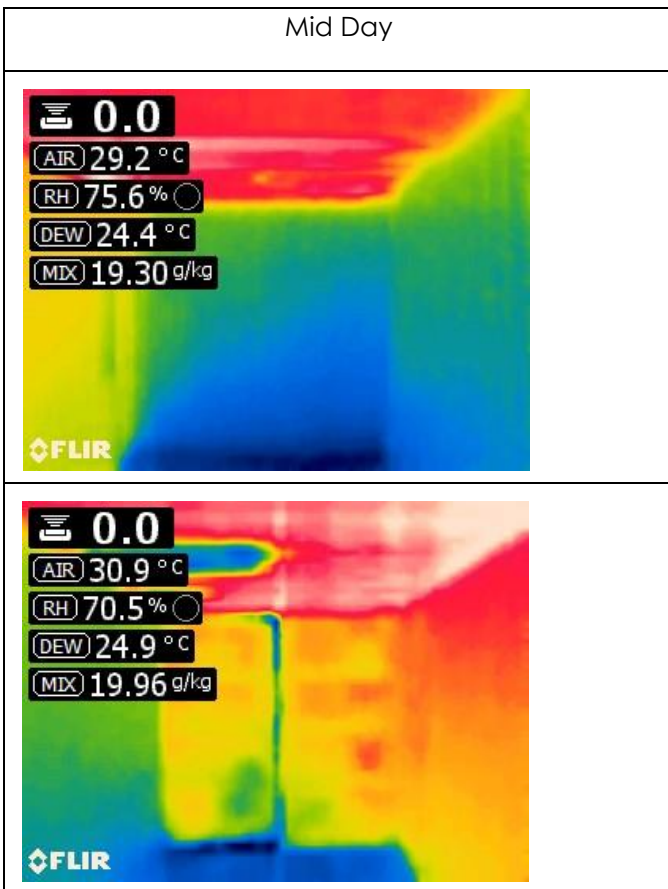




2016-06-07

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
86%	27°C	110	7,5	0

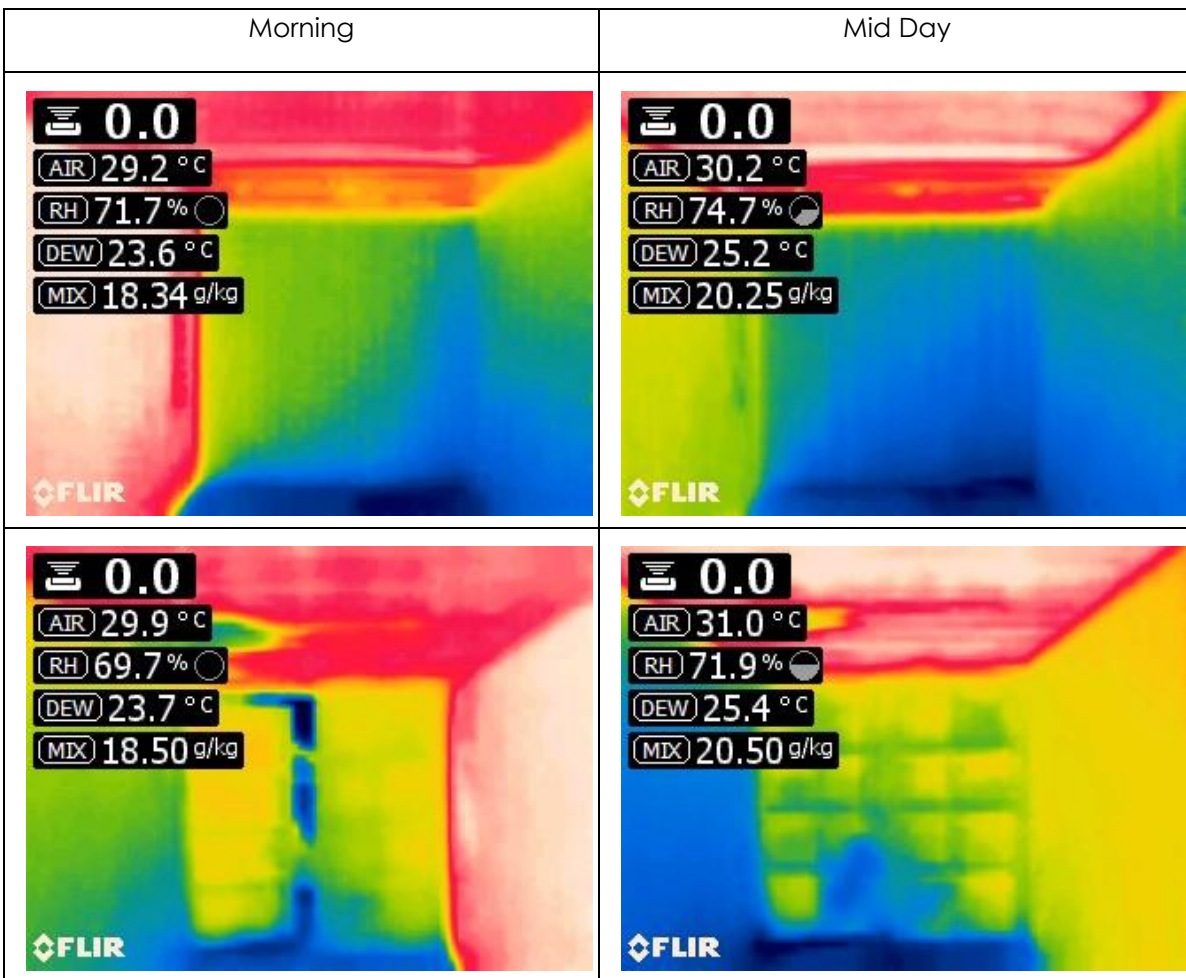
20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 12:00	29	47	42	40	36	36	70%



