



Color & Appearance Testing Program

Summary Spectrophotometric Report # 146 - 4th Q 2008

[About the Color Program](#), [About CTS](#)

[Key to Tables and Graphs](#)

<u>Analysis</u>	<u>Analysis Name</u>
------------------------	-----------------------------

411	Spectrophotometric (Paint Chips) - Sphere
------------	--

[Instrument Code List](#)

ABOUT THE PROGRAM

The Collaborative Reference Program for Color & Appearance is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance and advice provided by representatives from various instrument manufacturers. The program allows laboratories to compare periodically the performance of their testing with that of other laboratories.

Paint chip samples, which have been custom-made specifically for Collaborative Testing Services by Munsell Color, X-Rite Inc., Grand Rapids, MI, are distributed four times per year to participating laboratories. Gloss participants test two pairs of paint chip samples at different gloss levels, approximately 5-10 units apart. Color & Color Difference participants measure a set of three opaque color paint chips, selected from throughout the full color spectrum, consisting of a metameric and nonmetameric match with small color differences. These data are analyzed in two separate tables based on the conditions of measurement used. Laboratories that also participate in the Spectrophotometric analyses measure one of the opaque color chips for % reflectance at 16 wavelengths.

Please refer to each test's 'Key' for definitions of terms used in the tables and graphs and guidelines to interpreting the results. Also shown are notes concerning specific laboratory results, as well as significant findings related to instrument types or other testing variations.

ABOUT CTS

Founded in 1971, CTS is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries, including rubber, plastics, fasteners and metals, containerboard, paper, color, and wine as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality control objectives. Labs from the U.S., as well as more than 50 countries, currently participate in the CTS programs.

If there are any questions on the report or testing program, please contact:

**Collaborative Testing Services, Inc.
21331 Gentry Drive
Sterling, Virginia 20166 USA**

**+1-571-434-1925
FAX #: +1-571-434-1937
color@cts-interlab.com**

(Toll-free fax within the U.S.: 1-866-fax-2cts)

Office Hours: 8:00 a.m. - 4:30 p.m. ET

Key for Spectrophotometric Web Summary Report

WebCode	Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Color Report published on the CTS web site. The Web Code for each analysis can be found in the Performance Analysis Report mailed to each participant.
Grand Mean	The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.
Between-Lab Standard Deviation	An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).
Graphs	For comparison purposes, a plot of spectrophotometric curves of single paint chip specimens is provided (courtesy of Hemmendinger Color Laboratory, Princeton, New Jersey).
Inst Code	A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section).
Data Flag	DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	INCLUDED	CAUTION - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	STOP - immediate review of data and/or testing procedure is required. See specific notes following each table for more information on why the data is excluded.

In addition to the DATA FLAG column, it is also possible to have an X on individual wavelength values as follows:

- X - The laboratory's mean for that wavelength is greater than a 95% deviation from the GRAND MEAN.

