



Color & Appearance Testing Program

Summary Spectrophotometric Report # 145 - 3rd Q 2008

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

[Key to Tables and Graphs](#)

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

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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 C81																		
15LBLA		10.04	11.35	13.91	15.72	16.24	17.75	19.42	16.80	11.41	8.54	7.54	7.15	7.10	7.28	7.18	6.95	AM
1LB64T		10.25	11.50	14.11	15.82	16.24	17.82	19.40	16.91	11.49	8.67	7.63	7.26	7.19	7.39	7.29	7.03	HP
1PQJPV		9.82	11.26	13.82	15.56	16.06	17.61	19.06	16.61	11.32	8.45	7.44	7.05	7.02	7.17	7.10	6.87	AP
26EEWW		10.17	11.03	13.66	15.65	15.56X	17.67	19.24	16.51	11.24	8.47	7.31X	7.13	7.09	7.20	7.27	6.80	MV
2GJ8KW		10.17	11.49	14.20	15.84	16.30	17.90	19.37	16.70	11.43	8.53	7.60	7.27	7.32X	7.60X	7.29	7.14	HW
2JGGAZ		9.88	11.19	13.84	15.62	15.87	17.58	19.34	16.88	11.29	8.42	7.47	7.11	7.05	7.29	7.19	6.93	MV
2Q84GR		9.94	11.41	13.82	15.61	16.11	17.64	19.09	16.54	11.51	8.64	7.60	7.21	7.21	7.37	7.29	7.10	MJ
38HKV3		10.09	11.27	13.90	15.75	16.12	17.70	19.44	16.82	11.31	8.44	7.53	7.16	7.13	7.33	7.23	6.98	MV
3CV549		9.98	11.28	13.85	15.57	16.06	17.58	19.25	16.47	11.05	8.45	7.49	7.16	7.09	7.32	7.20	6.57X	MZ
4CCJ5S		10.21	11.48	14.08	15.79	16.22	17.74	19.23	16.69	11.43	8.52	7.56	7.24	7.27	7.53X	7.43X	7.25X	HW
4TF77R		9.87	11.34	13.89	15.76	16.22	17.68	19.33	16.93	11.48	8.59	7.56	7.13	7.09	7.27	7.17	6.76	AM
4Y5XDM		9.86	11.39	13.99	15.67	16.15	17.73	19.26	16.65	11.36	8.56	7.52	7.15	7.13	7.31	7.22	6.95	MK
64B1ML	X	10.38	11.62	14.48X	16.19X	16.51X	18.20X	20.05X	17.22X	11.53	8.68	7.71X	7.34X	7.30X	7.48	7.38X	7.08	CA
698FHN		9.88	11.46	13.89	15.66	16.26	17.76	19.05	16.56	11.62	8.66	7.57	7.16	7.12	7.26	7.18	6.95	MK
6EBR67		10.07	11.49	13.95	15.71	16.16	17.72	19.34	16.83	11.52	8.56	7.54	7.17	7.13	7.33	7.24	6.97	AJ
6HAYFJ		9.88	11.32	13.91	15.65	16.12	17.68	19.33	16.70	11.34	8.48	7.50	7.10	7.06	7.23	7.14	6.85	AJ
6PH945		9.79	11.24	13.87	15.64	16.11	17.64	19.39	16.68	11.37	8.49	7.49	7.09	7.06	7.24	7.08	6.85	AM
6WKFQZ		9.75	11.12	13.72	15.39	15.84	17.41	18.95	16.28	11.01X	8.29X	7.34	6.99	6.92	7.16	7.00	6.81	MI
6XUHDK		10.40	11.51	13.83	15.66	16.15	17.68	19.14	16.51	11.37	8.56	7.56	7.19	7.15	7.34	7.25	7.03	MJ
6ZF9G9		9.89	11.28	13.86	15.59	16.04	17.59	19.19	16.60	11.31	8.48	7.48	7.12	7.09	7.26	7.18	6.92	MM
787281		10.24	11.48	14.13	15.85	16.33	17.91	19.47	16.75	11.35	8.52	7.56	7.15	7.14	7.32	7.23	6.94	AJ
79XCZT		10.07	11.27	13.85	15.51	15.94	17.51	19.03	16.51	11.29	8.41	7.45	7.11	7.18	7.42	7.29	7.14	HW
7ADK9G		9.88	11.26	13.99	15.70	16.07	17.74	19.42	16.83	11.32	8.40	7.47	7.10	7.09	7.31	7.21	6.96	MV