2016-06-08

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
75%	27°C	120	7	0

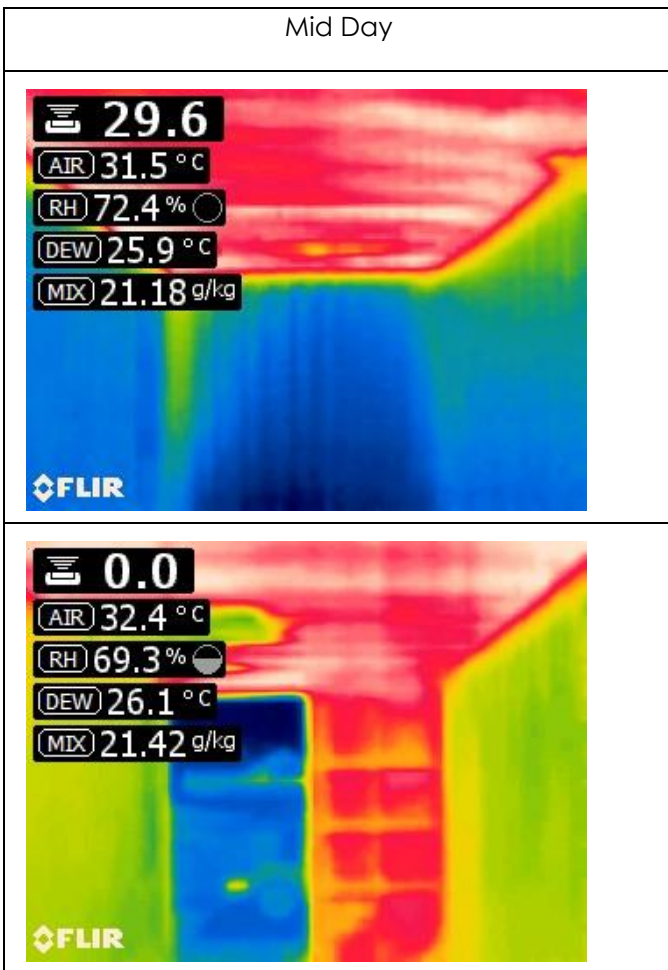
20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	29	44	48	45	37	36	30%
± 12:00	30	39	44	42	38	39	50%