Interlaboratory Testing Program for Color & Appearance

Analysis 411

Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample D81																		
17J8KC		13.08	14.79	17.86	20.26	22.11	25.58	33.00	43.91	49.15	43.22	32.30	24.13	21.15	19.46	20.34	22.20	AJ
2LCC4G		13.14	15.03	17.98	20.31	22.09	25.74	32.99	44.06	49.19	43.12	31.99	24.15	21.17	19.53	20.40	22.81	MM
2S2XAF		13.16	14.98	17.96	20.29	22.07	25.69	32.78	43.85	49.57	43.82	32.89	24.27	21.31	19.35	20.15	22.60	HP
2Y3A9Y	X	25.06X	84.97X	100.35X	94.30X	91.08X	88.95X	87.13X	86.64X	87.15X	86.67X	86.36X	86.40X	87.49X	87.80X	87.43X	88.03X	XO
33HDYM		13.02	15.09	18.05	20.40	22.28	25.83	33.21	44.27	49.80	43.65	32.52	24.31	21.26	19.59	20.46	22.50	AG
3JTZKX		13.66	15.02	17.62	20.11	21.89	25.57	33.02	43.56	48.63	42.58	31.99	24.09	20.96	19.34	20.09	22.34	MJ
3LPA2J		13.04	15.18	18.10	20.50	22.33	25.94	33.37	44.43	49.99	43.85	32.68	24.37	21.33	19.65	20.53	22.44	AM
4L96HD		13.10	15.02	17.99	20.44	22.28	25.80	33.08	44.13	49.94	43.52	32.48	24.19	21.18	19.45	20.36	22.62	AM
4MFQ18		13.05	14.99	17.95	20.34	22.18	25.64	32.87	43.97	49.62	43.60	32.70	24.30	21.26	19.61	20.42	22.64	AM
5B7TWP		12.91	14.89	17.81	20.26	22.01	25.51	32.82	43.99	49.64	43.38	32.21	24.08	21.23	19.46	20.32	22.92	MV
5F3FUJ		13.16	14.95	17.85	20.30	22.14	25.71	32.94	44.10	49.61	43.55	32.60	24.35	21.26	19.57	20.40	22.79	AJ
5J1YQQ		13.12	14.99	17.89	20.25	22.01	25.66	32.83	44.01	49.34	43.19	32.01	24.15	21.18	19.50	20.37	22.86	MK
61TYPV		12.95	14.88	17.70	20.10	21.87	25.50	32.67	43.56	48.94	42.90	31.74	23.89	20.97	19.30	20.08	22.37	MM
6B8XAQ		13.11	15.03	17.96	20.29	22.20	25.86	33.43	44.46	49.21	42.86	32.42	24.20	21.17	19.65	20.61	22.98	XR
6BW1F7		13.32	15.15	17.96	20.27	22.07	25.71	32.97	43.95	49.23	43.20	32.30	24.22	21.18	19.53	20.36	22.82	AJ
6M6WPQ		13.28	15.07	18.09	20.41	22.27	25.92	33.72	44.34	49.07	43.11	32.10	23.96	21.34	19.61	20.55	22.76	HW
6PTFN2		12.97	14.92	17.81	20.24	22.01	25.65	32.75	43.80	49.22	43.18	32.02	24.17	21.19	19.60	20.47	22.94	MM
71CRN7	X	13.80	15.81X	18.88X	21.38X	23.27X	26.74X	34.22X	45.27X	50.70X	44.43	33.28	24.94X	23.29X	20.21X	21.13X	23.64X	AN
78AHYM		13.10	15.06	17.92	20.34	22.12	25.78	32.99	44.02	49.33	43.27	32.05	24.18	21.20	19.59	20.49	22.96	MM
7ANK5Z		13.31	15.22	17.94	20.34	22.09	25.66	32.83	43.80	49.56	43.69	32.86	24.48	21.37	19.64	20.36	22.83	AJ
7JEGU3		13.17	15.28	18.16	20.49	22.27	25.76	33.06	44.36	49.66	43.75	32.69	24.44	21.36	19.67	20.50	22.44	AJ
7Y4UPW		13.11	15.08	17.91	20.30	22.07	25.68	32.84	43.80	49.29	43.36	32.50	24.27	21.22	19.51	20.28	22.70	AJ
819LQ9		12.96	14.95	17.77	20.19	22.05	25.55	32.78	43.77	49.21	43.28	32.31	24.15	21.15	19.48	20.28	22.35	AM
84TTU3		13.32	15.10	17.93	20.39	22.09	25.55	32.60	43.77	50.06	44.13	32.92	24.47	21.50	19.65	20.42	23.02	MV
85CQN9		13.11	15.01	17.90	20.31	22.07	25.75	32.90	43.92	49.17	43.17	32.05	24.19	21.19	19.54	20.40	22.85	MK

