



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	American Cook Systems
Model / Serial Number	SG-6 / G1099
Appliance	Single Compartment 6-pan Steamer – Gas
Cavity Size (WxDxH)	14" x 21.5" x 23.5"

Report Number	501311050
Test Date	August, 2011
Tested By	M. Karsz

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 Gas Energy Input Rate (Btu/h)	60,000
Measured Gas Energy Input Rate (Btu/h)	60,930
Difference (%)	1.6

Preheat to 210°F

Duration (min)	12.56
Gas Energy Consumption (Btu)	8,226
Electric Energy Consumption (Wh)	8
Preheat Rate (°F/min)	11.0

Idle

	Hold Mode	Cook Mode
Average Cavity Temperature (°F)	203.7	211.4
Idle Energy Rate (Btu/h)	1,266	17,509
Electric Energy Rate (W)	10	29

Red Potato Cooking-Energy Efficiency and Production Capacity Test Results ^a

	Heavy Load	Light Load
Number of Pans	6	1
Test Time (min)	20.38	20.82
Total Energy Consumption (Btu)	11,628	6,380
Gas Cooking Energy Rate (Btu/h)	34,156	18,292
Energy to Food (Btu/lb)	105	106
Energy to Steamer (Btu/lb)	242	797
Electric Energy Rate (W)	35	30
Cooking-Energy Efficiency (%)	45.4 ± 1.2	13.8 ± 0.1
Production Capacity (lb/h)	141.4 ± 8.9	23.1 ± 1.7
Water Consumption Rate (gal/h)	2.2	2.0

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



**American Cook Systems SG-6
Boilerless Steamer**

Fort Wayne, Indiana 46825

<http://www.americancooksystems.com/>

Manufacturer	American Cook Systems
Model / Serial Number	SG-6 / G1099
Appliance	Single Compartment 6-pan Steamer – Gas

Report Number	501311050
Test Date	August, 2011
Tested By	M. Karsz

Pea Cooking-Energy Efficiency and Production Capacity Test Results ^b

	Heavy Load	Light Load
Number of Pans	6	1
Test Time (min)	19.38	7.00
Total Energy Consumption (Btu)	19,148	4,202
Gas Cooking Energy Rate (Btu/h)	59,174	36,050
Energy to Food (Btu/lb)	256	258
Energy to Steamer (Btu/lb)	399	525
Electric Energy Rate (W)	43	35
Cooking-Energy Efficiency (%)	65.8 ± 5.9	50.3 ± 1.8
Production Capacity (lb/h)	148.7 ± 11.3	68.7 ± 3.0
Water Consumption (gal/h)	3.4	3.4

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

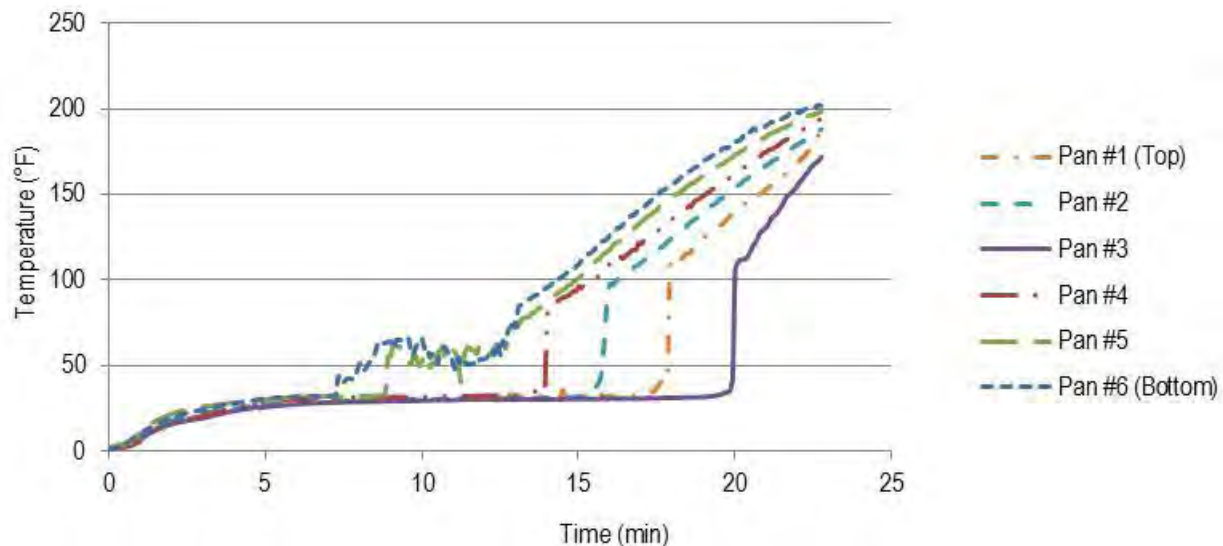
Ice Load Uniformity Test Results ^c

	Heavy Load
Number of Pans	6
Test Time (min)	22.75
Time Delay (min) ^d	3.67
Average Initial Ice Load Temperature (°F)	1.5
Average Final Ice Load Temperature (°F)	189.7
Pan #1 (Top)	185.2
Pan #2	187.9
Pan #3	171.9
Pan #4	193.6
Pan #5	198.2
Pan #6 (Bottom)	201.6

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

^d Time required for ice-load in the final pan to reach 170°F after first pan reaches the endpoint.

