

Gree Industry Co., Ltd.

Certificate of Analysis

基本信息 General Information

产品名称 Product Name: Pigment Black 32 C01
产品批号 Batch No.: 2026-06-17
原产国 Country of Origin: China
检测方法 Test Method: 丙烯酸树脂检测体系 Acrylic resin testing system
对应的标准批号 Standard Lot#: 2019-09-02
企业标准 Standard: Q/LHG010-2023
生产日期 Manufacturing Date: 2026-06-17
保质期 Expiry Date: 2029-06-17

法规遵从性 Regulatory Compliance

REACH Registered; RoHS - 2011/65/EU and (EU) 2015/863; EN 71-3: 2019+A1: 2021
AP (89) 1; EU Food Contact - 1935/2004/EC and (EU) No 10/2011

分析报告 Analysis

Properties	Method	Standard	Result
Shade - dE	CM-3600D	≤1.0	0.67
Strength	CM-3600D	100±5%	101.5
1:2 Tint-dL	CM-3600D	±0.5	-0.7
1:2 Tint-da	CM-3600D	±0.8	-0.1
1:2 Tint-db	CM-3600D	±0.8	-0.1
1:2 Tint-dC	CM-3600D	±0.8	0.1
1:2 Tint-dh	CM-3600D	±0.5	-0.1
1:2 Tint-dE	CM-3600D	≤1.0	0.7
1:2 Tint-Strength	CM-3600D	100±5%	101.5
Moisture	ISO 787-2	≤1.00%	0.31%
pH value	ISO 787-9	5-8	7
BET Surface Area	GB/T 19587	40±5(m²/g)	36.906(m²/g)
Particle Size D50	GB/T 19077	10-20µm	12.45µm
NIR	Perkin Elmer		

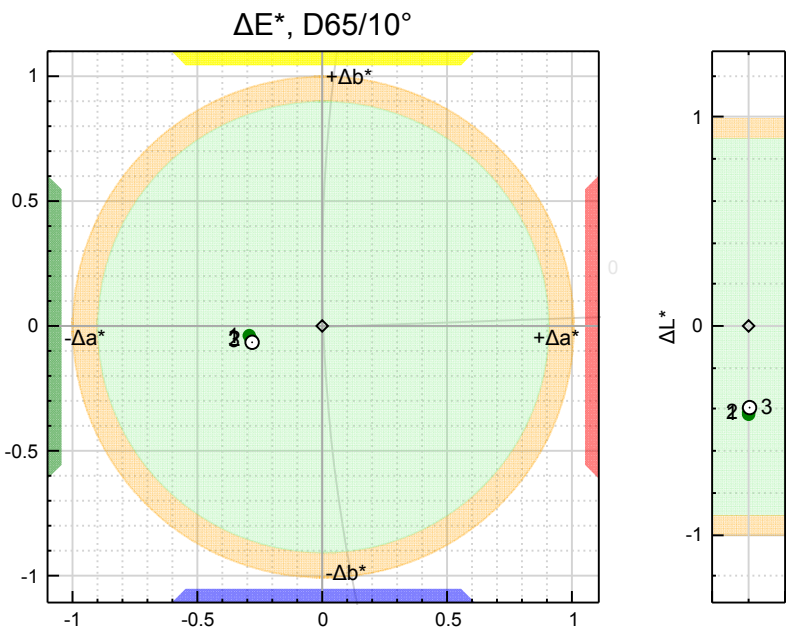
The above data will be warranted by us. These data, however, as well as the properties of any product samples do not imply any legally assurance of certain properties or of suitability for a specific purpose so that any liability for damages cannot be derived therefrom. All results are subject to the pre-shipment samples.



