



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	X4208-14-3
Appliance	Single Compartment 4 Pan Steamer - Electric

Report Number	5012.08.56
Test Date	April, 2007
Tested By	C. Wallace

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 (kW)	14.6
Measured Energy Input Rate (kW)	14.4
Difference (%)	1.2

Preheat to 210°F

Duration (min)	12.8
Energy Consumption (kWh)	1.90

Idle

Average Cavity Temperature (°F)	210
Idle Energy Rate (kW)	0.30

Red Potato Cooking Energy Efficiency and Production Capacity Test Results

Load ^a	Heavy Load	Light Load
Number of Pans	4	1
Cook Time (min)	20.5	20.1
Total Energy Consumed (kWh)	1.84	0.81
Energy to Food (Btu/lb)	107	107
Energy to Steamer (Btu/lb)	196	344
Cooking Energy Rate (kW)	5.37	2.41
Cooking Energy Efficiency (%)	57.0 ± 4.6	32.4 ± 2.6
Production Capacity (lb/h)	93.6 ± 2.1	24.0
Water Consumption Rate (gph)	< 3	< 3

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



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Frozen Green Pea Cooking Energy Efficiency and Production Capacity Test Results

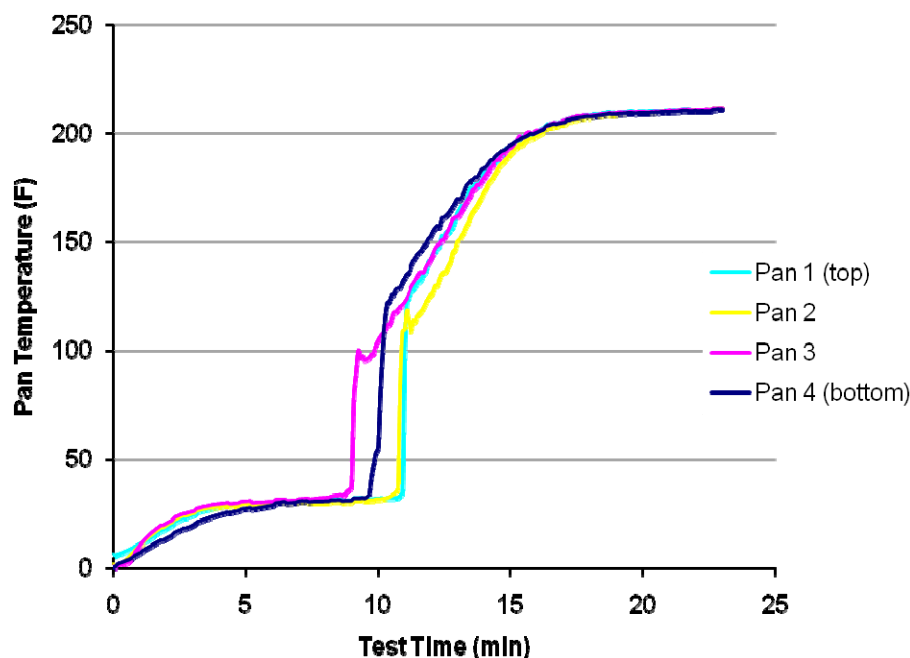
Load ^a	Heavy Load	Light Load
Number of Pans	4	1
Cook Time (min)	12.8	10.5
Total Energy Consumed (kWh)	2.69	0.82
Energy to Food (Btu/lb)	262	258
Energy to Steamer (Btu/lb)	286	348
Cooking Energy Rate (kW)	12.60	4.64
Cooking Energy Efficiency (%)	93.8 ± 1.7	76.3 ± 0.4
Production Capacity (lb/h)	150.2 ± 5.9	45.5
Water Consumption Rate (gph)	< 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	4
Cook Time (min)	13.3
Average Initial Ice-Load Temperature (°F)	0.4
Average Final Ice Load Temperatures (°F):	178.7
Pan #1 (Top)	175
Pan #2	176
Pan #3	177
Pan #4 (Bottom)	188

^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	Run #4
Measured Values				
Number of Pans	4	4	4	4
Cook Time (min)	20.3	20.6	20.9	20.3
Electric Energy Consumed (kWh)	1.96	1.74	1.86	1.78
Temperature of Uncooked Potatoes (°F)	71.7	73.1	73.3	72.6
Temperature of Cooked Potatoes (°F)	195	195.5	195.5	195.1
Weight of Stainless Steel Pans (lbs)	10.820	11.810	10.820	10.820
Weight of Potatoes (lbs)	32.04	32.017	32.017	32.007
Total Potato Count	200	200	200	200
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)	26.914	26.894	26.894	26.886
Average Weight of Each Potato (lbs)	0.160	0.160	0.160	0.160
Energy Consumed by Potatoes (Btu)	3,437	3,409	3,404	3,411
Energy to Food (Btu/lb)	107	106	106	107
Energy Consumed by Pans (Btu)	147	159	145	146
Energy of Boiler re-init (Btu)	n/a	n/a	n/a	n/a
Energy Consumed by the Steamer (Btu)	6,689	5,939	6,348	6,075
Energy to Steamer (Btu/lb of food cooked)	209	185	198	190
Cooking Energy Rate (kW)	5.79	5.07	5.34	5.26
Production Capacity (lb/h)	94.7	93.3	91.9	94.6
Energy Efficiency (%)	53.6	60.1	55.9	58.5