7Q3TT8		9.91	11.40	14.04	15.70	16.25	17.76	19.36	16.80	11.31	8.50	7.53	7.14	7.10	7.22	7.11	6.93	AM
8B45JT		9.90	11.34	13.74	15.49	15.97	17.52	18.96	16.41	11.36	8.51	7.50	7.12	7.10	7.29	7.20	6.98	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 C81																		
8FJGTG		9.96	11.43	14.07	15.76	16.21	17.74	19.32	16.75	11.34	8.49	7.50	7.12	7.08	7.26	7.11	6.90	AM
8R3VTY		10.02	11.37	13.96	15.66	16.13	17.70	19.26	16.65	11.35	8.53	7.52	7.15	7.13	7.32	7.23	6.69	MK
8RB563		10.05	11.40	13.98	15.68	16.20	17.76	19.35	16.63	11.37	8.50	7.58	7.19	7.16	7.35	7.24	6.99	XR
91NLTV		9.91	11.35	13.99	15.68	16.14	17.66	19.28	16.67	11.33	8.48	7.48	7.13	7.07	7.26	7.17	6.87	AJ
94JEK5		9.91	11.31	13.88	15.61	16.06	17.62	19.20	16.61	11.30	8.49	7.49	7.15	7.13	7.31	7.21	6.96	MM
98BHE4		9.92	11.41	13.69	15.67	16.10	17.58	19.13	16.75	11.61	8.64	7.60	7.19	7.16	7.33	7.27	7.04	MJ
9EZ648		9.81	11.26	13.94	15.51	16.09	17.65	19.22	16.46	11.14	8.39	7.49	7.15	7.15	7.29	7.20	6.92	XO
9NRPJG		9.91	11.36	13.87	15.63	16.07	17.61	19.16	16.56	11.26	8.39	7.40	7.01	6.97	7.16	7.10	7.35X	AJ
AVK3V2		10.08	11.50	14.11	15.68	16.23	17.72	19.35	16.79	11.27	8.53	7.57	7.15	7.13	7.23	7.17	6.94	AM
B46R39	X	10.58X	11.80X	14.75X	16.10X	16.58X	18.36X	19.84X	16.55	11.01X	8.47	7.57	7.24	7.19	7.42	7.27	6.97	PE
BJQ5QG		10.29	11.51	14.21	15.83	16.32	17.85	19.42	16.77	11.32	8.49	7.54	7.14	7.13	7.25	7.18	6.99	AO
BUC72A		10.05	11.53	14.19	15.88	16.38	17.97	19.60	16.88	11.41	8.56	7.56	7.18	7.13	7.31	7.23	6.81	AG
CKZJPA		9.94	11.31	13.95	15.63	16.06	17.67	19.19	16.56	11.27	8.66	7.46	7.10	7.07	7.25	7.15	6.88	MM
CTP7LY		10.17	11.42	13.96	15.68	16.20	17.66	19.36	16.80	11.40	8.56	7.58	7.18	7.15	7.26	7.17	6.96	AQ
DAS9M3		9.96	11.33	13.97	15.62	16.08	17.68	19.22	16.56	11.27	8.49	7.49	7.12	7.09	7.27	7.17	6.91	MK
DDFB3Q		10.09	11.40	14.18	15.82	16.27	17.84	19.35	16.75	11.49	8.55	7.57	7.25	7.28	7.59X	7.29	7.13	HU
DH3ME7		9.94	11.39	13.88	15.68	16.11	17.64	19.24	16.74	11.42	8.51	7.52	7.11	7.08	7.27	7.20	6.95	AJ
DNJP14		10.04	11.47	14.00	15.83	16.33	17.85	19.43	16.88	11.41	8.54	7.58	7.19	7.14	7.28	7.21	7.02	AO
DTK6W	X	9.76	11.18	13.77	15.48	15.90	17.48	19.06	16.45	11.12	8.25X	7.27X	6.89X	6.85X	7.00X	6.35X	5.30X	AJ
DUHGSL		10.12	11.28	13.98	15.74	16.10	17.76	19.43	16.92	11.36	8.46	7.49	7.15	7.11	7.34	7.22	6.95	XX
DVXP6F		10.35	11.26	13.56	15.43	15.95	17.44	19.29	16.70	11.53	8.56	7.50	7.07	7.06	7.17	7.12	6.87	HG
EQD3L7		9.92	11.30	13.91	15.59	16.06	17.59	19.16	16.62	11.28	8.47	7.49	7.11	7.05	7.23	7.14	6.88	AM
EVC4EA		9.87	11.35	13.94	15.63	16.12	17.64	19.23	16.72	11.32	8.49	7.50	7.12	7.09	7.29	7.20	6.88	AJ
EW3NQ		9.94	11.30	13.89	15.59	15.99	17.55	19.13	16.56	11.23	8.38	7.41	7.04	7.01	7.21	7.19	6.92	MM