2016-06-11

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
75%	27°C	150	4	0

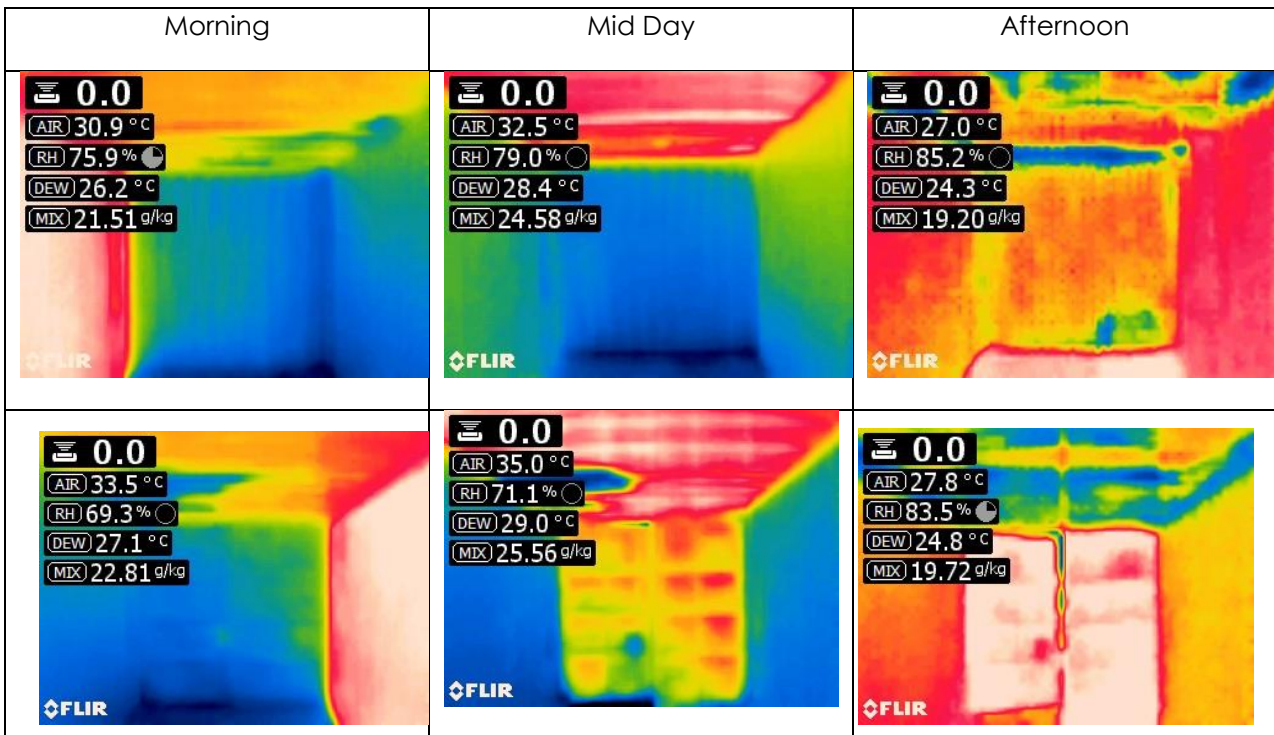
20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 12:00	31	52	47	40	38	40	40%



2016-06-13

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
68%	27°C	80	3,5	16mm

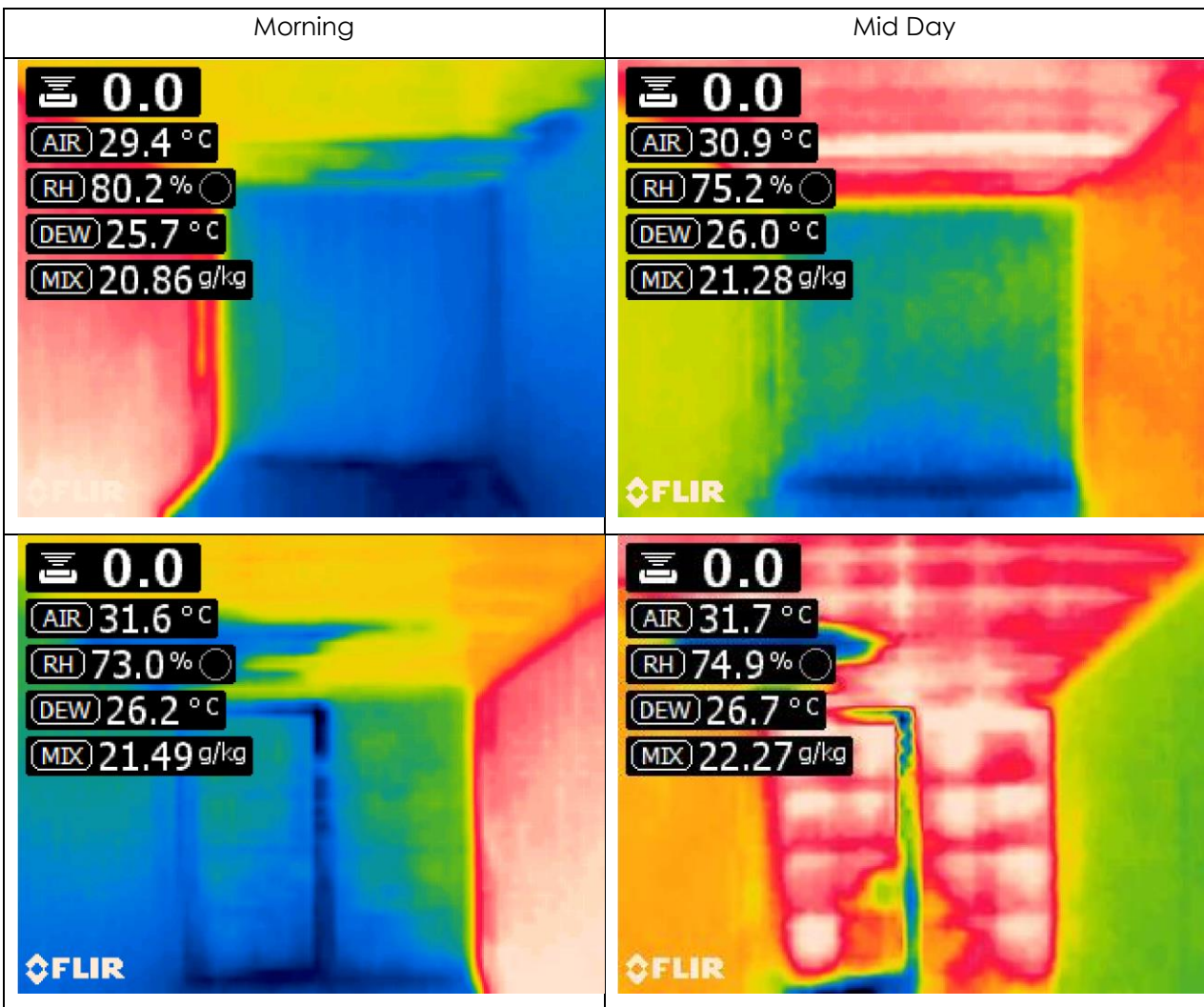
20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	31	52	43	60	42	42	0%
± 12:00	33	58	53	47	44	47	30%
± 16:00	27	30	32	30	30	31	90%