Interlaboratory Testing Program for Color & Appearance Analysis 411

Spectrophotometric - Sphere Geometry Instruments Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample D81																		
88BNYG		12.95	14.81	17.68	20.18	21.95	25.39	32.52	43.45	49.20	43.36	32.63	24.34	21.38	19.64	20.40	22.83	HX
8FNUPS		13.07	14.96	17.88	20.21	21.99	25.65	32.82	43.76	49.13	43.17	31.99	24.06	21.09	19.44	20.29	22.76	MK
8G4KVW		13.08	15.06	18.00	20.35	22.21	25.75	33.18	44.22	49.74	43.64	32.59	24.29	21.24	19.55	20.40	22.45	AM
8J9PBK		13.14	15.07	17.87	20.24	22.04	25.64	32.81	43.79	49.23	43.29	32.44	24.27	21.20	19.50	20.28	22.73	AJ
8RZBXB		13.23	15.17	18.02	20.38	22.28	25.72	33.15	44.04	49.50	43.71	32.79	24.43	21.34	19.57	20.44	22.62	AJ
9B8R48		13.25	15.07	17.94	20.35	22.12	25.77	33.00	44.16	50.07	43.77	32.59	24.31	21.35	19.26	20.01	22.68	HP
9E4N7F		13.04	14.80	17.64	19.94	21.66	25.25	32.38	43.36	48.77	42.78	32.04	24.08	21.10	19.36	20.21	22.65	MG
9EUYFV		13.15	15.09	17.98	20.36	22.15	25.76	32.94	43.97	49.39	43.42	32.26	24.32	21.32	19.66	20.51	22.93	MM
9LAYV2		12.82	14.89	17.65	20.05	21.73	25.36	32.87	43.19	48.38	42.49	31.89	23.91	20.95	19.37	20.21	22.52	XQ
A38TLK		13.34	15.38	18.39	20.59	22.51	26.05	33.76	44.81	50.26	44.17	33.34X	24.87X	21.91X	20.21X	20.90	23.41	HK
A3NWLR		12.93	14.96	17.83	20.21	22.05	25.70	33.22	44.28	49.18	42.90	31.84	24.01	21.12	19.50	20.44	22.81	XO
AKRSGV		13.07	14.97	17.83	20.21	21.97	25.54	32.63	43.60	49.09	43.26	32.15	24.20	21.20	19.53	20.34	22.75	MM
ANP7Z6		13.00	14.94	17.89	20.25	22.06	25.51	32.77	43.64	49.29	43.43	32.47	24.20	21.18	19.48	20.40	22.34	AM
B174MG		12.97	15.02	17.88	20.41	22.24	25.72	32.94	43.81	49.81	44.05	33.05	24.51	21.37	19.59	20.37	22.48	AJ
BDFYZ5		13.06	14.97	17.88	20.20	21.98	25.60	32.85	43.90	49.34	43.19	32.27	24.12	21.10	19.39	20.13	22.46	AJ
BS1GVU		12.92	14.95	17.87	20.25	22.14	25.71	33.17	44.18	49.43	43.42	32.46	24.20	21.16	19.51	20.27	22.29	AJ
C5S7PY		12.57	15.31	17.51	20.03	21.77	24.91X	33.29	44.17	48.11	42.41	31.88	23.24X	21.04	19.37	20.13	22.06	XX
CMYJ29		13.08	15.03	18.01	20.44	22.15	25.78	33.24	44.57	50.09	43.84	32.34	24.27	21.26	19.61	20.43	23.03	MV
CVH31M		12.84	14.94	17.53	20.10	21.80	25.35	32.66	43.03	48.33	42.64	32.16	24.20	21.06	19.43	20.16	22.36	MJ
DG7VKN		13.26	15.17	18.11	20.46	22.33	25.84	32.95	44.12	49.85	43.71	32.50	24.36	21.22	19.65	20.52	22.94	AO
DK2BEX		12.93	14.78	17.75	20.16	21.87	25.36	32.46	43.55	49.63	43.61	32.45	24.16	21.23	19.41	20.20	22.80	MV
DNG3CT		13.04	15.00	17.90	20.36	22.08	25.54	32.68	43.78	49.32	43.46	32.65	24.36	21.28	19.58	20.43	22.66	AO
DPZY2K		13.00	15.05	17.86	20.25	22.11	25.82	33.20	44.23	49.10	42.72	31.86	24.12	21.11	19.47	20.39	22.86	XP
DW8KR1		13.17	15.17	18.13	20.49	22.32	25.92	33.29	44.31	49.55	43.62	32.76	24.47	21.43	19.70	20.52	22.90	AO
FKJ2XU		13.38	15.13	18.09	20.44	22.26	25.82	33.38	44.09	49.04	43.24	32.29	24.08	21.45	19.69	20.60	22.83	HW