Ice Load Uniformity Graph



Manufacturer	American Cook Systems
Model / Serial Number	SG-6 / G1099
Appliance	Single Compartment 6-pan Steamer – Gas

Report Number	501311050
Test Date	August, 2011
Tested By	M. Karsz

Heavy Load Red Potato Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	6	6	6
Total Potato Count	300	300	300
Cook Time (min)	19.92	20.27	20.94
Gas Energy Consumption (Btu)	11,571	11,696	11,515
Electric Energy Consumption (Wh)	11.8	11.8	12.1
Temperature of Uncooked Potatoes (°F)	74.3	73.0	73.2
Temperature of Cooked Potatoes (°F)	195	194	195
Weight of Steam Pans (lb)	16.350	16.365	16.355
Initial Weight of Potatoes (lb)	48.005	48.005	48.000
Final Weight of Potatoes (lb)	48.390	47.720	48.005
Water Consumption (gal)	0.7	0.7	0.8
Calculated Values			
Sensible Energy to Potatoes (Btu)	5,041	5,053	5,086
Total Energy to Food (Btu)	5,041	5,053	5,086
Energy To Food (Btu/lb)	105	105	106
Sensible Energy to Pans (Btu)	217	218	219
Total Energy to Steamer (Btu)	11,605	11,730	11,549
Energy to Steamer (Btu/lb)	242	244	241
Cooking-Energy Efficiency (%)	45.3	44.9	45.9
Gas Cooking Energy Rate (Btu/h)	34,852	34,621	32,994
Electric Cooking Energy Rate (W)	35.4	34.9	34.7
Production Capacity (lb/h)	144.6	142.1	137.5
Water Consumption Rate (gal/hr)	2.1	2.1	2.3

Manufacturer	American Cook Systems
Model / Serial Number	SG-6 / G1099
Appliance	Single Compartment 6-pan Steamer – Gas

Report Number	501311050
Test Date	August, 2011
Tested By	M. Karsz

Light Load Red Potato Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	1	1	1
Total Potato Count	50	50	50
Cook Time (min)	20.17	20.94	21.36
Gas Energy Consumption (Btu)	6,312	6,312	6,413
Electric Energy Consumption (Wh)	10.2	10.4	10.6
Temperature of Uncooked Potatoes (°F)	71.7	72.0	72.0
Temperature of Cooked Potatoes (°F)	193	193	194
Weight of Steam Pans (lb)	2.640	2.625	2.820
Initial Weight of Potatoes (lb)	8.000	8.000	8.000
Final Weight of Potatoes (lb)	7.995	8.010	7.990
Water Consumption (gal)	0.7	0.7	0.7
Calculated Values			
Sensible Energy to Potatoes (Btu)	844	842	849
Total Energy to Food (Btu)	844	842	849
Energy To Food (Btu/lb)	106	105	106
Sensible Energy to Pans (Btu)	35	35	38
Total Energy to Steamer (Btu)	6,346	6,346	6,447
Energy to Steamer (Btu/lb)	793	793	806
Cooking-Energy Efficiency (%)	13.9	13.8	13.8
Gas Cooking Energy Rate (Btu/h)	18,776	18,086	18,014
Electric Cooking Energy Rate (W)	30.4	29.9	29.8
Production Capacity (lb/h)	23.8	22.9	22.5
Water Consumption Rate (gal/hr)	2.1	2.0	2.0

Manufacturer	American Cook Systems
Model / Serial Number	SG-6 / G1099
Appliance	Single Compartment 6-pan Steamer – Gas