2016-06-14

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
73%	27°C	160	8	0

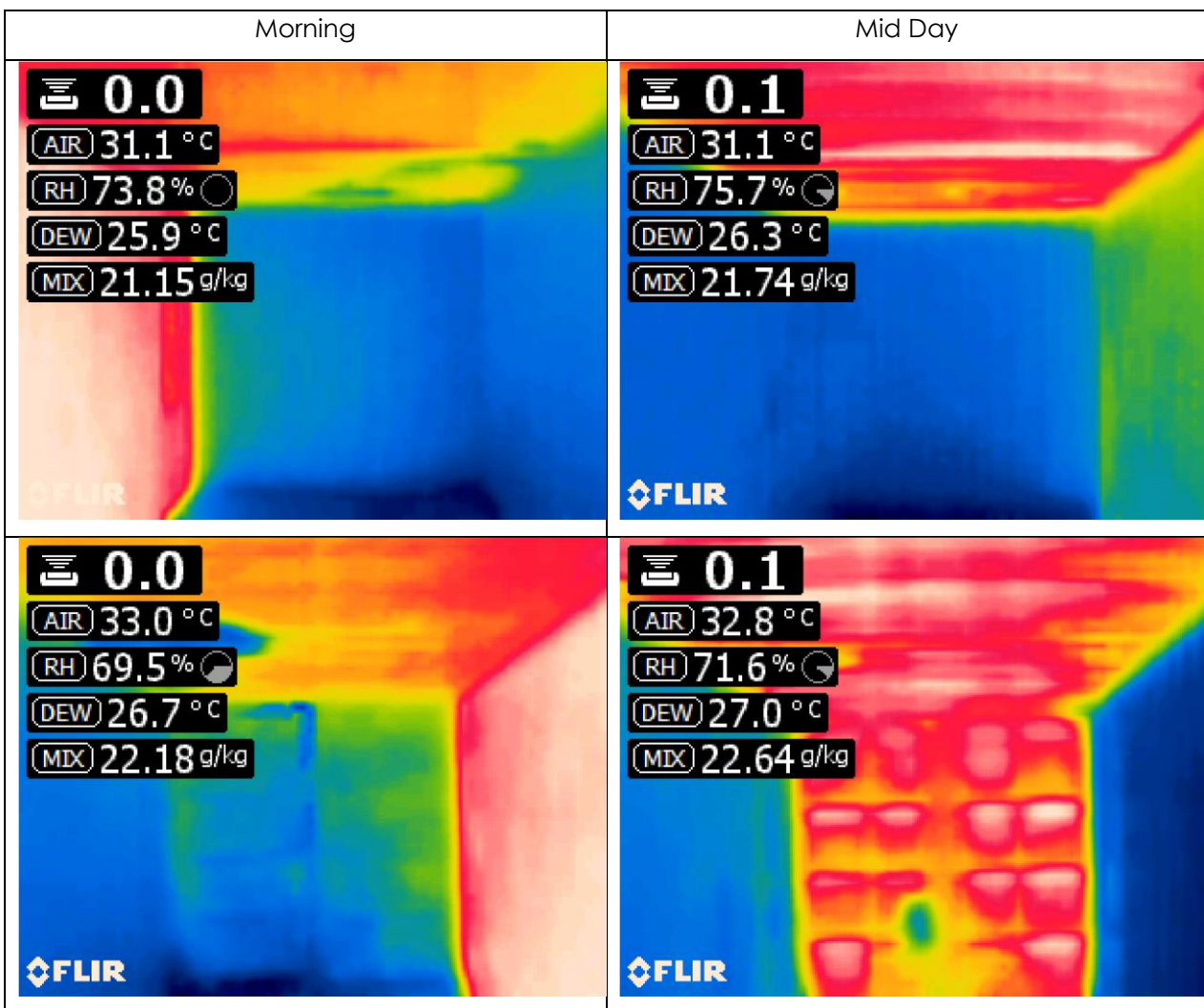
20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	29	43	37	48	36	35	20%
± 12:00	30	40	40	36	35	37	80%