F8ZVGQ		9.93	11.20	13.89	15.59	16.03	17.61	19.21	16.62	11.32	8.49	7.49	7.13	7.10	7.28	7.18	6.93	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 C81																		
FFFB7E		9.92	11.35	13.92	15.65	16.10	17.67	19.22	16.61	11.30	8.46	7.47	7.09	7.05	7.24	7.16	6.90	AJ
FPKHME		9.93	11.30	13.90	15.56	16.01	17.57	19.13	16.57	11.32	8.48	7.47	7.12	7.08	7.25	7.18	6.92	MK
FY6PFB		9.96	11.48	13.96	15.74	16.19	17.68	19.34	16.82	11.48	8.53	7.53	7.14	7.09	7.25	7.15	6.93	AM
G3P4Q4		9.86	11.27	13.88	15.58	16.09	17.66	19.19	16.65	11.37	8.52	7.50	7.14	7.11	7.28	7.19	6.93	MM
G6MMN		9.89	11.35	14.03	15.69	16.18	17.80	19.36	16.68	11.27	8.51	7.52	7.14	7.12	7.32	7.24	6.89	AJ
GDKAL		9.77	11.27	13.63	15.50	15.99	17.51	18.94	16.44	11.36	8.49	7.49	7.11	7.09	7.26	7.20	7.03	MJ
GR93BJ		9.47X	11.27	13.93	15.58	15.98	17.65	19.14	16.40	11.13	8.35	7.44	7.07	7.08	7.27	7.15	6.87	XO
GYVVQ4		10.17	11.47	14.07	15.72	16.20	17.77	19.30	16.57	11.39	8.50	7.49	7.29	7.24	7.50	7.30	7.18	HW
HAHMQ		10.37	11.74	14.35X	15.82	16.33	18.08X	19.38	16.47	11.26	8.52	7.63	7.23	7.18	7.37	7.29	7.03	AD
HC4FB1		9.90	11.46	13.93	15.58	16.14	17.64	19.19	16.45	11.26	8.49	7.53	7.15	7.11	7.29	7.21	6.96	XQ
HM5U9S		9.80	11.24	13.62	15.41	15.89	17.41	18.85X	16.37	11.29	8.43	7.42	7.03	7.00	7.17	7.10	6.88	MJ
HMC1N9		10.03	11.43	13.97	15.72	16.21	17.73	19.28	16.80	11.44	8.54	7.58	7.17	7.12	7.29	7.23	6.99	AJ
HWJNW		9.97	11.37	14.05	15.71	16.22	17.75	19.32	16.76	11.32	8.49	7.55	7.16	7.13	7.27	7.15	6.99	AJ
JAUN55		9.98	11.21	13.78	15.49	15.93	17.56	19.13	16.53	11.08	8.37	7.36	7.01	6.99	7.18	7.10	6.75	HP
JE7AV4		9.71	11.16	13.80	15.37	16.01	17.53	19.10	16.39	11.12	8.36	7.46	7.07	7.07	7.24	7.15	6.89	XO
JWQHHZ		9.92	11.32	13.90	15.73	16.11	17.70	19.37	16.74	11.34	8.48	7.53	7.17	7.14	7.34	7.26	6.98	MV
KCRP7L		10.05	11.47	14.06	15.79	16.24	17.80	19.37	16.78	11.34	8.49	7.51	7.12	7.09	7.27	7.13	6.91	AM
KD8MUJ		9.91	11.44	13.93	15.63	16.08	17.68	19.13	16.32	11.18	8.50	7.52	7.12	7.13	7.30	7.22	6.94	XQ
KY1JEK		9.91	11.17	13.91	15.63	16.11	17.67	19.21	16.59	11.21	8.45	7.47	7.09	7.05	7.24	7.12	6.86	AJ
L1FH3Y		9.99	11.52	13.94	15.75	16.30	17.61	19.22	16.81	11.33	8.62	7.59	7.24	7.19	7.36	7.28	7.03	ME
L3DM31		9.99	11.44	14.09	15.77	16.27	17.80	19.38	16.78	11.34	8.50	7.51	7.14	7.11	7.27	7.16	6.86	AG
LP35ZC		10.16	11.55	14.09	15.80	16.28	17.82	19.32	16.80	11.56	8.64	7.61	7.22	7.19	7.36	7.28	7.05	MM
LZAT3A		9.93	11.28	13.95	15.71	16.10	17.73	19.41	16.76	11.33	8.47	7.54	7.18	7.14	7.34	7.25	6.96	MV
M31JST	X	9.30X	11.50	13.28X	15.26X	16.38	17.06X	18.55X	16.25	11.51	8.49	7.68	7.11	7.21	7.34	7.95X	8.72X	GH
ME28M2		9.98	11.38	14.08	15.64	16.05	17.62	19.14	16.54	11.22	8.56	7.55	7.15	7.16	7.36	7.24	7.04	MG

