ECO SMART™

TANKLESS WATER HEATERS

ECOSMART US, LLC
3315 NW 167th St, Miami Gardens, FL. 33056
P. 305.623-7900
F. 305.623-7923
www.ecosmartus.com

Independent Testing Narrative

Product Safety Consulting, Inc. ("PSC") is an internationally recognized product testing firm accredited by numerous reputable organizations. PSC administered several tests using varying gallons per minute ("GPM") hot water demands and compared the resulting energy consumption between an ECOSMART 27 and a Rheem 40 gallon water heater. The report is attached as Exhibit A.

The first procedures within the testing displays the results of the necessity to preheat a tank water heater. When replacing a water heater and contemplating the pros and cons of tank vs. tankless, the water necessary to fill up the tank and the energy required to heat the initial water inlet must be taken into account. PSC demonstrates two (2) preheat scenarios: the first is with an initial tank water temperature of 67°F, and the second with an initial tank temperature of 80°F. This represents the difference in ambient temperature between the summer and winter months. The results concluded that the tank had to run for 93 and 73 minutes respectively and consumed 6.45 Kilowatt Hours ("KWH") and 5.42 KWH respectively in order to achieve the specified temperature settings. This associated cost does not include the charge for water consumed to fill the tank. It is important to recognize in this scenario that tankless water heaters do not require initial water filling nor preheating. Tankless water heaters provide hot water on demand.

The first comparison testing between the Rheem 40 gallon and the ECO 27 considered an outlet of 1.75 GPM as the hot water demand with a specified temperature of 105°F run for ten minutes. The water temperature and the time of consumption are based on generally accepted averages throughout the Country. In this scenario, the Rheem 40 gallon drew power for six and a half minutes during the ten minute shower. This means that after heating and cooling repeatedly throughout the day to keep the tank temperature super heated, it still only provided three and a half minutes of hot water before the heating elements needed to turn on to maintain the hot water demand. The Rheem tank also required another twenty-eight and a half minutes of *Recovery Time*, the time necessary for the water temperature within the tank to reheat to specified temperature settings, a requirement with all tank water heaters. The entire power draw for the Rheem tank under this scenario is 2.5 KWH.

Under the same specifications, the ECO 27 consumed 1.6 KWH. This is a 36% reduction in energy consumption. It is important to note a few facts within the testing data for this scenario located on pages 10-11:

Independent Testing Narrative

Continued...

The charts that display the calculated wattage on the aforementioned pages of the PSC report reveal a critical fact about ECOSMART Tankless Water Heaters that propel ECOSMART Electric Tankless Water Heaters above all other electric tankless water heaters currently on the market. ECOSMART Electric Tankless Water Heaters are the only electric water heaters available that take into consideration the energy necessary to heat the water demanded by reading inlet water temperature and flow rate to modulate the energy consumption used by the heater. To clarify, ECOSMART model numbers refer to the amount of Kilowatts ("KW") of capacity the unit holds. In this scenario, the ECO 27 refers to 27 KW or 27,000 watts of capacity. If this test were performed with any comparable electric tankless water heater with a capacity of 27 KW other than the ECOSMART heater, the wattage consumed when the unit activated would be 27,000 watts. This is because typical electric water heaters operate by turning completely on and off or "stepping-up" to adjust the energy consumption based on hot water demand. This method of operation adds to the surging of energy consumption and flickering lights effect commonly associated with electric tankless water heaters. Because of the ECOSMART patent-pending Smart Technology Digital Controller the energy consumption is strictly modulated thus eliminating the surge effect. By comparison, the ECO 27 drew an average of 9,612 watts and 41.25 AMPS, roughly only 36% of the full capacity. More information on ECOSMART's unique "Self Modulating Technology" can be found on the accompanying attachment.