2016-06-15

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
83%	27°C	150	9	5mm

20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	31	50	41	53	40	38	5%
± 12:00	31	60	58	42	40	45	5%

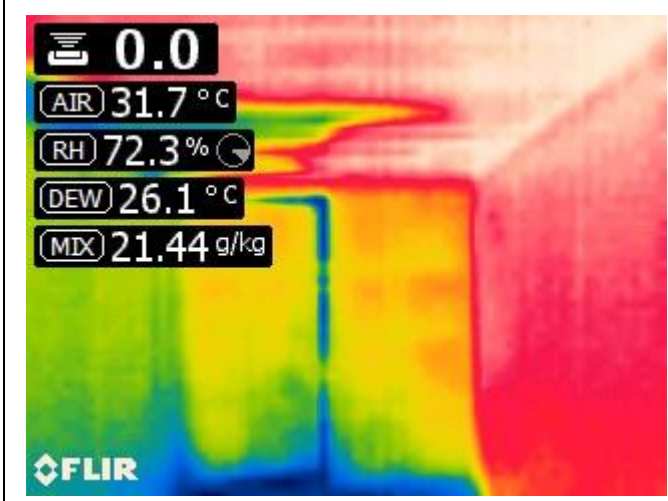
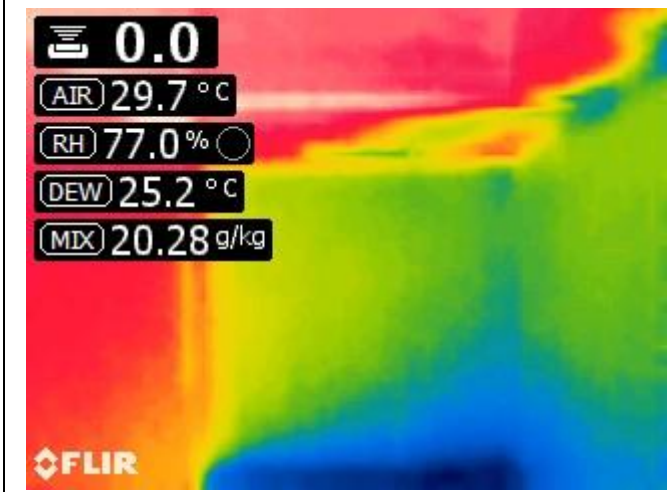


**2016-06-16 – Not Painted**

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
85%	27°C	140	11	7

20' Container Readings – Not Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	29	45	39	42	37	37	100%