Interlaboratory Testing Program for Color & Appearance

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Spectrophotometric - Sphere Geometry Instruments

Reflectance at 16 Selected Wavelengths

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		400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	
Sample C81																		
MG1PGH		9.43X	11.44	13.76	15.48	15.99	17.27X	18.99	16.39	11.35	8.47	7.75X	7.01	7.22	7.05	7.02	6.85	GD
N3NAGX		10.16	11.57	14.01	15.72	16.16	17.65	19.20	16.72	11.42	8.57	7.59	7.19	7.17	7.34	7.20	7.00	AJ
N7B6M9		9.94	11.51	14.03	15.67	16.18	17.72	19.26	16.63	11.30	8.48	7.50	7.14	7.12	7.22	7.14	6.87	AJ
NF6758		10.22	11.72	14.24	15.91	16.33	17.83	19.42	16.90	11.55	8.67	7.68	7.28	7.23	7.41	7.31	7.02	AJ
NRQBN6		9.98	11.40	13.90	15.65	16.10	17.64	19.17	16.63	11.37	8.50	7.53	7.14	7.10	7.28	7.20	6.97	AJ
PDY57G		9.82	11.35	13.97	15.69	16.17	17.73	19.31	16.71	11.36	8.48	7.48	7.09	7.04	7.22	7.11	6.88	AJ
PGZAHF		9.81	11.19	13.83	15.62	15.98	17.57	19.31	16.70	11.18	8.40	7.47	7.08	7.07	7.27	7.20	6.97	MV
PQRPM		9.81	11.14	13.70	15.54	15.99	17.52	19.23	16.67	11.38	8.49	7.44	7.03	6.99	7.09	7.01	6.80	HP
PT9VZN		9.79	11.17	13.82	15.58	16.07	17.62	19.24	16.70	11.17	8.41	7.45	7.04	7.00	7.12	7.04	6.84	AM
PVY2HZ		9.88	12.32X	13.73	15.58	16.16	17.38	19.37	16.55	11.45	8.60	7.63	7.14	7.08	7.17	7.07	6.82	XX
Q9JY3U		9.91	11.27	13.85	15.57	16.02	17.60	19.13	16.57	11.29	8.47	7.46	7.09	7.06	7.23	7.14	6.88	MK
QLMDS6		9.99	11.41	13.93	15.68	16.15	17.69	19.28	16.75	11.41	8.48	7.48	7.07	7.04	7.22	7.15	6.90	AJ
QXPHDT		9.76	11.17	13.75	15.46	15.94	17.50	19.08	16.53	11.23	8.36	7.40	7.04	6.99	7.17	7.08	6.65	AL
R5J3XZ		10.29	11.36	14.03	15.73	16.23	17.74	19.38	16.75	11.33	8.51	7.54	7.17	7.12	7.22	7.13	6.97	AO
R83ZJ5		9.88	11.39	13.90	15.61	16.10	17.67	19.23	16.49	11.25	8.44	7.46	7.10	7.10	7.28	7.18	6.93	XP
RL5MG1		9.91	11.26	13.86	15.53	15.95	17.53	19.08	16.48	11.25	8.43	7.44	7.07	7.04	7.23	7.14	6.88	MK
RLQ94P		9.88	11.26	13.82	15.55	15.97	17.52	19.14	16.62	11.33	8.47	7.47	7.10	7.08	7.25	7.17	6.91	MK
RSV1E8		9.79	11.14	13.76	15.60	15.96	17.43	19.21	16.75	11.41	8.52	7.55	7.16	7.10	7.27	7.13	6.77	HX
SA4H1X	X	10.54X	11.79X	14.51X	15.86	16.35	17.84	19.58	16.69	11.34	8.65	7.69	7.35X	7.34X	7.59X	7.46X	7.26X	HH
SD4TWX		10.27	11.12	13.38X	15.33X	15.83	17.35	19.01	16.76	11.40	8.40	7.36	6.94X	6.92	7.06	7.00	6.75	HG
SSQ687		9.97	11.36	13.94	15.66	16.09	17.65	19.23	16.60	11.31	8.49	7.50	7.12	7.10	7.27	7.19	6.92	MM
THC9TE		9.70	11.29	13.91	15.59	16.04	17.63	19.19	16.56	11.25	8.43	7.42	7.05	7.03	7.21	7.10	6.85	MM
TT13LP		9.91	11.30	13.93	15.70	16.12	17.69	19.29	16.72	11.31	8.47	7.50	7.13	7.10	7.32	7.20	6.90	MT
TUUTQH		10.09	11.34	13.95	15.61	16.18	17.65	19.40	16.70	11.38	8.52	7.54	7.16	7.11	7.32	7.16	6.96	AJ
TW1FYF		9.96	11.47	14.04	15.73	16.19	17.77	19.34	16.71	11.26	8.43	7.46	7.07	7.04	7.20	7.10	6.80	AM