It is also worth noting that within the "Tank Less Heater Shower Simulation 1.75 gpm," method "cold water was added to maintain the 105°F. In real life application the addition of cold water is not necessary to maintain water temperature. ECOSMART Tankless Water Heaters are equipped with a Digital Thermostatic Control which allows users to set their desired outlet temperature directly on the unit and just turn on the hot water tap. This saves not only on energy, but also water consumption. It is necessary to add cold water to traditional tank output because of the "super-heated" effect associated with all tank heaters. Tank heaters must over heat the water within the tank in order to meet the instant hot water demands of the end user. In the case of the PSC testing, the water tank initial temperature, once preheated, ranged from 141°F - 145°F. It is worth remarking that scalding is one of the leading causes of injury and death among young children. The existence of a tank of water up to 80 gallons super heated to 145°F should be a safety concern for everyone in the household.

Independent Testing Narrative

Continued...

At a certain point it becomes difficult to accurately compare an electric tankless water heater with a traditional tank. Because of the addition of cold water to adjust for the over-heated water within the tank, the actual hot water draw becomes less than the gallons per minute demand. For instance, the output water may be adjusted to three gallons per minute, however, it may only be drawing 1.5 gallons of hot water and 1.5 gallons of cold water, whereas the electric tankless water heater draws all three gallons per minute of hot water.

This observable fact is most evident in the "Bath Tub Simulation," page 8. It is noted, "At the 18 minute mark the cold water was turned completely off, the tank heater was unable to maintain the 105°F target temperature for the remainder of the testing." This illustrates two points: (1) a 40 gallon tank drawing hot water at 3 GPM would run out of hot water in about 13.33 minutes (40 gallons/3GPM). The fact that it took 18 minutes to run out of hot water shows that a portion of the water output is not coming from the hot water tank. (2) It also demonstrates the fact that tank water heaters quickly run out of hot water.

The comparisons made between the 40 gallon Rheem tank and the ECOSMART Electric Tankless Water Heater brings up another point of discussion. In every testing method, with the exception of the "Hand Washing Simulation" method where the water demanded was low enough to be supported by the tank without turning on the heating elements, the KWH's consumed by the ECO 27 is 14% to 38% less resulting in true energy consumption savings. While the overall effect of KWH consumption is less, the watts utilized by the tankless are more than the tank during the active power draw. With every test method, with the exception of the "Hand Washing Simulation," the average power draw for the Rheem 40 gallon is 4,164 watts to 4,431 watts. The ECO 27 drew an average of 9,612 watts at 1.75 GPM, 11,694 at 2.0 GPM, 15,985 at 3 GPM, and 8,360 watts at 1.5 GPM. It may seem counter intuitive that the ECOSMART Electric Tankless Water Heater consumes less overall KWH, however, this achievement is due to the wasteful nature inherent with traditional tank heating systems with regards to both energy consumption and water preservation. As noted on page 16 of the PSC report, "This report or test does not take into account any additional cost associated with HEAT LOSS from tank heater which increases the overall operational cost of a tank heater." The moment a tank heater reaches the specified temperature setting and the heating elements turn off, the water within the tank begins to cool down immediately.

Summary of ECOSMART Testing Data
Administered by Product Safety Consulting, Inc.