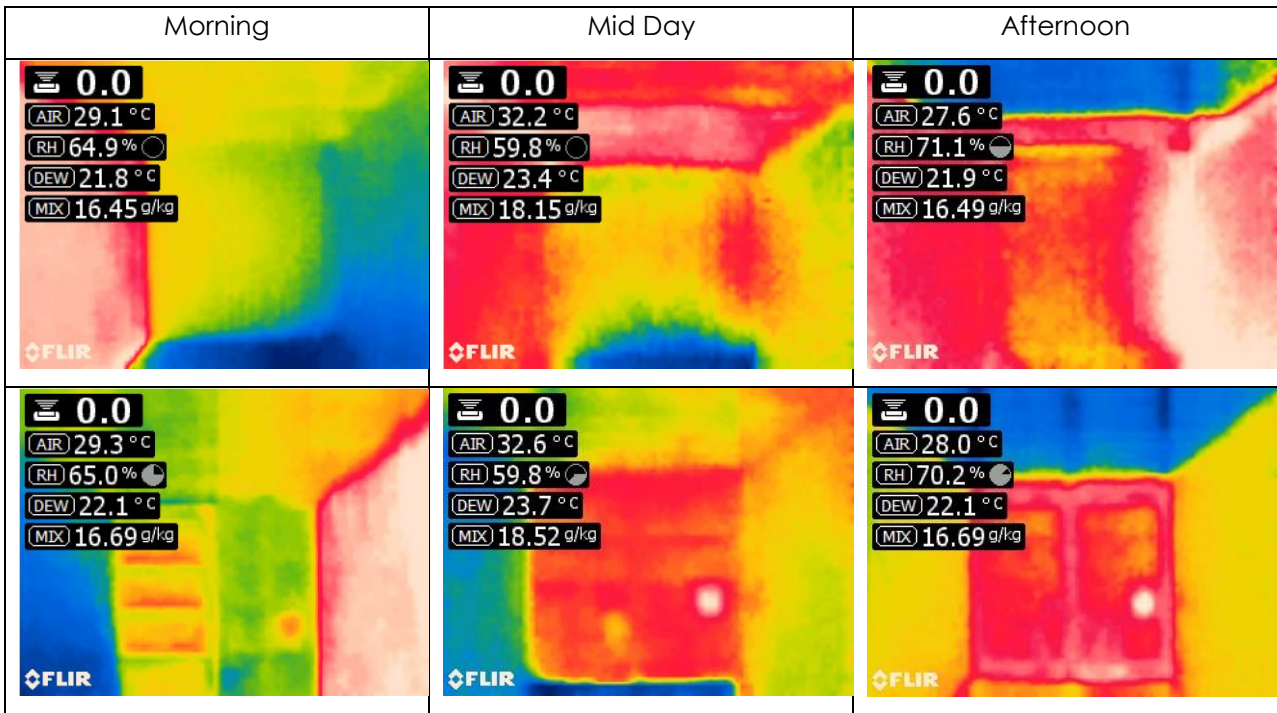
Morning



2016-07-08

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
73%	26°C	110	5,4	0

20' Container Readings – Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	29	35	34	38	34	32	5%
± 12:00	32	36	36	35	34	34	20%
± 16:00	27	28	30	30	30	30	20%

