



Food Service Technology Center Appliance Test Summary Report

The information in this report is based on data generated at the PG&E Food Service Technology Center.
California consumers are not obligated to purchase any full service or other service not funded by the program.
This program is funded by the California utility rate payers under the auspices of the California Public Utilities Commission.

Manufacturer	Intek
Model	XSG-5
Appliance	Single Compartment 5 Pan Steamer - Gas

Report Number	5012.08.50 Rev.1
Test Date	November, 2008
Tested By	A.Spitz

Purpose of Testing

This testing determined the energy input rate, preheat time and energy, idle energy rate, uniformity and heavy/light-load cooking-energy efficiency of the steamer by applying ASTM F1484-05.

Energy Input Rate

Rated Energy Input Rate (Btu/h)	65,000
Measured Energy Input Rate (Btu/h)	64,690
Difference (%)	0.5
Electric Energy Rate (kW)	.04

Preheat to 210°F

Duration (min)	10.28
Energy Consumption (Btu)	7,112
Electric Energy Rate (kW)	.034

Idle at 212°F

Idle Energy Rate (Btu/h)	7027
Electric Energy Rate (kW)	.016



Red Potato Cooking Energy Efficiency and Production Capacity Test Results

Load ^a	Heavy Load	Light Load
Number of Pans	5	1
Cook Time (min)	24.92	18.94
Electric Energy to Steamer (kWh)	.03	.02
Gas Energy to Steamer (Btu)	9,084	3,460
Total Energy Consumed (Btu)	9,172	3,522
Energy to Food (Btu/lb)	230	443
Cooking Energy Rate (Btu/h)	22,100	11,160
Cooking Energy Efficiency (%)	49.1 ± 0.3	23.7 ± 0.9
Production Capacity (lb/h)	95.8 ± 3.2	25.2 ± 0.6
Water Consumption Rate (gal)	< 3	< 3

^a Each Load is based on a minimum average of three test replicates.

Intek Manufacturing LLC

4031 Merchant Road
Fort Wayne, IN 46818
877-482-7150

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Frozen Green Pea Cooking Energy Efficiency and Production Capacity Test Results

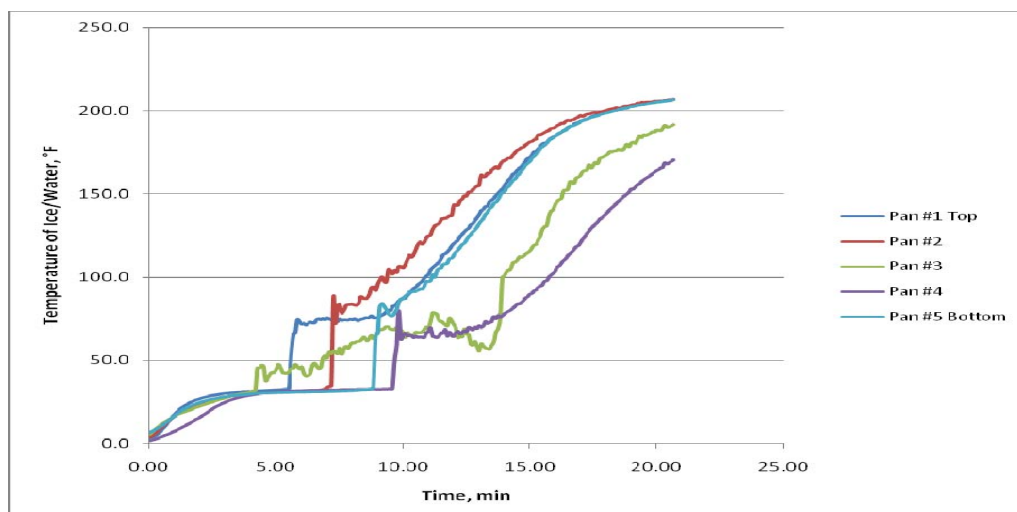
Load ^a	Heavy Load	Light Load
Number of Pans	5	1
Cook Time (min)	16.28	10.78
Electric Energy to Steamer (kWh)	.02	.01
Gas Energy to Steamer (Btu)	13,819	3,833
Total Energy Consumed (Btu)	13,888	3,874
Energy to Food (Btu/lb)	257.7	259.3
Cooking Energy Rate (Btu/h)	51,455	21,595
Cooking Energy Efficiency (%)	76.2 ± 0.9	55 ± 0.5
Production Capacity (lb/h)	147.5 ± 2.3	44.6 ± 1.7
Water Consumption Rate (gal)	< 3	< 3

