Responsible Ice<sup>TM</sup>/ LifeTime Cooler 28 QT Tests April 30 – May 5, 2020 Lake Havasu City, Arizona

Test # 1Test conducted in a warm room over 9 hours. One Ice Cold Ri and roomtemperature water were placed inside a room temperature cooler at approx. 1320 hrs. Thecooler was opened at approx. 7.5 hrs. into test and re-closed. Notable Findings: TheResponsible Ice  $^{\text{M}}$ /Lifetime Cooler Combination can adequately reduce and maintain the liquidtemperature of items placed into it (Maintaining a temperature range in the upper 30s).



Hours	Exte	erior Temp Interi	or Air Ir	nterior Water
	1	81.6	75.6	80.4
	1.5	82	59.7	72.9
	2	82.6	51.8	72.3
	2.5	84	48.8	66.6
	3	84.6	49.1	51.8
	3.5	84.6	49.2	39.7
	4.5	86	52.2	36.1
	6	85.5	56.8	36.7
	8	83.7	56.3	38.3

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Test #2 Test Conducted in a warm room over 12 hours. One Ice Cold Ri was placed inside a cooler with room temperature water and several other items such as: Egg, (2) Yogurt, Butter, Cream Cheese, milk, and water (to be probed for temperature). The cooler was opened at about 5 hours into the test and the milk and 1 yogurt were temperature tested. Milk – 39.9°; Yogurt – 42.8°. The remaining items were temperature tested at 12 hour mark and findings follow: Egg – 47.4°; Yogurt – 42°; Butter – 45.5°; Cream Cheese – 46.7°; Bottle Water – 46.2°. Readings were also taken at 14.5 Hours [Ext. Temp- 82.4°; Air- 55.8°; water- 45.9°] and 24 Hours [Ext. Temp- 79.5°; Air- 54°; water- 45.7°]. Note: The 'ice pack' not only cools by convection, but it is able to cool items though radiation, similar to heat radiation. The air can not achieve a low temperature because there is no mass to absorb the 'cold'. Further tests will highlight this. Notable Findings: The Responsible Ice<sup>™</sup> LifeTime Cooler Combination can achieve and maintain the CDC recommended temperature range for storing and transporting human medical samples for many hours in an elevated exterior temperature.



Hours	Ext	erior Temp Interi	or Air Intei	rior Water
	0	79.5	56.8	76.5
	1	79.9	47.8	44.2
	2	80.1	47.1	39.6
	3	80.4	47.1	38.7
	4	81	47.7	37.2
	5	81.7	50.7	37.9
	6	82	51.8	39.2
	7	82	52.3	39.9
	8	82.2	53.1	42.1
	9	82.9	55.2	42.8
	10	83.7	56.1	44.4
	11	83.3	56.3	44.8
	12	82.4	55.8	45.9

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<u>Test #3</u> was conducted outdoors in 100% shade. The Humidity was 18% and the dew point was 36° at the beginning of the test. The cooler was opened at the 7 hour mark and a test yogurt was Temp-probed with a reading of 50°. Notable Findings: The Responsible Ice<sup>TM</sup>/ LifeTime Cooler combination was able to achieve and maintain a temperature atmosphere of less than 50° in a high temperature exterior environment for more than 12 hours. \*A Reading was taken at 27 Hours – [Exterior Temp- 95°; Interior Air Temp – 63.5°; Interior Water Temp – 49.5].



Hours	E	Exterior Temp	Interior Temp	Interior Water
	0	81.9	58.8	44.4
	0.5	85.6	48.9	40.8
	1	87.6	48.6	36.3
	2	90.5	49.6	35.4
	2.5	92.3	51.3	35.6
	3	93.9	53.2	36.5
	4	97.9	58.3	40.3
	5.5	99.7	63.1	43.9
	6.5	101.8	64.4	45.7
	6.5	101.1	65.3	46.8
	7	101.5	66.9	47.3
	8.5	101.7	67.8	48.6
	9	100.9	67.6	48.7
	10	100.4	67.3	49.1
	11	99	67.1	49.8
	12	96.8	66.4	50
	14	90.7	63.3	48.9

## Responsible Ice<sup>™</sup>/ LifeTime Cooler 28 QT Tests April 30 – May 5, 2020 Lake Havasu City, Arizona

<u>Test #4</u> Test was conducted outdoors in 100% shade. (2) Ice Cold Ri's were placed into a room temperature cooler with room temperature water in a glass in it. A yogurt for temperature testing was also placed inside. The test was conducted over 12 hours. The Cooler was opened at 7 hours to temperature probe the yogurt, which read 37.4°. Notable Findings: The Responsible Ice<sup>TM</sup>/ LifeTime Cooler combination can achieve and maintain an atmosphere just above freezing for extended period of time, in high ambient heat.



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<u>Test #5</u> Test was conducted outdoors in 100% shade. (2) Ice Cold Ri's were placed in a room temperature cooler with room temperature glass of water in it. The Ri's were placed in it so as to create a 'cavity' for frozen items. A refrigerated stick of butter was placed in that cavity. Notable Findings: The Responsible Ice<sup>TM</sup>/ LifeTime Cooler again can achieve and maintain a near-freezing environment in elevated ambient temperatures for more than 10 hours. Also of note- the temperature recovery rate after the cooler is opened/closed is excellent, compared to that of other coolers tested.



Hours	Ex	terior Temp Inter	ior Air Freez	Freezer CavityInterior Water		
	0	88.1	64	18	43.5	
	1	88.7	44	21.4	37.4	
	2	93.4	25.3	23.7	36.9	
	3	94.8	26.4	25.7	37	
	3.5	99.8	29.8	30.2	37.9	
	4	100.2	33.3	33.6	39.4	
	4.5	101.4	35.1	35.2	41	
	5	102.7	37.2	36.7	43.2	
	6	103.8	37.9	37.6	44.2	
	7	106.7	37.8	37.8	45.1	
	8	107.6	38.3	38.1	45.9	
	9	106	38.3	38.3	46.8	