Interlaboratory Testing Program for Color & Appearance Analysis 411

Spectrophotometric - Sphere Geometry Instruments Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample D81																		
FWFJP2		13.08	15.05	17.94	20.26	22.22	25.71	33.13	44.11	49.54	43.54	32.56	24.26	21.20	19.56	20.40	22.48	AJ
GE7WU		12.96	14.94	17.91	20.16	21.94	25.58	32.86	43.90	48.68	42.55	31.80	24.15	21.15	19.49	20.37	22.78	MG
GTLQ5X		13.22	15.10	18.05	20.38	22.20	25.71	33.03	44.02	49.65	43.41	32.26	24.14	21.12	19.52	20.41	22.77	AO
HTN9S6		12.73	14.73	17.61	19.91	21.77	25.33	32.51	43.56	48.72	42.46	31.39	23.55	20.59X	19.02X	19.92	22.38	MI
J3YPLZ		13.08	15.00	17.91	20.28	22.07	25.68	32.85	43.89	49.19	43.22	32.14	24.23	21.24	19.55	20.39	22.86	MK
J9QWDK		13.15	15.06	18.02	20.44	22.23	25.68	33.00	43.86	49.50	43.68	32.70	24.39	21.33	19.65	20.51	22.62	AJ
JEK3EM		13.25	15.03	18.13	20.42	22.27	25.87	33.46	44.36	49.04	43.16	32.14	23.98	21.31	19.56	20.45	22.68	HU
JLYKJA		12.97	14.86	17.80	20.14	21.91	25.58	32.82	43.91	49.06	42.93	31.71	23.93	20.99	19.37	20.26	22.71	MM
JWA4HK		13.34	15.18	18.05	20.48	22.29	25.75	32.98	43.79	49.65	43.78	32.81	24.48	21.43	19.74	20.62	22.95	AQ
JXEVIK		12.93	15.15	17.92	20.38	22.30	26.04	33.31	43.77	48.79	43.24	32.65	24.66	21.33	19.77	20.54	22.75	MK
JYGMGF		13.10	14.95	17.90	20.20	22.05	25.60	32.80	44.15	49.65	43.40	32.30	24.20	21.25	19.55	20.30	22.80	SH
K3DAV2	X	14.08X	15.73X	19.02X	21.07X	22.99X	27.04X	34.94X	46.73X	50.87X	43.54	31.73	24.20	21.44	19.85	20.97X	23.65X	PE
KEDW75		13.20	15.09	17.99	20.37	22.12	25.73	32.90	43.92	49.36	43.44	32.25	24.31	21.30	19.65	20.53	22.95	MM
KFCH1H		13.03	15.00	17.94	20.27	22.09	25.74	32.98	43.96	49.28	43.28	32.15	24.23	21.23	19.61	20.50	22.95	MM
KU5U91		12.91	15.01	17.73	20.22	21.97	25.62	32.96	43.47	48.61	42.90	32.42	24.34	21.16	19.53	20.28	22.55	MJ
KXSBSL		13.58	15.28	18.32	20.42	22.27	25.77	33.19	44.31	49.79	42.86	31.76	23.93	21.19	19.15	20.24	22.75	HH
L4WVPV		13.01	15.20	17.90	20.36	22.36	25.52	33.66	43.64	48.95	43.16	32.09	24.48	21.33	19.65	20.39	22.66	ME
LNQR2J		13.33	15.04	17.97	20.53	22.18	26.09	33.37	44.59	49.63	43.48	32.39	24.37	21.41	19.71	20.45	22.82	GG
M142M6		12.87	14.81	17.73	20.11	21.93	25.69	33.10	43.98	48.92	42.62	31.74	23.83	20.90	19.31	20.23	22.75	XO
M7P33J		13.04	15.08	17.91	20.31	22.16	25.59	32.95	43.94	49.45	43.69	32.64	24.37	21.32	19.64	20.48	22.48	AM
MCCQV4		12.92	14.73	17.65	20.08	21.82	25.31	32.48	43.83	49.83	43.63	32.38	24.02	21.10	19.28	20.09	22.63	PE
MRCQA		12.00X	14.61X	17.78	19.99	21.60	25.27	33.31	44.14	48.71	42.93	32.12	23.31X	20.83	19.13	19.87	21.79X	GD
MV4WT8		13.10	15.05	17.94	20.37	22.13	25.77	32.93	44.05	49.42	43.31	32.10	24.20	21.25	19.60	20.51	22.94	MM
MX1Q1K		12.79	14.93	17.55	20.11	21.88	25.48	32.81	43.13	48.40	42.70	32.20	24.19	21.02	19.43	20.17	22.46	MJ
N6V3QB		12.85	14.92	17.63	20.11	21.88	25.57	33.11	43.63	48.55	42.50	31.95	23.99	20.89	19.31	20.09	22.37	MJ