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 C81																		
TXTBLP		10.03	11.39	14.04	15.73	16.28	17.77	19.36	16.86	11.38	8.53	7.56	7.17	7.12	7.24	7.16	6.98	AO
TZ6Z5P		9.89	11.31	13.85	15.78	16.19	17.74	19.41	16.95	11.52	8.55	7.53	7.13	7.10	7.27	7.14	6.91	AJ
U6NP5P		10.03	11.26	13.84	15.64	16.13	17.66	19.28	16.71	11.35	8.52	7.52	7.14	7.08	7.27	7.15	6.92	AJ
UHCT6U		9.81	11.29	13.87	15.65	16.09	17.62	19.22	16.67	11.30	8.45	7.46	7.09	7.06	7.22	7.13	6.90	AM
VDVRN3		9.84	11.19	13.82	15.62	15.96	17.58	19.31	16.87	11.36	8.45	7.48	7.10	7.07	7.26	7.19	6.92	MV
VU9SZL		9.95	11.36	14.02	15.73	16.23	17.75	19.31	16.69	11.34	8.50	7.50	7.15	7.12	7.27	7.15	6.81	AJ
VY3TZD		9.90	11.34	13.95	15.58	16.11	17.70	19.20	16.35	11.14	8.45	7.51	7.11	7.13	7.30	7.21	6.90	XL
VYCYZ		10.02	11.40	13.98	15.68	16.12	17.67	19.24	16.72	11.42	8.56	7.50	7.14	7.12	7.29	7.20	6.92	MM
W5D3F1		9.95	11.25	14.00	15.65	16.10	17.70	19.40	16.75	11.30	8.50	7.55	7.20	7.15	7.35	7.25	6.95	SH
WKVBH		9.82	11.23	13.83	15.48	15.94	17.49	19.05	16.47	11.21	8.39	7.40	7.03	7.02	7.18	7.08	6.85	MM
WU5U2U		10.03	11.46	13.85	15.66	16.11	17.62	19.11	16.56	11.47	8.57	7.57	7.17	7.15	7.34	7.25	7.04	MJ
WWRL5		10.18	11.34	14.03	15.73	16.27	17.90	19.36	16.66	11.28	8.57	7.63	7.23	7.14	7.30	7.32	6.98	GG
X3NVH3		9.88	11.35	13.92	15.67	16.25	17.73	19.34	16.77	11.28	8.48	7.51	7.11	7.05	7.19	7.09	6.89	AJ
XG6KQ5		10.07	11.26	13.98	15.68	16.14	17.66	19.31	16.72	11.34	8.51	7.52	7.15	7.10	7.27	7.17	6.91	AJ
YL1G85		10.26	11.34	14.01	15.82	16.17	17.81	19.52	17.02	11.40	8.51	7.54	7.16	7.15	7.35	7.26	6.98	MV
YS4SWP		9.88	11.27	13.84	15.54	15.99	17.55	19.12	16.62	11.30	8.41	7.41	7.02	6.99	7.15	7.05	6.73	MM
YTNWJX		9.92	11.29	13.95	15.58	16.00	17.62	19.14	16.45	11.18	8.42	7.44	7.10	7.08	7.27	7.15	6.89	MM
YW3UF		9.94	11.32	13.92	15.63	16.10	17.65	19.23	16.65	11.33	8.47	7.45	7.10	7.06	7.25	7.14	6.83	MM
Z23QH3		9.86	11.12	13.77	15.55	15.93	17.53	19.28	16.73	11.27	8.47	7.50	7.11	7.07	7.28	7.19	6.89	PE
ZGG4N8		9.93	11.42	13.96	15.73	16.19	17.71	19.35	16.79	11.37	8.50	7.49	7.09	7.06	7.23	7.11	6.87	AJ
ZR41F8		9.89	11.28	13.97	15.73	16.07	17.75	19.44	16.87	11.29	8.43	7.47	7.08	7.06	7.29	7.21	6.94	MV
ZS5TRN		10.08	11.58	14.16	15.83	16.32	17.92	19.47	16.70	11.26	8.49	7.53	7.18	7.14	7.30	7.23	6.92	AG
ZWVBL		10.21	11.34	13.99	15.82	16.14	17.78	19.53	17.02	11.41	8.55	7.58	7.21	7.18	7.41	7.31	7.06	MV
ZZDJZS		10.10	11.32	14.01	15.72	16.07	17.76	19.36	16.77	11.45	8.48	7.53	7.33X	7.03	7.44	7.19	6.82	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 C81