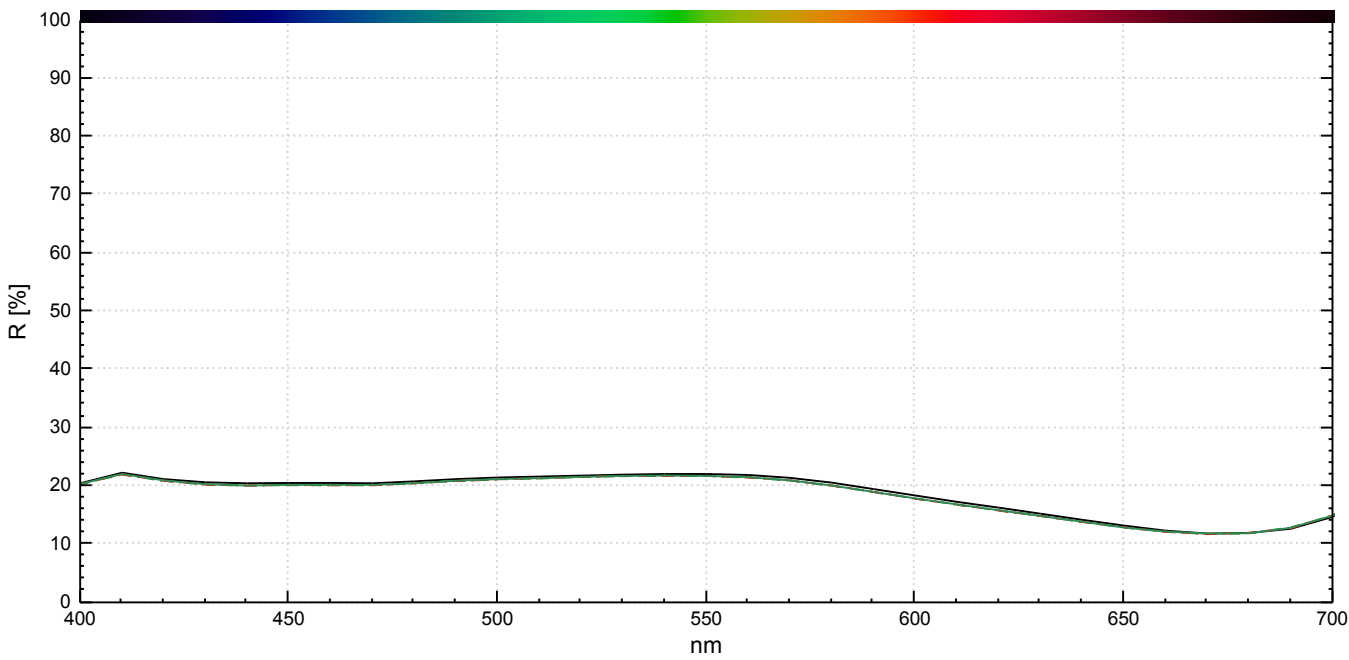
统计 D65/10° ΔE*=1

Name	Color	Name	Average ΔE*	Min ΔE*	Max ΔE*	% Passed	% Failed
默认		默认	0.50	0.49	0.51	100.00	0.00
All		All	0.50	0.49	0.51	100.00	0.00

CIE L*a*b* 默认 D65/10° ΔE*=1



Spectral Curves 默认



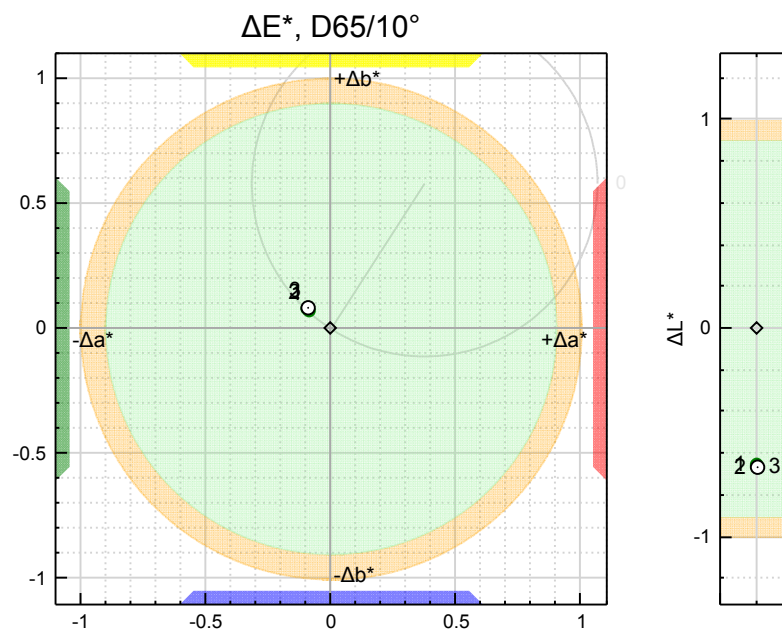
CIE L*a*b* 默认

Color	Nr	L*	a*	b*	C*	h°	ΔE*	Strength(λ)
	Std	52.5	-6.5	-0.2	6.5	182.0	[1]	
	1	52.1	-6.8	-0.3	6.8	182.3	0.5	101.5% (673nm)
	2	52.1	-6.8	-0.3	6.8	182.4	0.5	101.8% (673nm)
	3	52.1	-6.8	-0.3	6.8	182.4	0.5	100.7% (673nm)

