



# Food Service Technology Center Appliance Test Summary Report

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<b>Manufacturer</b>	American Cook Systems
<b>Model / Serial Number</b>	SS-240-15-3001 / 11126
<b>Appliance</b>	Single Compartment 6-Pan Steamer - Electric

<b>Report Number</b>	501311004
<b>Test Date</b>	April, 2011
<b>Tested By</b>	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

Test Voltage (V)	240
Rated Energy Input Rate (kW)	16.0
Measured Energy Input Rate (kW)	16.4
Difference (%)	2.46

## Preheat to 210°F

	Hold Mode	Cook Mode
Duration (min)	10.83	12.67
Electric Energy Consumption (kWh)	1.65	1.90

## Idle at 212°F

	Hold Mode	Cook Mode
Average Cavity Temperature (°F)	204.5	212.6
Electric Idle Energy Rate (kW)	0.36	1.60

## Red-Potato Cooking-Energy Efficiency and Production Capacity Test Results<sup>a</sup>

	Heavy Load	Light Load
Number of Pans	6	1
Cook Time (min)	21.86	20.25
Total Energy Consumption (kWh)	2.29	0.84
Energy to Food (Btu/lb)	108	108
Energy to Appliance (Btu/lb)	163	359
Electric Cooking Energy Rate (kW)	6.29	2.50
Cooking Energy Efficiency (%)	68.8 ± 3.2	31.4 ± 0.7
Production Capacity (lb/h)	131.8 ± 11.2	23.7 ± 1.5
Water Consumption Rate (g/h)	< 3	< 3

<sup>a</sup> Each load is based on a minimum of three test replicates.



American Cook System  
SS-240-15-3001 electric steamer.

American Cook Systems

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Fort Wayne, IN. 46825

[www.americancooksystems.com](http://www.americancooksystems.com)

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### Frozen Green Pea Cooking-Energy Efficiency and Production Capacity Test Results <sup>a</sup>

	Heavy Load	Light Load
Number of Pans	6	1
Cook Time (min)	17.25	8.17
Total Energy Consumption (kWh)	3.97	0.91
Energy to Food (Btu/lb)	259	259
Energy to Appliance (Btu/lb)	282	386
Electric Cooking Energy Rate (kW)	13.84	6.66
Cooking Energy Efficiency (%)	94.0 ± 3.4	68.7 ± 1.5
Production Capacity (lb/h)	167.1 ± 16.6	58.8 ± 0.7
Water Consumption Rate (g/h)	< 3	< 3

<sup>a</sup> Each load is based on a minimum of three test replicates.

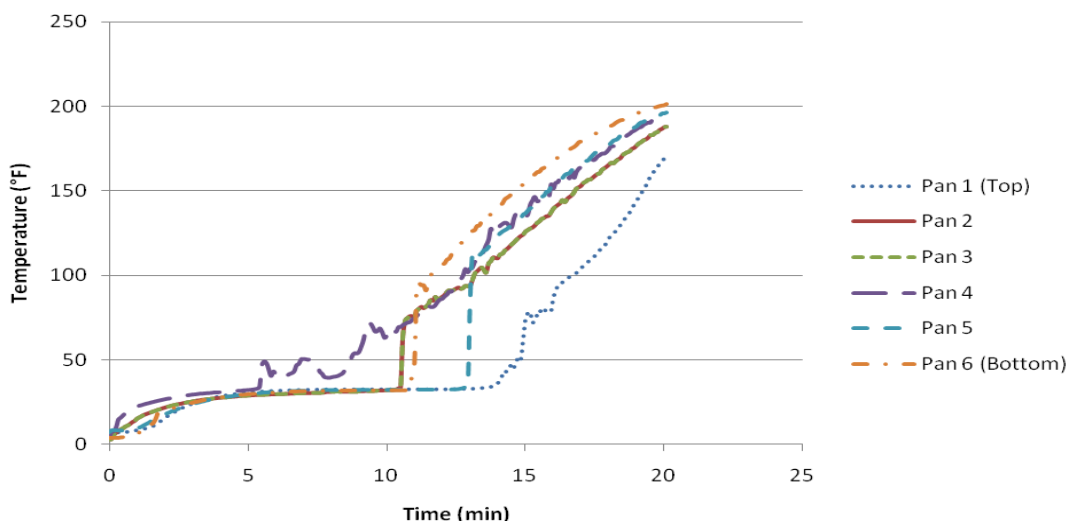
### Ice-Load Uniformity Test Results <sup>a</sup>