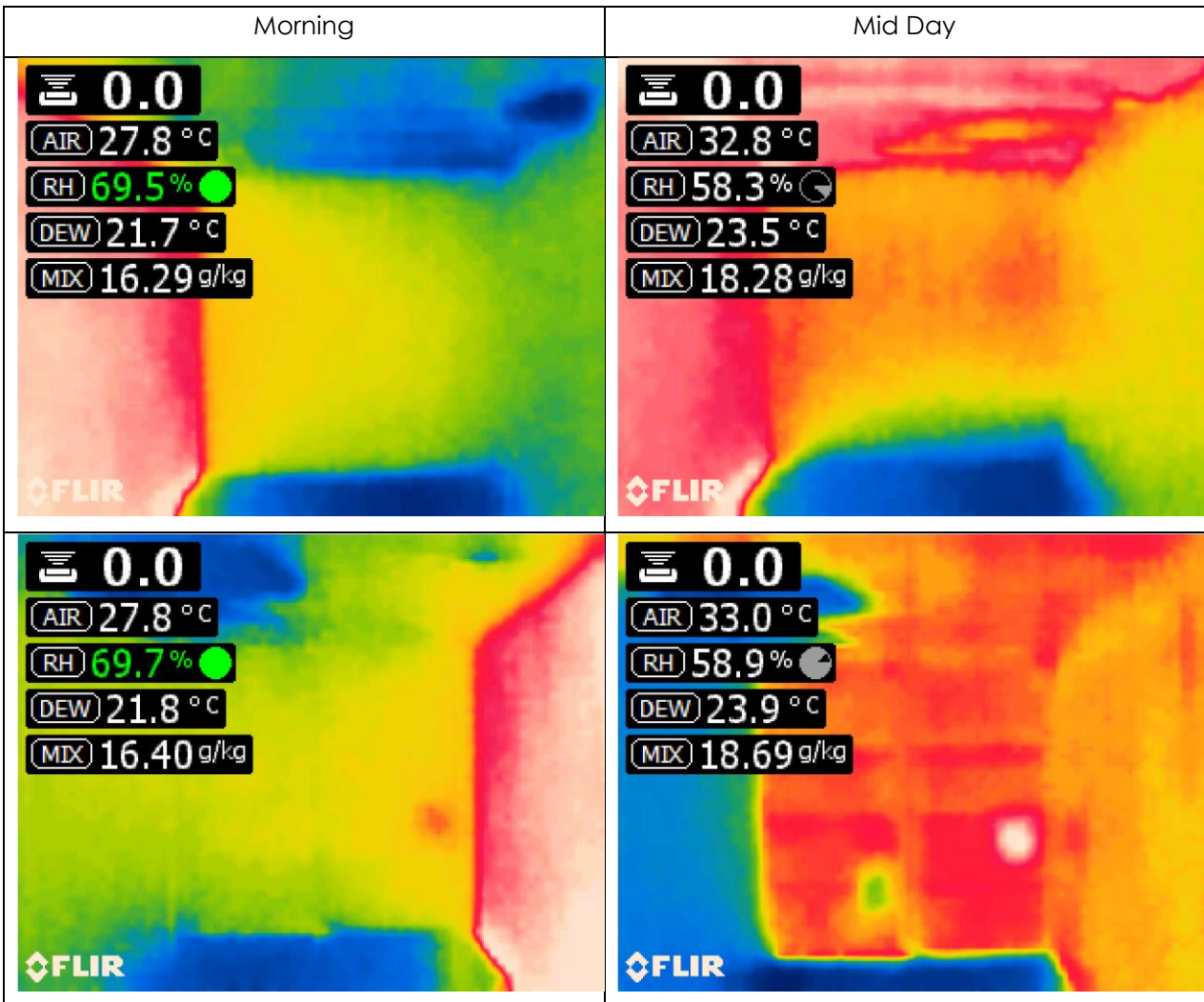




2016-07-11

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
76%	25°C	180	5,5	0

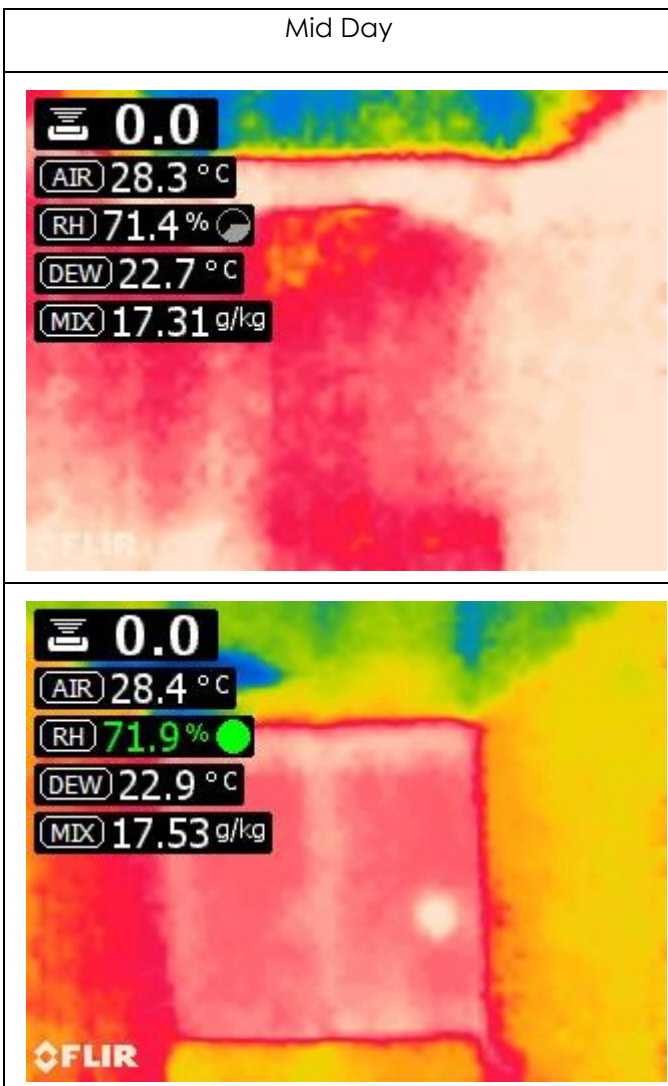
20' Container Readings – Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 9:00	27	29	28	32	29	28	5%
± 13:00	32	37	37	36	34	34	0%