Report Number	501311050
Test Date	August, 2011
Tested By	M. Karsz

Heavy-Load Green Pea Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	6	6	6
Cook Time (min)	19.79	19.62	18.72
Gas Energy Consumption (Btu)	19,953	19,082	18,306
Electric Energy Consumption (Wh)	14.6	14.1	13.4
Initial Temperature of Water Bath (°F)	70.8	70.3	72.4
Final Temperature of Water Bath (°F)	116.2	116.6	115.3
Initial Green Pea Temperature (°F)	0.0	0.0	0.0
Final Green Pea Temperature (°F)	182	184	177
Weight of Empty Calorimeter (lb)	42.330	42.480	42.480
Initial Weight of Water Bath (lb)	60.000	60.010	60.000
Initial Weight of Green Peas (lb)	47.955	47.995	48.020
Weight of Steam Pans (lb)	15.650	15.735	15.740
Moisture Content of Green Peas (%)	81.0	81.0	81.0
Water Consumption (gal)	0.8	1.2	1.3
Calculated Values			
Sensible Energy to Peas (Btu)	6,718	6,804	6,525
Latent Fusion Energy (Btu)	5,593	5,598	5,601
Sensible Energy to Pans (Btu)	313	318	306
Total Energy to Food (Btu)	12,311	12,402	12,126
Energy To Food (Btu/lb)	257	258	253
Total Energy to Steamer (Btu)	19,987	19,116	18,340
Energy to Steamer (Btu/lb)	417	398	382
Cooking-Energy Efficiency (%)	63.2	66.5	67.8
Gas Cooking Energy Rate (Btu/h)	60,494	58,355	58,673
Electric Cooking Energy Rate (W)	44.2	43.1	43.0
Production Capacity (lb/h)	145.4	146.8	153.9
Water Consumption Rate (gal/hr)	2.4	3.7	4.2

Manufacturer	American Cook Systems
Model / Serial Number	SG-6 / G1099
Appliance	Single Compartment 6-pan Steamer – Gas

Report Number	501311050
Test Date	August, 2011
Tested By	M. Karsz

Light-Load Green Pea Data

	Run #1	Run #2	Run #3
Measured Values			
Number of Pans	1	1	1
Cook Time (min)	7.02	7.11	6.86
Gas Energy Consumption (Btu)	4,174	4,174	4,259
Electric Energy Consumption (Wh)	4.1	4.2	4.1
Initial Temperature of Water Bath (°F)	72.2	73.6	75.5
Final Temperature of Water Bath (°F)	116.9	118.3	118.8
Initial Green Pea Temperature (°F)	0.0	0.0	0.0
Final Green Pea Temperature (°F)	182	184	183
Weight of Empty Calorimeter (lb)	42.330	42.330	42.330
Initial Weight of Water Bath (lb)	10.000	10.000	10.000
Initial Weight of Green Peas (lb)	8.000	8.005	8.000
Weight of Steam Pans (lb)	2.645	2.815	2.400
Moisture Content of Green Peas (%)	81.0	81.0	81.0
Water Consumption (gal)	0.4	0.4	0.4
Calculated Values			
Sensible Energy to Peas (Btu)	1,121	1,135	1,127
Latent Fusion Energy (Btu)	933	934	933
Sensible Energy to Pans (Btu)	53	57	48
Total Energy to Food (Btu)	2,054	2,069	2,060
Energy To Food (Btu/lb)	257	258	258
Total Energy to Steamer (Btu)	4,174	4,174	4,259
Energy to Steamer (Btu/lb)	522	521	532
Cooking-Energy Efficiency (%)	50.5	50.9	49.5
Gas Cooking Energy Rate (Btu/h)	35,675	35,224	37,251
Electric Cooking Energy Rate (W)	35.0	35.2	35.9
Production Capacity (lb/h)	68.4	67.6	70.0
Water Consumption Rate (gal/hr)	3.4	3.4	3.5

Legal Notice

This report was prepared as a result of work sponsored by the California Public Utilities Commission (Commission). It does not necessarily represent the views of the Commission, its employees, or the State of California. The Commission, the State of California, its employees, contractors, and subcontractors make no warranty, express or implied, and assume no legal liability for the information in this report; nor does any party represent that the use of this information will not infringe upon privately owned rights. This report has not been approved or disapproved by the Commission nor has the Commission passed upon the accuracy or adequacy of the information in this report.

Disclaimer

Neither Fisher-Nickel, inc. nor the Food Service Technology Center nor any of its employees makes any warranty, expressed or implied, or assumes any legal liability of responsibility for the accuracy, completeness, or usefulness of any data, information, method, product or process disclosed in this document, or represents that its use will not infringe any privately-owned rights, including but not limited to, patents, trademarks, or copyrights.

Reference to specific products or manufacturers is not an endorsement of that product or manufacturer by Fisher-Nickel, inc., the Food Service Technology Center or Pacific Gas & Electric Company (PG&E).

Retention of this consulting firm by PG&E to develop this report does not constitute endorsement by PG&E for any work performed other than that specified in the scope of this project.

Food Service Technology Center
 12949 Alcosta Blvd. Suite 101, San Ramon CA 94583
 P: 1.800.398.3782 F: 1.925.866.2864 www.fishnick.com
 © 2011 Fisher-Nickel, inc. All right reserved.