统计 D65/10° $\Delta E^*=1$

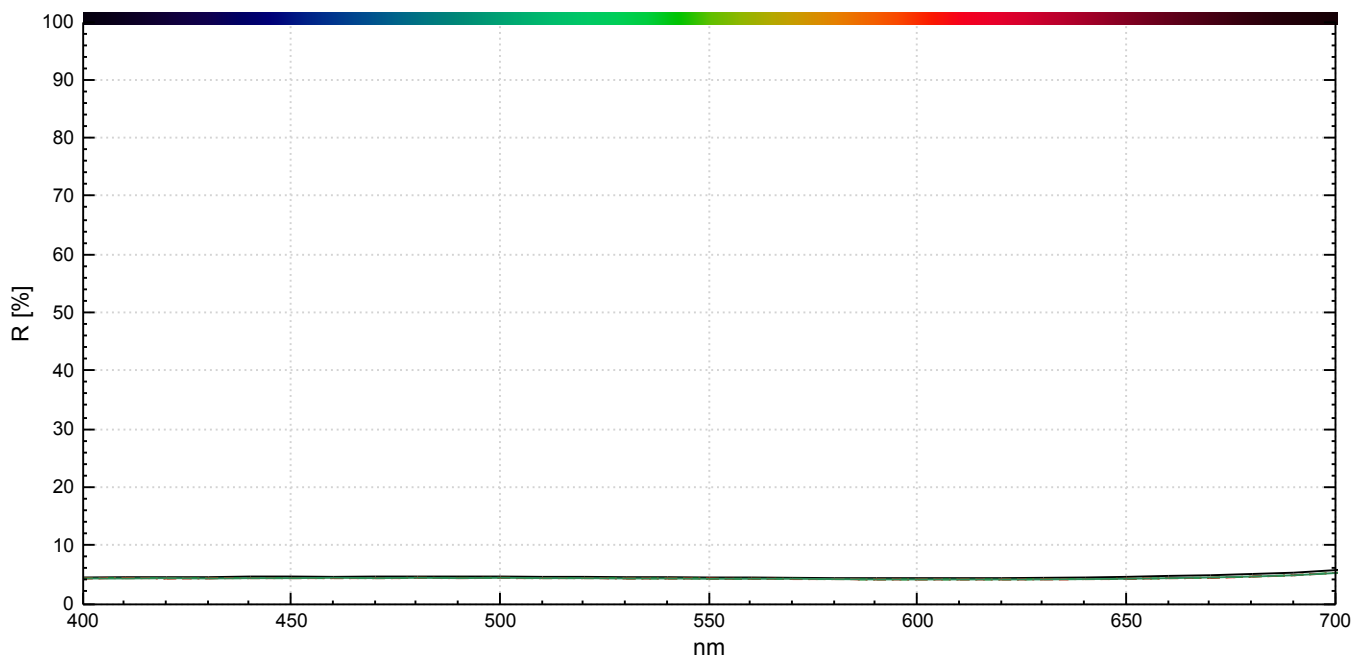
Name	Color	Name	Average ΔE^*	Min ΔE^*	Max ΔE^*	% Passed	% Failed
默认		默认	0.67	0.66	0.67	100.00	0.00
All		All	0.67	0.66	0.67	100.00	0.00

