

T.S.R Test Reports to ASTM C-1549

APAES-002-02-01
 August 26.2005
 For Astec Paints Australasia Pty Ltd
 Laboratory Report for 94 Astec Energy Star samples
 Solar Reflectance to ASTM C-1549

Results of Testing:

All measurements were conducted at laboratory conditions of 23 ± 2 C and 50 ± 5 percent relative humidity. The testing was conducted between August 18-26, 2005

Reflectance for Energy Star Whites Base

Material ID	ASTM Test Method	Result, Solar Reflectance, Air Mass = 1.5 % TSR					
		1	2	3	% Avg	SD	95% CI
Specimen No.		1	2	3	% Avg	SD	95% CI
EC-100 T SM	C 1549	86.2	86.3	86.5	86.3	0.157	0.1778
ES Ceram-4000	C 1549	87.9	87.8	87.9	87.9	0.035	0.0397
ES DG IR GLOSS	C 1549	89.2	89.3	89.2	89.2	0.040	0.0457
EC-100 DIRTGUARD	C 1549	90.3	90.3	90.2	90.3	0.046	0.0523
ES TILESHIELD	C 1549	89.4	89.2	89.2	89.2	0.100	0.1133
ES DG IR ELASTIC	C 1549	90.3	90.2	90.3	90.3	0.078	0.0884
ES GLS/LS	C 1549	86.7	86.6	86.7	86.7	0.035	0.0392

Note: Reflectance measurements were conducted using a Devices and Services SSR-ER Version 5.0 Solar Spectrum Reflectometer calibrated with Devices and Services reference standard.

SD = Standard Deviation, 95%

CI = Confidence Interval

Reflectance for Standard Colours then Energy Star Colours Base ES GLS/LS

Material ID		ASTM Test Method	Result, Solar Reflectance, Air Mass = 1.5 % TSR					
			1	2	3	% Avg.	SD	95% CI
Specimen No.			1	2	3	% Avg.	SD	95% CI
8068 C/B Heritage Red	Std.	C 1549	14.2	14.3	14.2	14.2	0.049	0.0555
8068 C/B Heritage Red	Energy Star	C 1549	37.5	37.6	37.5	37.5	0.047	0.0532
8069 Red Iron Oxide	Std.	C 1549	14.6	14.7	14.6	14.6	0.050	0.0560
8069 Red Iron Oxide	Energy Star	C 1549	39.0	39.1	39.0	39.0	0.047	0.0532
8070 Terracotta	Std.	C 1549	15.8	15.9	15.8	15.8	0.048	0.0538
8070 Terracotta	Energy Star	C 1549	42.4	42.5	42.4	42.4	0.047	0.0532
8071 Clay Tone	Std.	C 1549	27.9	28.0	27.9	27.9	0.049	0.0555
8071 Clay Tone	Energy Star	C 1549	46.7	46.8	46.7	46.7	0.047	0.0532
8072 Warm Clay	Std.	C 1549	46.9	47.0	46.9	46.9	0.035	0.0400
8072 Warm Clay	Energy Star	C 1549	59.5	59.6	59.5	59.5	0.047	0.0527
8073 Tuscany	Std.	C 1549	54.2	54.3	54.2	54.2	0.049	0.0549
8073 Tuscany	Energy Star	C 1549	66.0	66.1	66.0	66.0	0.050	0.0560
8074 C/B Ironbark	Std.	C 1549	9.6	9.7	9.6	9.6	0.049	0.0555
8074 C/B Ironbark	Energy Star	C 1549	40.9	41.0	40.9	40.9	0.049	0.0549
8075 Pioneer	Std.	C 1549	6.5	6.4	6.4	6.4	0.072	0.0817
8075 Pioneer	Energy Star	C 1549	28.8	28.9	28.8	28.8	0.047	0.0532