Assumption #1: Inlet temp of 67 Degrees F
Assumption #2: Cost of $0.08 per KWH

Traditional 40 Gallon Tank	vs.	ECOSMART Tankless	Result
Test #1: Tank Heater Preheat Required time to preheat = 93 minutes Energy Consumption to preheat = 6.45 KWH Cost to Preheat = $0.51		ECOSMART units do not require preheating Required time to preheat = 0 minutes Energy Consumption to preheat = 0 KWH Cost to Preheat = $0.00	Save $ 0.51 100% Savings
Test #2: 10 Minute Shower @ 1.75 GPM @ 105°F Energy Draw Time = 6.5 minutes Recovery Time = 25.5 minutes Total Draw Time = 34.5 minutes Energy Consumption = 2.5 KWH Cost of Energy Consumption = $0.20		**Test #2: 10 Minute Shower @ 1.75 GPM @ 105°F** Energy Draw Time = 10 minutes Recovery Time = 0 minutes Total Draw Time = 10 minutes Energy Consumption = 1.6 KWH Cost of Energy Consumption = $0.128	Save $ 0.072 36% Savings
Test #3: 10 Minute Shower @ 2.0 GPM @ 105°F Energy Draw Time = 6.5 minutes Recovery Time = 36.75 minutes Total Draw Time = 42 minutes Energy Consumption = 3.11 KWH Cost of Energy Consumption = $0.248		**Test #3: 10 Minute Shower @ 2.0 GPM @ 105°F** Energy Draw Time = 10 minutes Recovery Time = 0 minutes Total Draw Time = 10 minutes Energy Consumption = 1.95 KWH Cost of Energy Consumption = $0.156	Save $ 0.092 37% Savings
Test #4: 20 Minute Bath Tub @ 3.0 GPM @ 105°F Energy Draw Time = 17.75 minutes Recovery Time = 67.116 minutes Total Draw Time = 84 minutes Energy Consumption = 6.2 KWH Cost of Energy Consumption = $0.496 **Note**: At the 18 minute mark the tank heater was unable to maintain the target temperature for the remainder of the testing.		**Test #4: 20 Minute Bath Tub @ 3.0 GPM @ 105°F** Energy Draw Time = 20 minutes Recovery Time = 0 minutes Total Draw Time = 20 minutes Energy Consumption = 5.32 KWH Cost of Energy Consumption = $0.425 **Note**: ECO 27 was able to maintain the target temperature throughout the entire testing.	Save $ 0.071 14% Savings *Plus the ability to continuously have access to hot water.
Test #5: 3 Minute Hand Washing @ 1.5 GPM @ 105°F **Note:** Tank heater did not draw any power during this simulation. Based on 1 individual hand washing application. Test results on multiple hand washing applications would result in wattage consumption.		**Test #5: 3 Minute Hand Washing @ 1.5 GPM @ 105°F** Total Draw Time = 3 minutes Energy Consumption = 0.4 KWH Cost of Energy Consumption = $0.032	Cost $0.03

This report or test does not take into account any additional cost associated with HEAT LOSS from tank heater which increases the overall operational cost of a tank heater by generally 20%.

PRODUCT SAFETY CONSULTING, INC.
605 Country Club Drive • Suites I & J • Bensenville, IL 60106-1330
Phone: (630)238-0188 • Fax: (630)238-0269 • Website: productsafetyinc.com

Established in 1988

TEST REPORT

TEST REPORT #:
TEST DATE (S): **09-3-2009**
ISSUE DATE:
PROJECT#: **9175**
PAGE: **1 OF 16**

MANUFACTURER: **Ecosmart US LLC**
ATTENTION: **Carlos Cabrera**
Address: **3315 NW 167th Street**
Miami Gardens, FL 33056

PRODUCT DESCRIPTION:

- **Product name – Ecosmart Tankless House Hold Water Heater & Rheem 40 Gallon Water Heater**
- **Model Ecosmart ECO027, Rated 240 V ac, 50/60 Hz, 27 KW, 112.5 A; Rheem 6EM40-2**
- **Description – Residential Hot Water Heaters Ecsmart tankless heater and Rheem dual element (two thermostat) tank heater.**
- **Sample number(s) –Ecosmart 027 Sample #1; Rheem 6EM40-2 Sample #2**
- **Sample condition - Production**
- **Receipt date – Ecosmart 08-19-2009; Rheem 09-03-2009**

REPORT DESCRIPTION:

- **Test method or Standard number – Ecosmart specified comparison testing**
- **Standard edition number, including date of latest revisions – N/A Ecosmart specified comparison testing**
- **List of tests to be performed (or reference to index) – Shower simulation 1.75 gpm @ 105 °F 10 minute duration; Hand washing simulation 1.5 gpm @ 105 °F for 3 minutes; Repeat of shower simulation 2.0 gpm @ 105 °F for 10 minutes; Bath tub simulation 110 °F @ 110 °F for 20 minutes**

FOR OFFICE USE: _____ Calibration/Equipment List _____Technician Training Base _____ By

This test report is based on samples and information provided. The results shown only relate to the items tested. If changes should occur, an evaluation will be required to determine if additional testing is necessary. This report shall only be reproduced in its entirety.