	Heavy Load
Number of Pans	6
Cook Time (min)	20.08
Time Delay (min) <sup>b</sup>	3.83
Average Initial Ice-Load Temperature (°F)	5.0
Average Final Ice Load Temperatures (°F)	188.7
Pan #1 (Top)	171.0
Pan #2	187.7
Pan #3	180.4
Pan #4	195.0
Pan #5	196.5
Pan #6 (Bottom)	201.5

<sup>a</sup> Each load is based on a minimum of three test replicates.

<sup>b</sup> Time required for ice-load in the final pan to reach 170°F after first pan reaches the endpoint.

### Ice-Load Uniformity Graph.



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### Heavy-Load Red Potato Data

	Run #1	Run #2	Run #3
<b>Measured Values</b>			
Number of Pans	6	6	6
Total Potato Count	300	300	300
<b>Cook Time (min)</b>	<b>22.25</b>	<b>22.33</b>	<b>21.00</b>
Electric Energy Consumption (kWh)	2.24	2.34	2.29
Initial Temperature (°F)	72.2	71.9	71.5
Final Temperature (°F)	195.5	195.1	195.3
Weight of Pans (lbs)	16.3	16.0	16.3
Weight of Potatoes (lbs)	48.0	48.0	48.0
Moisture Content (%)	84	84	84
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	< 3	< 3	< 3
<b>Calculated Values</b>			
Moisture Weight in Potatoes (lbs)	40.3	40.3	40.3
Average Weight of Each Potato (lbs)	0.16	0.16	0.16
Energy Consumed by Potatoes (Btu)	5,133	5,167	5,166
<b>Energy to Food (Btu/lb)</b>	<b>107</b>	<b>108</b>	<b>108</b>
Energy Consumed by Pans (Btu)	220	218	222
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy Consumed by the Appliance (Btu)	7,652	7,984	7,805
<b>Energy to Appliance (Btu/lb)</b>	<b>159</b>	<b>166</b>	<b>163</b>
<b>Cooking-Energy Efficiency (%)</b>	<b>70.0</b>	<b>67.5</b>	<b>69.0</b>
<b>Electric Cooking Energy Rate (kW)</b>	<b>6.05</b>	<b>6.29</b>	<b>6.54</b>
<b>Production Capacity (lb/h)</b>	<b>129.4</b>	<b>129.0</b>	<b>137.0</b>

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### Light-Load Red Potato Data

	Run #1	Run #2	Run #3
<b>Measured Values</b>			
Number of Pans	1	1	1
Total Potato Count	50	50	50
<b>Cook Time (min)</b>	<b>20.58</b>	<b>20.50</b>	<b>19.67</b>
Electric Energy Consumption (kWh)	0.85	0.85	0.83
Initial Temperature (°F)	70.0	70.7	71.5
Final Temperature (°F)	195.1	195.0	195.3
Weight of Pans (lbs)	2.4	2.6	2.8
Weight of Potatoes (lbs)	8.0	8.0	8.0
Moisture Content (%)	84	84	84
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	< 3	< 3	< 3
<b>Calculated Values</b>			
Moisture Weight in Potatoes (lbs)	6.7	6.7	6.7
Average Weight of Each Potato (lbs)	0.16	0.16	0.16
Energy Consumed by Potatoes (Btu)	871	865	862
<b>Energy to Food (Btu/lb)</b>	<b>109</b>	<b>108</b>	<b>108</b>
Energy Consumed by Pans (Btu)	33	36	38
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy Consumed by the Appliance (Btu)	2,892	2,892	2,841
<b>Energy to Appliance (Btu/lb)</b>	<b>362</b>	<b>362</b>	<b>355</b>
<b>Cooking-Energy Efficiency (%)</b>	<b>31.2</b>	<b>31.2</b>	<b>31.7</b>
<b>Electric Cooking Energy Rate (kW)</b>	<b>2.47</b>	<b>2.48</b>	<b>2.54</b>
<b>Production Rate (lb/h)</b>	<b>23.3</b>	<b>23.4</b>	<b>24.4</b>