Summary Statistics

Grand Means	9.97	11.35	13.92	15.65	16.11	17.67	19.26	16.67	11.33	8.49	7.51	7.13	7.10	7.28	7.18	6.92
Std Dev Btwn Labs	0.16	0.15	0.14	0.11	0.13	0.13	0.13	0.15	0.11	0.07	0.07	0.06	0.06	0.09	0.07	0.11

Comments assigned on Data Flags for Test #411

- 64B1ML (X) - High data for most wavelengths. Large replication difference at all wavelengths.
- B46R39 (X) - High data for most wavelengths.
- DTK6WH (X) - Low data at 580-700 wavelengths. Large replication difference at all wavelengths.
- M31JST (X) - High and low data at various wavelengths.
- SA4H1X (X) - High data for most wavelengths.

Instrument Code List - Report# 145

Instrument information as provided by laboratories

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

Instrument code and description

AD	ACS Chroma-Sensor CS-5	MZ	Minolta CM-2002 Spectrophotometer
AG	ACS-DataColor Intl. Spectraflash 450	PE	Perkin Elmer Spectrophotometer
AJ	ACS-Datacolor Intl. Spectraflash 600	SH	SIMADZU UV 3101PC
AL	ACS-Datacolor Intl. Dataflash 100	XL	X-Rite SP60 Spectrophotometer
AM	ACS-Datacolor Intl. Spectraflash 600 Plus	XO	X-Rite SP64
AO	ACS-Datacolor Intl. Spectraflash 650X	XP	X-Rite SP88
AP	DataColor Check Plus	XQ	X-Rite SP68 Portable Sphere SpectroPhotometer
AQ	ACS-Datacolor Intl. Spectraflash 600X	XR	X-Rite SP78 Portable Sphere Spectrophotometer
CA	Cary 5000	XX	Instrument make/model not specified by lab
GD	BYK-Gardner spectro-guide sphere		
GG	BYK-Gardner TCS II		
GH	BYK Gardner Color-Guide Sphere		
HG	Hunter ColorQUEST		
HH	Hunter ColorQUEST XE		
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		
MV	Minolta CM-3000d Series Spectrophotometer		