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8076 Regal Brown	Std.	C 1549	9.7	9.8	9.7	9.7	0.050	0.0560
8076 Regal Brown	Energy Star	C 1549	38.6	38.7	38.6	38.6	0.049	0.0555
8077 Yallara Brown	Std.	C 1549	6.6	6.7	6.6	6.6	0.047	0.0527
8077 Yallara Brown	Energy Star	C 1549	37.1	36.9	36.9	37.0	0.128	0.1450
8078 C/B Weathered Copper	Std.	C 1549	8.6	8.7	8.6	8.6	0.049	0.0549
8078 C/B Weathered Copper	Energy Star	C 1549	39.1	39.2	39.1	39.1	0.048	0.0543
8079 Charcoal	Std.	C 1549	5.6	5.7	5.6	5.6	0.049	0.0549
8079 Charcoal	Energy Star	C 1549	32.8	32.9	32.8	32.8	0.050	0.0566
8080 C/B Slate Grey	Std.	C 1549	16.6	16.7	16.6	16.6	0.047	0.0532
8080 C/B Slate Grey	Energy Star	C 1549	40.3	40.4	40.3	40.3	0.047	0.0532
8082 Nimbus	Std.	C 1549	10.7	10.8	10.7	10.7	0.049	0.0555
8082 Nimbus	Energy Star	C 1549	35.4	35.6	35.5	35.5	0.053	0.0594
8083 C/B Beige	Std.	C 1549	30.3	30.5	30.4	30.4	0.053	0.0594
8083 C/B Beige	Energy Star	C 1549	54.3	54.4	54.3	54.3	0.050	0.0560
8084 Merino	Std.	C 1549	52.6	52.5	52.5	52.5	0.064	0.0719
8084 Merino	Energy Star	C 1549	68.3	68.4	68.3	68.3	0.049	0.0555
8085 Off White	Std.	C 1549	58.7	58.8	58.7	58.7	0.048	0.0543
8085 Off White	Energy Star	C 1549	74.7	74.8	74.7	74.7	0.049	0.0555
8086 Sandalwood	Std.	C 1549	66.1	66.2	66.1	66.1	0.049	0.0555
8086 Sandalwood	Energy Star	C 1549	76.7	76.8	76.7	76.7	0.049	0.0549
8087 C/B Smooth Cream	Std.	C 1549	66.8	66.9	66.8	66.8	0.048	0.0543
8087 C/B Smooth Cream	Energy Star	C 1549	78.5	78.6	78.5	78.5	0.049	0.0549
8088 Mocca	Std.	C 1549	34.5	34.6	34.5	34.5	0.049	0.0555
8088 Mocca	Energy Star	C 1549	57.6	57.7	57.6	57.6	0.050	0.0566
8089 Stone	Std.	C 1549	53.0	53.1	53.0	53.0	0.045	0.0510
8089 Stone	Energy Star	C 1549	68.8	69.0	68.9	68.9	0.055	0.0623
8098 Carriage Green	Std.	C 1549	6.3	6.4	6.3	6.3	0.050	0.0560
8098 Carriage Green	Energy Star	C 1549	24.5	24.7	24.6	24.6	0.055	0.0623
8099 Bruns Green	Std.	C 1549	6.9	7.0	6.9	6.9	0.049	0.0555
8099 Bruns Green	Energy Star	C 1549	25.9	26.0	25.9	25.9	0.048	0.0543
8100 Mist Green	Std.	C 1549	24.4	24.6	24.5	24.5	0.055	0.0623
8100 Mist Green	Energy Star	C 1549	43.9	44.1	44.0	44.0	0.051	0.0571
8101 C/B Rivergum	Std.	C 1549	15.3	15.4	15.3	15.3	0.049	0.0555
8101 C/B Rivergum	Energy Star	C 1549	44.5	44.6	44.5	44.5	0.045	0.0510
8102 Olive Green	Std.	C 1549	8.6	8.7	8.6	8.6	0.048	0.0538
8102 Olive Green	Energy Star	C 1549	39.3	39.5	39.4	39.4	0.051	0.0571
8103 Blue Grass	Std.	C 1549	13.9	13.9	13.9	13.9	0.050	0.0560
8103 Blue Grass	Energy Star	C 1549	36.0	36.0	36.0	36.0	0.050	0.0560
8104 Botanic	Std.	C 1549	8.4	8.5	8.4	8.4	0.055	0.0623
8104 Botanic	Energy Star	C 1549	27.9	27.9	27.9	27.9	0.048	0.0538
8105 French Green	Std.	C 1549	36.7	36.8	36.7	36.7	0.050	0.0566
8105 French Green	Energy Star	C 1549	53.9	53.9	53.9	53.9	0.036	0.0408
8108 C/B Mountain Blue	Std.	C 1549	7.8	7.9	7.8	7.8	0.050	0.0566
8108 C/B Mountain Blue	Energy Star	C 1549	25.5	25.6	25.5	25.5	0.050	0.0566
8081 C/B Birch Grey	Std.	C 1549	39.7	39.8	39.7	39.7	0.050	0.0566
8081 C/B Birch Grey	Energy Star	C 1549	62.2	62.3	62.2	62.2	0.050	0.0566
8094 Quarry	Std.	C 1549	40.2	40.2	40.2	40.2	0.029	0.0327
8094 Quarry	Energy Star	C 1549	59.8	59.9	59.8	59.8	0.050	0.0566
8095 Mid Biscuit	Std.	C 1549	53.5	53.5	53.5	53.5	0.045	0.0510
8095 Mid Biscuit	Energy Star	C 1549	69.5	69.6	69.5	69.5	0.053	0.0594
8097 Light Latte	Std.	C 1549	55.0	55.1	55.0	55.0	0.052	0.0589
8097 Light Latte	Energy Star	C 1549	70.9	71.0	70.9	70.9	0.051	0.0577
8106 C/B Saltbush	Std.	C 1549	28.7	28.8	28.7	28.7	0.052	0.0583
8106 C/B Saltbush	Energy Star	C 1549	55.8	55.9	55.8	55.8	0.054	0.0606