Interlaboratory Testing Program for Color & Appearance

Analysis 411

Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample D81																		
NFV7P8		12.93	15.13	17.98	20.31	22.17	25.74	33.23	44.08	49.35	43.49	32.44	24.18	21.15	19.52	20.38	22.06	AJ
NJBPM6		13.09	15.03	17.94	20.46	22.28	25.88	33.30	44.27	49.61	43.91	32.80	24.41	21.43	19.68	20.54	22.61	AG
P2QA56		12.89	14.87	17.69	20.14	21.91	25.47	32.58	43.43	48.87	43.09	32.05	24.16	21.16	19.52	20.37	22.75	MM
P416TJ		13.08	15.03	17.94	20.24	22.04	25.70	32.89	43.91	49.18	43.17	32.09	24.19	21.17	19.50	20.34	22.79	MM
PJCNJY		13.97X	14.92	17.79	20.32	21.50X	25.47	32.62	43.52	49.87	43.68	31.60	24.00	20.99	19.27	20.37	22.82	MV
Q1WWZ		13.12	15.19	18.21	20.45	22.40	25.98	33.41	44.61	49.62	43.39	32.28	24.25	21.27	19.64	20.45	22.43	AJ
Q3UC7H		12.98	14.96	17.87	20.35	22.06	25.63	33.05	44.31	49.78	43.47	32.12	24.14	21.18	19.53	20.41	23.00	MV
Q4W3LR		14.10X	14.84	17.39X	19.94	21.79	25.23	32.27	43.24	49.13	43.66	32.87	24.36	21.18	19.36	20.01	22.36	HG
Q723ZA		13.02	14.95	17.84	20.20	21.99	25.63	32.83	43.88	49.24	43.12	31.91	24.05	21.09	19.47	20.29	22.68	MM
QE7GJT		13.11	15.02	17.94	20.46	22.26	25.70	32.92	44.14	49.41	43.57	32.45	24.40	21.38	19.78	20.36	22.79	AM
QHG4AA		13.11	15.24	18.17	20.57	22.44	26.01	33.42	44.50	49.92	43.78	32.75	24.46	21.43	19.77	20.63	22.35	AG
QJ61EQ		13.11	14.80	17.64	19.99	21.74	25.28	32.71	43.44	48.42	42.72	31.71	23.61	20.94	19.25	20.12	22.34	HW
QR4KN		13.15	15.08	18.01	20.46	22.16	25.67	32.95	44.36	50.32	44.00	32.58	24.32	21.41	19.63	20.57	23.28	MV
R5Q8GA		13.14	15.05	17.90	20.28	22.05	25.70	32.82	43.86	49.41	43.49	32.46	24.35	21.27	19.57	20.36	22.76	MM
R7GTHU		13.25	14.99	18.05	20.32	22.27	25.83	33.44	44.20	48.94	43.14	32.08	24.02	21.29	19.57	20.52	22.71	HW
RMR1GR		13.30	15.16	18.03	20.39	22.17	25.79	33.02	44.46	49.23	42.76	31.97	23.93	21.15	19.64	20.60	23.25	MZ
RXKP4D		13.27	15.05	18.06	20.41	22.18	25.83	33.08	44.53	49.98	43.56	32.26	24.13	21.23	19.44	20.34	22.92	CA
RYHUPE		13.91X	14.92	17.61	20.02	21.83	25.35	32.48	43.32	48.83	43.39	32.79	24.49	21.29	19.56	20.25	22.50	HG
S249W6		13.05	14.94	17.76	20.21	21.98	25.51	32.62	43.91	49.26	43.59	32.58	24.28	21.25	19.58	20.28	22.70	AJ
S9Z7LU		13.16	15.13	17.96	20.53	22.32	25.83	33.16	44.21	49.88	43.76	32.62	24.32	21.30	19.61	20.45	22.81	AO
STDM7V		13.03	15.11	18.05	20.44	22.26	25.88	33.18	44.21	49.43	43.22	32.25	24.12	21.19	19.49	20.36	22.30	AJ
T1W5CV	X	97.90X	97.99X	98.07X	98.05X	97.96X	98.08X	98.08X	98.18X	97.96X	97.88X	97.72X	97.67X	97.55X	97.43X	97.50X	97.60X	GG
T47RRA		13.59	15.52X	18.45X	20.69	22.57	26.31X	33.99X	44.88	50.23	44.26	33.09	24.66	21.64	19.89	21.05X	23.60X	HF
TSSWD		13.28	14.98	17.94	20.35	22.05	25.70	32.97	44.17	49.83	43.53	32.20	24.05	21.18	19.41	20.28	22.90	MV
TZNYD		13.38	15.15	18.03	20.41	22.15	25.77	32.94	43.99	50.04	44.00	33.04	24.35	21.32	19.33	21.31X	22.68	HP