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### Heavy-Load Frozen Green Peas Data

	Run #1	Run #2	Run #3
<b>Measured Values</b>			
Number of Pans	6	6	6
<b>Cook Time (min)</b>	<b>17.42</b>	<b>16.50</b>	<b>17.83</b>
Electric Energy Consumption (kWh)	4.05	4.00	3.87
Initial Water Temperature (°F)	72.5	68.1	69.0
Final Water Temperature (°F)	118.4	113.2	113.8
Frozen Food Temperature (°F)	1.0	0.0	5.0
Weight of Empty Calorimeter (lbs)	42.3	42.3	42.3
Weight of Full Calorimeter (lbs)	152.0	151.9	152.7
Weight of Calorimeter Water (lbs)	60.0	60.0	60.0
Weight of Cooked Food (lbs)	49.7	49.6	50.4
Weight of Frozen Food (lbs)	48.0	48.0	48.0
Weight of Pans (lbs)	15.9	15.9	16.1
Moisture Content (%)	81	81	81
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	< 3	< 3	< 3
<b>Calculated Values</b>			
Moisture Weight in Green Peas (lbs)	38.9	38.9	38.9
Final Food Temperature (°F)	184.3	178.2	177.3
Energy Consumed by Green Peas (Btu)	12,616	12,368	12,317
<b>Energy to Food (Btu/lb)</b>	<b>263</b>	<b>258</b>	<b>257</b>
Energy Consumed by Pans (Btu)	321	311	306
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy Consumed by the Appliance (Btu)	13,823	13,640	13,208
<b>Energy to Appliance (Btu/lb)</b>	<b>288</b>	<b>284</b>	<b>275</b>
<b>Cooking-Energy Efficiency (%)</b>	<b>93.6</b>	<b>93.0</b>	<b>95.6</b>
<b>Electric Cooking Energy Rate (kW)</b>	<b>13.95</b>	<b>14.54</b>	<b>13.02</b>
<b>Production Capacity (lb/h)</b>	<b>165.3</b>	<b>174.6</b>	<b>161.5</b>

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### Light-Load Frozen Green Peas Data

	Run #1	Run #2	Run #3
<b>Measured Values</b>			
Number of Pans	1	1	1
<b>Cook Time (min)</b>	<b>8.25</b>	<b>8.42</b>	<b>7.83</b>
Electric Energy Consumption (kWh)	0.90	0.91	0.91
Initial Water Temperature (°F)	72.0	75.3	76.6
Final Water Temperature (°F)	116.6	119.8	118.2
Frozen Food Temperature (°F)	3.0	0.0	-3.0
Weight of Empty Calorimeter (lbs)	42.3	42.3	42.3
Weight of Full Calorimeter (lbs)	60.3	60.5	60.6
Weight of Calorimeter Water (lbs)	10	10	10
Weight of Cooked Food (lbs)	8.0	8.2	8.3
Weight of Frozen Food (lbs)	8.0	8.0	8.0
Weight of Pans (lbs)	2.5	2.7	2.7
Moisture Content (%)	81	81	81
Condensate Temperature (°F)	n/a	n/a	n/a
Water Consumption (gal)	< 3	< 3	< 3
<b>Calculated Values</b>			
Moisture Weight in Green Peas (lbs)	6.5	6.5	6.5
Final Food Temperature (°F)	183.3	184.3	178.6
Energy Consumed by Green Peas (Btu)	2,047	2,096	2,070
<b>Energy to Food (Btu/lb)</b>	<b>256</b>	<b>262</b>	<b>259</b>
Energy Consumed by Pans (Btu)	48	54	53
Energy of Boiler re-init (Btu)	n/a	n/a	n/a
Energy Consumed by the Appliance (Btu)	3,071	3,097	3,097
<b>Energy to Appliance (Btu/lb)</b>	<b>384</b>	<b>387</b>	<b>387</b>
<b>Cooking-Energy Efficiency (%)</b>	<b>68.2</b>	<b>69.4</b>	<b>68.6</b>
<b>Electric Cooking Energy Rate (kW)</b>	<b>6.55</b>	<b>6.47</b>	<b>6.95</b>
<b>Production Rate (lb/h)</b>	<b>58.2</b>	<b>57.0</b>	<b>61.3</b>

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