Engineer:
John Yelencich / VP Enginnering Date

Reviewed by
John Allen / President Date

Page __2___ of __16__ INSTRUMENT LIST *FILE TOGETHER – DO NOT SEPARATE*

PROJECT# ____9175_____ Test Engineer Printed Name: _J. E. Yelencich_____

AGENCY FILE# ___N/A_ Test Engineer Signature/Date:

AGENCY PROJECT#____N/A_

Test Report #: Issued -2009

PSC# Type and Model	Manufacturer Serial Number	Ranges Used	Last Calibrated Calibration Due
006 Clamp Meter Model# 30	Fluke Serial#4880	200A	02/17/2009 02/17/2010
100 Multimeter 87 III	Fluke Serial# 87110032	VAC	02/17/2009 02/17/2010
094 Timer 240	Sport Line Serial#TC12313	Min, Sec	03/18/2009 03/18/2010
111 Barometer 99760-20	Cole Parmer 61502179	°C, Rh, InHg	08/18/2009 08/18/2010
067 Clamp Meter 36	Fluke 73059430	200 A	06/02/2009 06/02/2010
059 Temperature Meter HH-26J	Omega T-204900	°F	06/02/2009 06/02/2010
087 Multimeter 87 III	Fluke 85180245	VAC	01/21/2009 01/21/2010
		Gallons Per Minute (GPM)	

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 3 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #2 Production Units	Test Date(s): 09-09-2009
Instrument Asset # and Range(s) used: PSC100/V, PSC006/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: NA
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Heater Preheat

METHOD

The 40 gallon tank heater was operated until the water temperature stabilized at the thermostats settings noted below.

40 gallon tank heater thermostat set for 137.5 °F. Note thermostats marked 125 °F & 150 °F, thermostat was set for the midpoint between the 125 °F and 150 °F markings.

RESULTS

Inlet water temperature 67 °F
Tank initial water temperature 67 °F
Sample #2 40 gallon tank heater – Tank heater Preheat

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)
0	232	0	0
10	232	18	4176
20	232	18	4200
30	231	18	4158
40	231	18	4135
50	232	18	4176
60	231	18	4158
70	232	18	4176
80	232	18	4176
90	231	18	4158
93	233	0	0

93 minutes to reach the thermostat set point, at an average of 4164 watts = 6.45 KWH
(93 min x 4.164 KW)/60min = 6.45 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 4 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #2 Production Unit	Test Date(s): 09-23-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Heater Preheat

METHOD

The 40 gallon tank heater was operated until the water temperature stabilized at the thermostats settings noted below.

40 gallon tank heater thermostat set for 137.5 °F. Note thermostats marked 125 °F & 150 °F, thermostat was set for the midpoint between the 125 °F and 150 °F markings.

RESULTS

Inlet water temperature 67 °F.
Tank initial water temperature 80 °F
Sample #2 40 gallon tank heater – Tank heater Preheat

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)
0	236	0	0
30	235	19	4465
60	234	19	4446
73	236	0	0

Tank water temperature following Preheat 142 °F

73 minutes to reach the thermostat set point, at an average of 4456 watts = 5.42 KWH
(73 min x 4.456 KW)/60min = 5.42 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 5 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #2 Production Unit	Test Date(s): 09-23-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Heater Shower Simulation 1.75 gpm

METHOD

Once the tank was initialized as noted above the output water was adjusted to deliver 1.75 gpm for 10 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67 °F.
Tank initial water temperature 142 °F
Sample #2 40 gallon tank heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
:30	236	0	0	106
2	235	0	0	105
3:30	233	19	4427	106
5	233	18	4194	105
10	233	18	4194	105

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	233	18	4446	--
10	234	18	4446	
18	234	19	4446	
28:30	235	0	0	

Power drawn for 6 1/2 minutes during the 10 minute shower simulation + 28 1/2 minutes for the tank recovery total power drawn for 34 1/2 minutes at an average power of 4446 W.

34 1/2 minutes an average of 4446 watts = 2.55 KWH
(34 1/2 min x 4.446 KW)/60min = 2.5 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 6 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #2 Production Unit	Test Date(s): 09-23-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Heater Shower Simulation 2.0 gpm

METHOD

Once the tank was initialized as noted above the output water was adjusted to deliver 2.0 gpm for 10 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67 °F.
Water tank initial temperature 145 °F
Sample #2 40 gallon tank heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
1	236	0		105
3:30	234	19	4446	105
5	234	19	4446	105
10	234	19	4446	105

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	233	19	4427	--
5	235	19	4465	
10	234	19	4446	
21	234	19	4446	
:45	234	0	0	

Power drawn for 6 1/2 minutes during the 10 minute shower simulation + 36 minutes 45 seconds for the tank recovery total power drawn for minutes at an average power of 4446 W.

