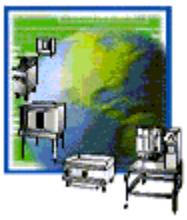

Food Service Technology Center
Appliance Test Summary Report

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	Market Forge
Model	ETP-10E
Appliance	Dual-Compartment 10-Pan Steamer - Electric

Report Number	5012.08.19—2nd Edition
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 and heavy/light-load cooking-energy efficiency of the steamer by applying ASTM F1484-05.

Energy Input Rate

Rated Energy Input Rate (kW)	20.0
Measured Energy Input Rate (kW)	20.3
Difference (%)	1.5

Preheat to 210°F

Duration (min)	13.2
Energy Consumption (kWh)	1.83

Idle

Average Cavity Temperature (ºF)	168
Idle Energy Rate (kW)	0.43

Red Potato Cooking-Energy Efficiency and Production Capacity

Load [a]	Heavy Load	Light Load
Number of Pans	10	2
Cook Time (min)	30.5	40.9
Total Energy Consumed (kWh)	3.084	1,539
Energy to Food (Btu/lb)	104	104
Energy to Steamer (Btu/lb)	162	328
Cooking Energy Rate (kW)	7.5	2.3
Cooking Energy Efficiency (%)	66.5 ± 3.8	33.1 ± 1.4
Production Capacity (lb/h)	159.0 ± 14.3	23.4 ± 2.3
Water Consumption Rate (gph)	5.90	4.40

[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

Load [a]	Heavy Load	Light Load
Number of Pans	10	2
Cook Time (min)	25.0	20.4
Total Energy Consumed (kWh)	7.22	1.58
Energy to Food (Btu/lb)	261	256
Energy to Steamer (Btu/lb)	308	337
Cooking Energy Rate (kW)	17.32	4.70
Cooking Energy Efficiency (%)	86.9 ± 3.1	78.1 ± 4.0
Production Capacity (lb/h)	192.0 ± 17.7	47.5 ± 8.8
Water Consumption Rate (gph)	10.00	3.43

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

Heavy-Load Red Potato Test Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	10	10	10
Cook Time (min)	32.9	30.0	28.6
Electric Energy Consumed (kWh)	3.948	3.65	3.813
Temperature of Uncooked Potatoes (°F)	76.9	75.2	75.3
Temperature of Cooked Potatoes (°F)	195.0	195.5	195.0
Weight of Stainless Steel Pans (lbs)	28.100	28.100	28.100
Weight of Potatoes (lbs)	80.000	80.100	80.000
Total Potato Count	500	500	500
Moisture Content (%)	84	84	84
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	3.2	3	3.1
Calculated Values			
Moisture Weight in Potatoes (lbs)	67.200	67.200	67.200
Average Weight of Each Potato (lbs)	0.160	0.160	0.160
Energy Consumed by Potatoes (Btu)	8,226	8,379	8,334
Energy Consumed by Pans (Btu)	365	372	370
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy to Food (Btu/lb)	103	105	104
Energy Consumed by the Steamer (Btu)	13,404	12,484	13,000
Energy to Steamer (Btu/lb)	168	156	163
Cooking Energy Rate (kW)	7.2	7.3	8.0
Production Capacity (lb/h)	146	160	168
Energy Efficiency (%)	64.1	70.1	67.0

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Light-Load Red Potato Test Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	2	2	2
Cook Time (min)	42.8	40.6	39.7
Electric Energy Consumed (kWh)	1.529	1.559	1.529
Temperature of Uncooked Potatoes (°F)	77.0	75.8	74.4
Temperature of Cooked Potatoes (°F)	195.4	195.1	195.1
Weight of Stainless Steel Pans (lbs)	5.634	5.634	5.634
Weight of Potatoes (lbs)	16.000	16.016	16.010
Total Potato Count	100	100	100
Moisture Content (%)	84	84	84
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	3.2	3	3.1
Calculated Values			
Moisture Weight in Potatoes (lbs)	13.440	13.453	13.448
Average Weight of Each Potato (lbs)	0.160	0.160	0.160
Energy Consumed by Potatoes (Btu)	1,648	1,662	1,681
Energy Consumed by Pans (Btu)	73	75	79
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy to Food (Btu/lb)	103	104	105
Energy Consumed by the Steamer (Btu)	5,217	5,319	5,217
Energy to Steamer (Btu/lb)	326	332	326
Cooking Energy Rate (kW)	2.1	2.3	2.3
Production Capacity (lb/h)	22.4	23.7	24.2
Energy Efficiency (%)	33.0	32.7	33.7