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Light-Load Red Potato Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	1	1	1
Cook Time (min)	19.5	20.25	20.42
Electric Energy Consumed (kWh)	0.82	0.82	0.78
Temperature of Uncooked Potatoes (°F)	72.6	72.9	71.7
Temperature of Cooked Potatoes (°F)	195	195.1	195
Weight of Stainless Steel Pans (lbs)	2.780	2.780	2.780
Weight of Potatoes (lbs)	8.016	8.016	7.998
Total Potato Count	50	50	50
Moisture Content (%)	84	84	84
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	< 3		
Calculated Values			
Moisture Weight in Potatoes (lbs)	6.733	6.733	6.718
Average Weight of Each Potato (lbs)	0.200	0.200	0.200
Energy Consumed by Potatoes (Btu)	854	852	858
Energy to Food (Btu/lb)	106	106	107
Energy Consumed by Pans (Btu)	37	37	38
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy Consumed by the Steamer (Btu)	2,799	2,799	2,662
Energy to Steamer (Btu/lb of food cooked)	349	349	333
Cooking Energy Rate (kW)	2.52	2.43	2.29
Production Rate (lb/h)	24.7	23.8	23.5
Energy Efficiency (%)	31.8	31.8	33.6

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Heavy-Load Frozen Green Peas Data

	Run #1	Run #2	Run #3	Run #4
Measured Values				
Number of Pans	4	4	4	4
Cook Time (min)	13.25	12.75	12.5	12.67
Electric Energy Consumed (kWh)	2.72	2.66	2.7	2.66
Initial Water Temperature (°F)	60.2	65.2	60	62.3
Final Water Temperature (°F)	113.5	113.1	108.3	110.3
Frozen Food Temperature (°F)	1.3	2.1	-2.1	0.1
Weight of Empty Calorimeter (lbs)	5.96	5.96	5.96	5.96
Weight of Full Calorimeter (lbs)	79.36	79.24	79.56	79.25
Weight of Calorimeter Water (lbs)	40	40	40	40
Weight of Cooked Food (lbs)	33.4	33.28	33.6	33.29
Weight of Frozen Food (lbs)	32	32	32	32
Weight of Stainless Steel Pans (lbs)	10.820	10.820	10.820	10.820
Moisture Content (%)	81	81	81	81
Condensation Temperature (°F)	n/a	n/a	n/a	n/a
Water Consumption (gal)	< 3	< 3	< 3	< 3
Calculated Values				
Moisture Weight in Green Peas (lbs)	25.92	25.92	25.92	25.92
Final Food Temp (°F)	189.5	181.6	176.8	179.0
Energy Consumed by Green Peas (Btu)	8,583	8,337	8,298	8,291
Energy to Food (Btu/lb)	262	255	253	254
Energy Consumed by Pans (Btu)	224	214	213	213
Energy of Boiler re-init (Btu)	n/a	n/a	n/a	n/a
Energy Consumed by the Steamer (Btu)	9,283	9,079	9,215	9,079
Energy to Steamer (Btu/lb of food cooked)	290	284	288	284
Cooking Energy Rate (kW)	12.32	12.52	12.96	12.60
Productivity (lb/h)	144.9	150.6	153.6	151.5
Energy Efficiency (%)	94.9	94.2	92.4	93.7

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Light-Load Frozen Green Peas Data

	Run #1	Run #2	Run #3	Run #4
Measured Values				
Number of Pans	1	1	1	1
Cook Time (min)	10.5	10.67	10.5	10.5
Electric Energy Consumed (kWh)	0.82	0.80	0.82	0.82
Initial Water Temperature (°F)	59.9	62.2	63.3	64.2
Final Water Temperature (°F)	109.4	107.5	111.8	112.8
Frozen Food Temperature (°F)	0.0	1.7	0.1	2.8
Weight of Empty Calorimeter (lbs)	5.95	5.95	5.95	5.95
Weight of Full Calorimeter (lbs)	24.223	24.29	24.233	24.191
Weight of Calorimeter Water (lbs)	10	10	10	10
Weight of Cooked Food (lbs)	8.273	8.340	8.283	8.241
Weight of Frozen Food (lbs)	8.000	8.000	8.000	8.000
Weight of Stainless Steel Pans (lbs)	2.780	2.780	2.780	2.780
Moisture Content (%)	81	81	81	81
Condensation Temperature (°F)	n/a	n/a	n/a	n/a
Water Consumption (gal)	< 3	< 3	< 3	< 3
Calculated Values				
Moisture Weight in Green Peas (lbs)	6.48	6.48	6.48	6.48
Final Food Temp (°F)	180.6	172.2	181.5	183.0
Energy Consumed by Green Peas (Btu)	2,079	2,022	2,086	2,081
Energy to Food (Btu/lb)	256	248	256	256
Energy Consumed by Pans (Btu)	55	52	55	55
Energy of Boiler re-init (Btu)	n/a	n/a	n/a	n/a
Energy Consumed by the Steamer (Btu)	2,799	2,730	2,799	2,799
Energy to Steamer (Btu/lb of food cooked)	350	341	350	350
Cooking Energy Rate (kW)	4.69	4.50	4.69	4.69
Production Rate (lb/h)	45.7	45.0	45.7	45.7
Energy Efficiency (%)	76.2	76.0	76.5	76.3

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