2016-07-12

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
56%	26°C	140	7	0

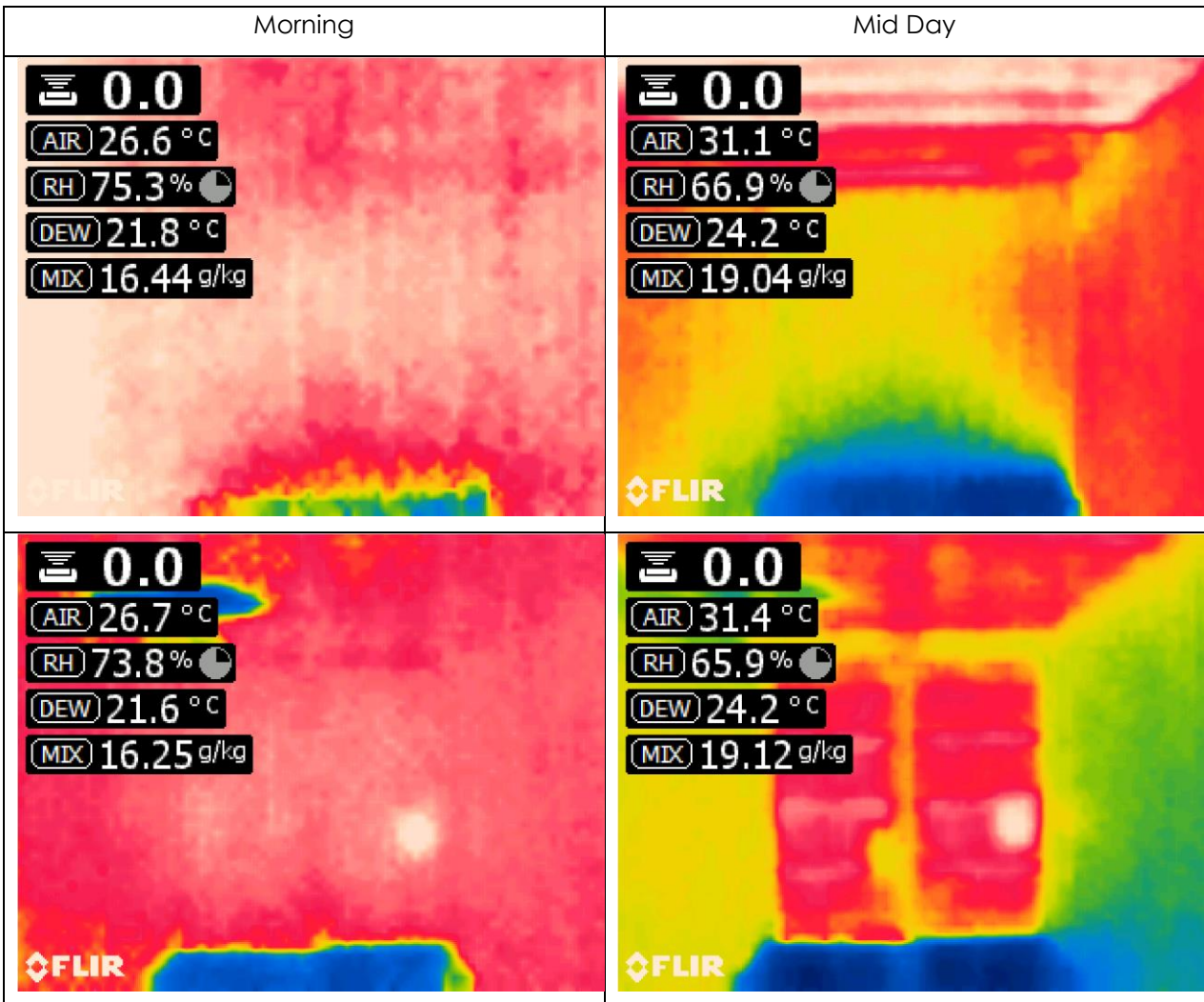
20' Container Readings – Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 13:00	28	29	29	29	29	29	80%



2016-07-13

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
72%	26°C	150	7	0

20' Container Readings – Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 8:30	26	28	28	28	28	28	100%
± 14:00	31	38	38	35	35	36	0%



**2016-07-14 – Painted**

Weather Conditions:				
Cloud %	Day Temp	Wind Dir	Wind Speed	Rain
72%	26°C	160	7	4

20' Container Readings – Painted							
Time	Ambient	Roof	N - Door	E - Side	S - Back	W - Side	Cloud %
± 14:00	30	36	38	34	34	46	0%

Mid Day