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Heavy-Load Frozen Green Peas Test Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	10	10	10
Cook Time (min)	26.1	24.8	24.3
Electric Energy Consumed (kWh)	7.38	7.2	7.08
Initial Water Temperature (°F)	71.2	66.2	63.3
Final Water Temperature (°F)	117.6	113.7	110.5
Frozen Food Temperature (°F)	1.0	0.0	0.0
Weight of Empty Calorimeter (lbs)	42.280	42.120	42.130
Weight of Full Calorimeter (lbs)	133.150	133.850	133.860
Weight of Calorimeter Water (lbs)	50.000	50.000	50.000
Weight of Cooked Food (lbs)	40.870	41.730	41.730
Weight of Frozen Food (lbs)	80.000	80.000	80.000
Weight of Stainless Steel Pans (lbs)	28.24	27.05	27.44
Moisture Content (%)	81	81	81
Condensation Temperature (ºF)	n/a	n/a	n/a
Water Consumption (gal)	4.24	4.16	4.10
Calculated Values			
Moisture Weight in Green Peas (lbs)	64.800	64.800	64.800
Final Food Temperature (°F)	185.3	181.5	177.7
Energy Consumed by Green Peas (Btu)	20,949	20,937	20,674
Energy Consumed by Pans (Btu)	573	540	536
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy to Food (Btu/lb)	262	262	258
Energy Consumed by the Steamer (Btu)	25,188	24,574	24,164
Energy to Steamer (Btu/lb)	315	307	302
Cooking Energy Rate (kW)	16.98	17.45	17.52
Productivity (lb/h)	184.1	193.9	197.9
Energy Efficiency (%)	85.4	87.4	87.8

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Light-Load Frozen Green Peas Test Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	2	2	2
Cook Time (min)	18.5	23.3	19.4
Electric Energy Consumed (kWh)	1.59	1.53	1.62
Initial Water Temperature (°F)	70.9	68.8	69.3
Final Water Temperature (°F)	114.6	112.1	115.6
Frozen Food Temperature (°F)	0.0	0.0	0.0
Weight of Empty Calorimeter (lbs)	42.010	42.020	42.050
Weight of Full Calorimeter (lbs)	78.160	78.350	78.100
Weight of Calorimeter Water (lbs)	20.000	20.000	20.000
Weight of Cooked Food (lbs)	16.150	16.330	16.050
Weight of Frozen Food (lbs)	16.000	16.000.	16.000
Weight of Stainless Steel Pans (lbs)	6.030	6.030	5.220
Moisture Content (%)	81	81	81
Condensation Temperature (ºF)	n/a	n/a	n/a
Water Consumption (gal)	1.13	1.24	1.13
Calculated Values			
Moisture Weight in Green Peas (lbs)	12.960	12.960	12.960
Final Food Temperature (°F)	178.9	175.2	184.2
Energy Consumed by Green Peas (Btu)	4,085	4,056	4,144
Energy Consumed by Pans (Btu)	119	116	106
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy to Food (Btu/lb)	255	254	259
Energy Consumed by the Steamer (Btu)	5,427	5,222	5,529
Energy to Steamer (Btu/lb)	339	326	346
Cooking Energy Rate (kW)	5.16	3.95	5.01
Production Rate (lb/h)	51.9	41.3	49.4
Energy Efficiency (%)	77.5	79.9	76.9

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