Interlaboratory Testing Program for Color & Appearance

Analysis 411

Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample D81																		
U79NVF		13.16	15.07	18.00	20.41	22.20	25.67	32.93	43.89	49.78	43.67	32.74	24.27	21.24	19.55	20.42	22.63	AJ
UA8YRF		13.16	15.08	18.09	20.50	22.30	25.81	33.13	44.26	49.85	43.79	32.83	24.37	21.28	19.61	20.50	22.76	AJ
UK5N16		12.86	14.91	17.70	20.10	21.86	25.47	32.52	43.44	48.74	43.19	32.23	24.10	21.05	19.38	20.11	22.45	AP
URF26F		12.96	15.14	18.01	20.37	22.20	25.82	33.15	44.21	49.52	43.33	32.30	24.18	21.20	19.52	20.42	22.38	AM
UYCTVX		13.08	15.06	17.96	20.35	22.22	25.72	33.12	44.09	49.37	43.48	32.50	24.32	21.29	19.56	20.35	22.19	AJ
VA5R4E		12.95	15.10	18.02	20.27	22.05	25.80	33.40	44.37	49.13	42.59	31.58	23.86	21.00	19.46	20.53	22.91	XO
VP1JNQ		12.96	14.98	17.89	20.25	22.05	25.75	32.98	44.08	49.29	43.21	32.00	24.18	21.18	19.54	20.43	22.88	MK
VUETXC		12.97	14.97	17.81	20.18	21.99	25.59	32.80	43.83	49.28	43.38	32.48	24.31	21.19	19.49	20.24	22.63	AL
WFN3EF		13.64	15.15	18.20	20.58	22.41	25.97	33.31	44.57	50.11	43.78	32.63	24.35	21.32	19.62	20.55	22.97	AO
WK1Q3F		13.31	15.20	18.21	20.51	22.37	25.84	33.05	44.09	49.85	43.58	32.47	24.39	21.39	19.70	20.57	22.91	AM
WZSNV		13.18	14.76	17.77	20.20	22.03	25.78	33.11	44.35	50.13	43.84	32.33	24.14	21.36	19.63	20.59	23.28	MV
X32BN5		12.94	14.85	17.86	20.23	21.94	25.58	32.76	44.17	50.00	43.27	32.30	23.87	21.19	19.44	20.37	22.93	MV
X46N31		12.79	14.83	17.66	20.02	21.77	25.33	32.99	43.73	48.64	42.50	31.83	23.84	20.85	19.19	20.04	22.31	XQ
XCZTW2		13.32	15.22	18.17	20.48	22.26	25.95	33.21	44.31	49.43	43.29	32.10	24.28	21.33	19.69	20.59	23.03	MK
XDQZ26		13.02	14.96	17.93	20.36	22.07	25.68	33.05	44.35	50.11	43.70	32.29	24.16	21.31	19.55	20.48	23.14	MV
XEQEPA		13.08	15.10	18.04	20.46	22.29	25.86	33.28	44.37	49.89	43.86	32.60	24.35	21.32	19.59	20.48	22.57	AJ
XFR8P4		13.42	15.45X	18.12	20.46	22.21	25.70	32.96	43.63	49.21	43.52	32.57	24.36	21.35	19.67	20.45	22.48	AJ
XTC6DZ		13.08	14.99	17.84	20.23	21.99	25.54	32.62	43.61	49.13	43.31	32.21	24.21	21.19	19.49	20.30	22.77	MK
Y3RNGQ		13.45	14.93	17.97	20.39	21.90	25.74	32.87	44.11	50.32	43.99	31.76	23.85	21.13	19.29	20.32	22.73	MX
Y9BNX3		12.72	14.82	17.65	20.01	21.75	25.28	32.50	43.42	48.66	42.68	31.93	23.73	20.71X	19.17	19.95	22.40	AP
YBRECK		12.88	14.88	17.75	20.19	22.01	25.64	33.18	44.23	48.82	42.52	31.49	23.81	20.93	19.37	20.34	22.65	XL
YDVRTF		13.10	15.07	18.04	20.44	22.23	25.79	33.10	44.19	49.54	43.50	32.49	24.23	21.20	19.51	20.44	22.75	AJ
YQN2E1		13.11	15.04	17.90	20.26	22.06	25.70	32.93	43.99	49.26	43.21	32.29	24.17	21.13	19.47	20.27	22.72	AJ
YU3AGB		12.85	14.88	17.92	20.34	22.18	25.69	32.78	44.02	49.37	43.56	32.53	24.19	21.20	19.54	20.38	22.16	AM
ZCZRQF		13.08	15.17	18.10	20.42	22.31	25.88	33.40	44.46	49.64	43.55	32.52	24.25	21.26	19.60	20.48	22.67	AJ