^a Each Load is based on a minimum average of three test replicates.

Ice Load Uniformity Test Results

Load ^a	Heavy Load
Number of Pans	5
Cook Time (min)	16.97
Electric Energy to Steamer (kWh)	.021
Gas Energy to Steamer (Btu)	17,567
Total Energy Consumed (Btu)	17,640
Average Initial Ice-Load Temperature (°F)	2.87
Average Final Ice Load Temperatures (°F):	
Pan #1 (Top)	185.7
Pan #2	184.9
Pan #3	189.1
Pan #4	179.8
Pan #5 (Bottom)	190.1
Water Consumption Rate (gal)	< 3

^a Each Load is based on a minimum average of three test replicates.



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Heavy-Load Red Potato Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	5	5	5
Cook Time, m	26	24.5	24.25
Temperature of Uncooked Potatoes, °F	72.3	72	72.3
Temperature of Cooked Potatoes, °F	198.2	197	195.8
Weight of Stainless Steel Pans, lbs	12.9	12.9	14.4
Weight of Potatoes, lbs	39.9	39.5	39.8
Total Potato Count	250	252	250
Moisture Content, %	84	84	84
Condensate Temperature, °F	n/a	n/a	n/a
Water Consumption, gal	< 3	< 3	< 3
Calculated Values			
Moisture Weight in Potatoes, lbs	33.5	33.2	33.4
Average Weight of Each Potato, lbs	.16	.16	.16
Energy Consumed by Potatoes, Btu	4,377.6	4,294.2	4,274.1
Energy to Food, Btu/lb	109.6	108.7	107.4
Energy Consumed by Pans, Btu	178.1	176.6	195.9
Energy of Boiler re-init, Btu	n/a	n/a	n/a
Energy Consumed by the Steamer, Btu	9,277.5	9,180.4	9,056.9
Energy to Steamer, Btu/lb of food cook	232.3	232.4	227.6
Cooking Energy Rate, kW	6.28	6.59	6.57
Productivity, lb/h	92.2	96.7	98.5
Energy Efficiency, %	49.1	48.7	49.4

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Light-Load Red Potato Data

	Run #1	Run #2	Run #3	Run #4
Measured Values				
Number of Pans	1	1	1	1
Cook Time, m	18.5	18.75	19.25	19.25
Temperature of Uncooked Potatoes, °F	71.5	71.7	72.1	74.1
Temperature of Cooked Potatoes, °F	191.73	192.45	194.14	193.98
Weight of Stainless Steel Pans, lbs	2.81	2.81	2.815	2.79
Weight of Potatoes, lbs	8	7.945	7.965	7.885
Total Potato Count	50	50	50	50
Moisture Content, %	84	84	84	84
Condensate Temperature, °F	n/a	n/a	n/a	n/a
Water Consumption, gal	< 3	< 3	< 3	< 3
Calculated Values				
Moisture Weight in Potatoes, lbs	6.7	6.7	6.7	6.6
Average Weight of Each Potato, lbs	.16	.159	.159	.158
Energy Consumed by Potatoes, Btu	837.1	834.5	845.7	822.6
Energy to Food, Btu/lb	104.6	105	106.2	104.3
Energy Consumed by Pans, Btu	37.2	37.3	37.8	36.8
Energy of Boiler re-init, Btu	n/a	n/a	n/a	n/a
Energy Consumed by the Steamer, Btu	3,471.1	3,512.5	3,758.2	3,346.2
Energy to Steamer, Btu/lb of food cook	433.9	442.1	471.8	424.4
Cooking Energy Rate, kW	3.3	3.29	3.43	3.06
Productivity, lb/h	26.0	25.4	24.8	24.6
Energy Efficiency, %	24.1	23.8	22.5	24.6