42 minutes an average of 4446 watts = KWH
(42 min x 4.446 KW)/60min = 3.11 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 7 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #2 Production Unit	Test Date(s): 09-23-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Bath Tub Simulation

METHOD

Once the tank was initialized as noted above the output water was adjusted to deliver 3.0 gpm for 20 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 3 °F.

RESULTS

Inlet water temperature 67 °F.
Water tank initial temperature 142 °F
Sample #2 40 gallon tank heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
:30	234	0	0	---
2:15	231	19	4389	105
5	231	19	4389	105
10	233	19	4427	105
15	235	19	4465	105
18	234	19	4446	102
19	234	19	4446	99
20	233	19	4427	96

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 8 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #2 Production Unit	Test Date(s): 09-23-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Bath Tub Simulation

Results - Continued

Note: At the 18 minute mark the cold water was turned completely off, the tank heater was unable to maintain the 105 °F target temperature for the remainder of the testing.

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	234	19	4446	---
10	233	19	4427	---
20	234	19	4446	---
30	233	19	4427	---
45	233	19	4427	---
60	234	19	4446	---
67	235	0	0	---

Power drawn for 17 minutes 45 seconds during the 20 minute bathtub simulation + 67 minutes 7 seconds for the tank recovery total power drawn for 84 minutes at an average power of 4431W.

84 minutes an average of 4431 watts = KWH
(84 min x 4.431 KW)/60min = 6.20 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 9 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: # 2 Production Unit	Test Date(s): 09-23-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Heater Hand Washing Simulation

METHOD

Once the tank was initialized as noted above the output water was adjusted to deliver 1.5 gpm for 3 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67 °F.
Water tank initial temperature 141 °F
Sample #2 40 gallon tank heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	---
:30	235	0	0	105
1	236	0	0	105
2	236	0	0	106
3	234	0	0	107

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	234	0	0	--

The tank heater did not draw any power during the hand washing simulation and did not require any recovery power. Consider that this simulation was based on 1 individual hand washing application. Test results on multiple hand washing applications, either simultaneously or back to back would result in wattage consumption.

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 10 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #1 Production Unit	Test Date(s): 09-22-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 21 °C, 36% Rh, 30.18 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Less Heater Shower Simulation 1.75 gpm

METHOD

No Preheat was required for the tank less water heater, the heater was adjusted to deliver 1.75 gpm for 10 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67 °F.

Sample #1 tank less heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	--
:40	233	42	9851	106
1	235	41	9775	105
1:30	233	40	9518	104
2	234	41	9594	105
3	233	41	9589	105
4	234	42	9828	106
5	233	43	10035	105
6	234	41	9775	105
7	235	41	9779	106
8	233	42	9786	105
9	234	41	9781	105
10	233	40	9518	104

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 11 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #1 Production Unit	Test Date(s): 09-22-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 21 °C, 36% Rh, 30.18 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Less Heater Shower Simulation 1.75 gpm

Results - Continued

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	--

Power drawn for 10 minutes during the 10 minute shower simulation + 0 minutes for the recovery total power drawn for 10 minutes at an average power of 9612 W.

10 minutes an average of 9612 watts = 1.60 KWH
(10 min x 9.612 KW)/60min = 1.60 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 12 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #1 Production Unit	Test Date(s): 09-22-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Less Heater Shower Simulation 2.0 gpm

METHOD

No Preheat was required for the tank less water heater, the heater was adjusted to deliver 2.0 gpm for 10 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67 °F.