Interlaboratory Testing Program for Color & Appearance Analysis 411

Spectrophotometric - Sphere Geometry Instruments Reflectance at 16 Selected Wavelengths

WebCode	Data Flag	Spectrophotometric Reflectance values (as %) at selected wavelengths																Instr. Code
		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample D81																		
ZM5VDQ		13.05	14.99	17.93	20.38	22.20	25.81	33.27	44.18	49.67	43.56	32.42	24.14	21.20	19.42	20.33	23.00	MT
ZXTJSR	X	9.88X	11.35X	13.92X	15.67X	16.25X	17.73X	19.34X	16.77X	11.28X	8.48X	7.51X	7.11X	7.05X	7.19X	7.09X	6.89X	AJ

Summary Statistics

Grand Means																	
	13.10	15.02	17.91	20.30	22.09	25.67	32.99	43.99	49.38	43.34	32.32	24.19	21.21	19.52	20.38	22.69	
Std Dev Btwn Labs																	
	0.25	0.14	0.18	0.15	0.19	0.20	0.29	0.35	0.47	0.41	0.36	0.23	0.17	0.16	0.19	0.28	

Comments assigned on Data Flags for Test #411

- 2Y3A9Y (X) - Apparently measured back of the sample.
- 71CRN7 (X) - High data for most wavelengths.
- K3DAV2 (X) - High data for most wavelengths.
- T1W5CV (X) - Apparently measured back of the sample.
- ZXTJSR (X) - Extreme data.

Instrument Code List - Report# 146

Instrument information as provided by laboratories

<u>Analysis</u>	<u>Analysis Name</u>
411	Spectrophotometric (Paint Chips) - Sphere

Instrument code and description

AG	ACS-DataColor Intl. Spectraflash 450	MV	Minolta CM-3000d Series Spectrophotometer
AJ	ACS-Datacolor Intl. Spectraflash 600	MX	Minolta CM-508d Spectrophotometer
AL	ACS-Datacolor Intl. Dataflash 100	MZ	Minolta CM-2002 Spectrophotometer
AM	ACS-Datacolor Intl. Spectraflash 600 Plus	PE	Perkin Elmer Spectrophotometer
AN	DataColor Mercury	SH	SIMADZU UV 3101PC
AO	ACS-Datacolor Intl. Spectraflash 650X	XL	X-Rite SP60 Spectrophotometer
AP	DataColor Check Plus	XO	X-Rite SP64
AQ	ACS-Datacolor Intl. Spectraflash 600X	XP	X-Rite SP88
CA	Cary 5000	XQ	X-Rite SP68 Portable Sphere SpectroPhotometer
GD	BYK-Gardner spectro-guide sphere	XR	X-Rite SP78 Portable Sphere Spectrophotometer
GG	BYK-Gardner TCS II	XX	Instrument make/model not specified by lab
HF	ColorFlex Diffuse		
HG	Hunter ColorQUEST		
HH	Hunter ColorQUEST XE		
HK	Hunter MiniScan XE (Sphere)		
HP	Hunter UltraScan PRO		
HU	Hunter UltraScan		
HW	Hunter UltraScan XE		
HX	Hitachi C-2000S Spectrophotometer		
ME	Macbeth 1500/PLUS - 2020+ Color Eye		
MG	Macbeth 2180 Color Eye		
MI	Macbeth Color i 5		
MJ	Macbeth Color-Eye 3000 Spectrophotometer		
MK	Macbeth Color-Eye 7000 Spectrophotometer		
MM	Macbeth Color-Eye 7000a		
MT	Minolta CM-2600		