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8107 Cobalt	Std.	C 1549	14.2	14.3	14.2	14.2	0.055	0.0617
8107 Cobalt	Energy Star	C 1549	33.8	33.9	33.8	33.8	0.050	0.0566
8110 Pewter	Std.	C 1549	37.3	37.4	37.3	37.3	0.053	0.0600
8110 Pewter	Energy Star	C 1549	60.7	60.8	60.7	60.7	0.052	0.0589
8111 Autumn	Std.	C 1549	45.8	45.9	45.8	45.8	0.053	0.0600
8111 Autumn	Energy Star	C 1549	60.9	61.0	60.9	60.9	0.051	0.0577
8112 Chino	Std.	C 1549	38.5	38.6	38.5	38.5	0.051	0.0577
8112 Chino	Energy Star	C 1549	60.6	60.7	60.6	60.6	0.054	0.0606
8091 Broken White	Std.	C 1549	71.1	71.2	71.1	71.1	0.055	0.0617
8091 Broken White	Energy Star	C 1549	81.3	81.4	81.3	81.3	0.050	0.0566
8092 Neutral White	Std.	C 1549	66.8	66.9	66.8	66.8	0.053	0.0600
8092 Neutral White	Energy Star	C 1549	78.5	78.6	78.5	78.5	0.050	0.0566
8093 Pale Biscuit	Std.	C 1549	64.4	64.5	64.4	64.4	0.055	0.0617
8093 Pale Biscuit	Energy Star	C 1549	75.4	75.4	75.4	75.4	0.045	0.0510
8096 Light Cream	Std.	C 1549	69.6	69.7	69.6	69.6	0.053	0.0600
8096 Light Cream	Energy Star	C 1549	78.7	78.8	78.7	78.7	0.050	0.0566
8109 Gull Grey	Std.	C 1549	47.8	47.9	47.8	47.8	0.053	0.0600
8109 Gull Grey	Energy Star	C 1549	68.3	68.3	68.3	68.3	0.050	0.0560

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