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Heavy-Load Frozen Green Peas Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	5	5	5
Cook Time, m	16	16.33	16.50
Initial Water Temperature, °F	73.10	72.70	74.70
Final Water Temperature, °F	116.5	115.08	118.64
Frozen Food Temperature, °F	2.1	3	2.3
Weight of Empty Calorimeter, lbs	42.05	42.06	42.03
Weight of Full Calorimeter, lbs	133.94	133.16	133.88
Weight of Calorimeter Water, lbs	50	50	50
Weight of Cooked Food, lbs	41.89	41.10	41.85
Weight of Frozen Food, lbs	40	40	40
Weight of Stainless Steel Pans, lbs	14.64	13.25	13.62
Moisture Content	81	81	81
Condensation Temperature	n/a	n/a	n/a
Water Consumption, gal	< 3	< 3	< 3
Calculated Values			
Moisture Weight in Green Peas, lbs	32.4	32.4	32.4
Final Food Temp, °F	178.17	176.45	181.14
Cooking Energy, kWh	13.87	13.86	13.93
Energy Consumed by Green Peas, Btu	10,335.19	10,162.83	10,431.06
Energy to Food, Btu/lb	258.38	254.07	260.78
Energy Consumed by Pans, Btu	283.45	252.70	267.83
Energy of Boiler re-init, Btu	n/a	n/a	n/a
Energy Consumed by the Steamer, Btu	13,869.14	13,864.38	13,929.43
Energy to Steamer, Btu/lb of food cook	346.73	346.61	348.24
Cooking Energy Rate, kW	4.06	4.06	4.08
Productivity, lb/h	150.0	147.0	145.5
Energy Efficiency, %	76.6	75.1	76.8

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Light-Load Frozen Green Peas Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	1	1	1
Cook Time, m	10.5	10.58	11.25
Initial Water Temperature, °F	77.35	78.50	78.25
Final Water Temperature, °F	119.65	121.0	119.30
Frozen Food Temperature, °F	0.0	2.3	-1.0
Weight of Empty Calorimeter, lbs	42.05	42.12	42.07
Weight of Full Calorimeter, lbs	60.36	60.34	60.32
Weight of Calorimeter Water, lbs	10	10	10
Weight of Cooked Food, lbs	8.31	8.22	8.25
Weight of Frozen Food, lbs	8	8	8
Weight of Stainless Steel Pans, lbs	2.81	2.62	2.79
Moisture Content	81	81	81
Condensation Temperature	n/a	n/a	n/a
Water Consumption, gal	< 3	< 3	< 3
Calculated Values			
Moisture Weight in Green Peas, lbs	6.48	6.48	6.48
Final Food Temp, °F	180.25	182.55	178.54
Cooking Energy, kWh	3.9	3.9	3.82
Energy Consumed by Green Peas, Btu	2,080.59	2,077.19	2,064.77
Energy to Food, Btu/lb	260.07	259.65	258.10
Energy Consumed by Pans, Btu	55.71	51.95	55
Energy of Boiler re-init, Btu	n/a	n/a	n/a
Energy Consumed by the Steamer, Btu	3,901.2	3,899.12	3,821.35
Energy to Steamer, Btu/lb of food cook	487.65	487.39	477.67
Cooking Energy Rate, kW	1.14	1.14	1.12
Productivity, lb/h	45.7	45.4	42.7
Energy Efficiency, %	54.8	54.6	55.5

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