Sample #1 tank less heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	---
:30	231	55	12705	108
1	230	53	11550	108
2	231	50	11550	109
3	232	51	11832	108
4	232	51	11832	107
5	232	42	9744	108
6	231	53	12243	108
7	231	52	12012	107
8	231	50	11550	107
9	231	52	12012	107
10	232	50	11600	108

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Client: Ecosmart	Page 13 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #1 Production Unit	Test Date(s): 09-22-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Less Heater Shower Simulation 2.0 gpm

Results - Continued

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	--

Power drawn for 10 minutes during the 10 minute shower simulation + 0 minutes for the recovery total power drawn for 10 minutes at an average power of 11694 W.

10 minutes an average of 11694 watts = 1.95 KWH
(10 min x 11.694 KW)/60min = 1.95 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 14 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #1 Production Unit	Test Date(s): 09-22-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 27 °C, 40% Rh, 30.15 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Bath Tub Simulation

METHOD

No Preheat was required for the tank less water heater, the heater was adjusted to deliver 3.0 gpm for 20 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67°F.

Sample #1 tank less heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	---
:30	229	73	16758	106
1	229	73	16754	105
2	229	73	16758	105
3	228	73	16754	106
4	228	72	16758	105
5	229	73	16758	105
6	229	73	16758	105
7	229	77	17640	107
8	228	75	17199	106
9	229	73	16758	105
10	229	72	16752	104
11	229	73	16758	105
12	229	73	16758	105
13	230	73	16758	105
14	230	73	16758	105
15	230	73	16758	105
16	230	73	16756	105
17	229	73	16758	105
18	230	73	16754	105
19	230	73	16758	105
20	229	73	16758	105

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	---

Power drawn for 20 minutes during the 20 minute bathtub simulation + 0 minutes for the recovery total power drawn for 20 minutes at an average power of 15985 W.

20 minutes an average of 15985 watts = 5.32KWH
(20 min x 5.32 KW)/60min = 5.32 KWH

PRODUCT SAFETY CONSULTING, INC.	This report may only be duplicated in its entirety. Coping of this report shall be for internal use only.
Client: Ecosmart	Page 16 of 16
PSC Project #: 9175	Evaluation Date: NA
Test Report #:	Report Date:
Sample # and Condition: #1 Production Unit	Test Date(s): 09-22-2009
Instrument Asset # and Range(s) used: PSC087/V, PSC006/A, PSC067/A, PSC094/Min, PSC059/°F, PSC111, °C, Rh, InHg	Measurement of Uncertainty if applicable: +/- 5 °F
Standard: Ecosmart specifed test	Ambient conditions: 21 °C, 36% Rh, 30.18 InHg
Project Engineer: J. E. Yelencich	Reviewed By: John Allen

Tank Less Heater Hand Washing Simulation
METHOD

Cold water was flushed through the tank less heater until the input water temperature matched the outlet water temperature. No Preheat was required for the tank less water heater, the heater was adjusted to deliver 1.5 gpm for 3 minutes, The output water temperature was monitored and cold water was added to maintain the 105 °F temperature +/- 5 °F.

RESULTS

Inlet water temperature 67 °F.
Sample #1 tank less heater

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	--
:30	231	49	8319	106
1	233	29	8357	105
2	233	42	8386	105
3	233	42	8386	106
3	233	50	8350	105

Recover period following shower simulation

Time minutes	Input voltage 1 phase	Input current	Wattage (calculated V x A)	Outlet water temp °F
0	236	0	0	--

Power drawn for 3 minutes during the 10 minute shower simulation + 0 minutes for the recovery total power drawn for 10 minutes at an average power of 8360 W.

3 minutes an average of 418 watts = .418 KWH
(3 min x 8.360 KW)/60min = 0.4 KWH

This report or test does not take into account any additional cost associated with HEAT LOSS from tank heater which increases the overall operational cost of a tank heater. Similar test performed to gas water heater reflected a savings of . 14% savings on results.

Independent Testing Narrative

Graphical Representation

The chart below represents the same information within the PSC test report to show how the storage tank heater remains drawing power long after the demand for hot water has ended. The steadiness of the represented ECO 27 data is also an accurate visualization of the precision of the Self-Modulating Technology, which allows for very minimal variation in the energy consumption.

Exhibit "A"
Shower Simulation 1.75 gpm Method
Information Source: Product Safety Consulting, Inc.
Project #9175