CIE L*a*b*

默认 D65/10° $\Delta E^*=1$ 

Spectral Curves

默认



CIE L*a*b*

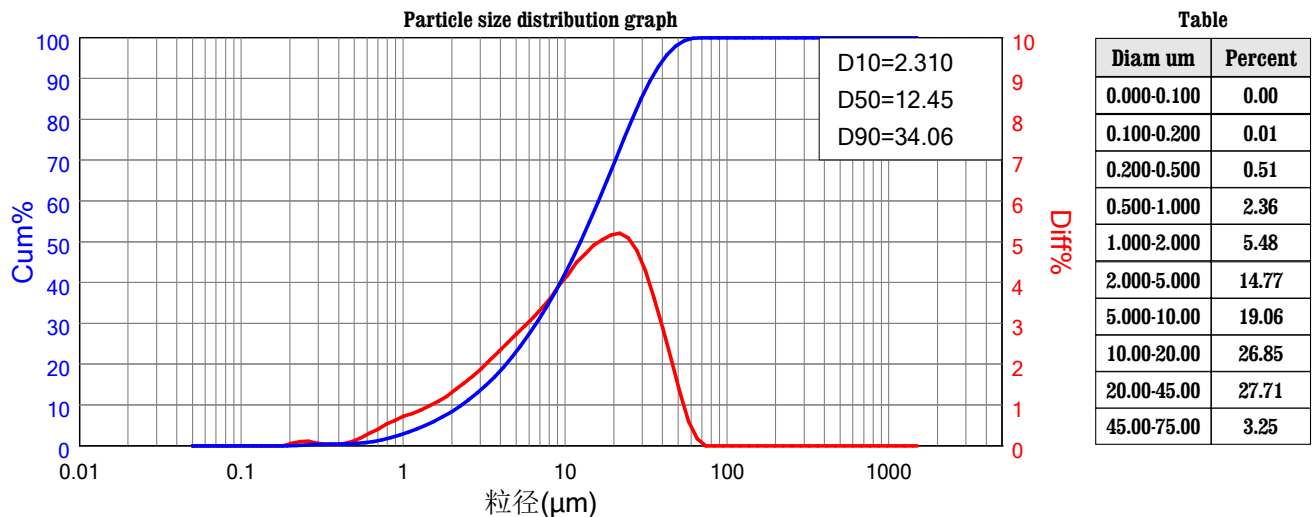
默认

Color	Nr	L*	a*	b*	C*	h°	ΔE^*
	Std	25.8	-0.4	-0.6	0.7	237.3	[1]
	1	25.1	-0.5	-0.5	0.7	228.2	0.7
	2	25.1	-0.5	-0.5	0.7	227.3	0.7
	3	25.1	-0.5	-0.5	0.7	227.2	0.7

Particle Size Analysis Report

Range : 0.05um - 1500um

Sample :	PB32	Average Number :		Sample Source :	
Operator :		Test Time :		Measured By :	
Particle RI :	1.675	Particle AR :	0.1	Medium RI :	1.333
Optical :	Mie	Mode :	General	Distribution :	Volume
Sampling:		Speed (rpm):	1200	Ultrasound:	Always ON, 35W, 90s, 0s
Medium :	Water	Dispersant :		Remark :	
D[4,3] :	15.68 um	D[3,2] :	5.268 um	D[1,0] :	0.451 um
SPAN :	2.548	SSA :	421.9m ² /kg	Residual :	1.453 %
				Obscuration :	13.02 %
D03 = 1.020 um	D06 = 1.558 um	D10 = 2.310 um	D16 = 3.488 um	D25 = 5.428 um	
D75 = 23.00 um	D50 = 12.45 um	D84 = 28.75 um	D90 = 34.06 um	D97 = 45.68 um	



Particle size distribution table

Diam um	Diff%	Cum%	Diam um	Diff%	Cum%	Diam um	Diff%	Cum%	Diam um	Diff%	Cum%
0.050-0.056	0.00	0.00	0.658-0.743	0.40	1.44	8.660-9.791	3.94	41.47	113.9-128.8	0.00	100.00
0.056-0.063	0.00	0.00	0.743-0.841	0.53	1.97	9.791-11.06	4.19	45.66	128.8-145.6	0.00	100.00
0.063-0.072	0.00	0.00	0.841-0.950	0.62	2.59	11.06-12.51	4.49	50.15	145.6-164.7	0.00	100.00
0.072-0.081	0.00	0.00	0.950-1.075	0.73	3.32	12.51-14.14	4.70	54.85	164.7-186.2	0.00	100.00
0.081-0.092	0.00	0.00	1.075-1.215	0.79	4.11	14.14-15.99	4.92	59.77	186.2-210.5	0.00	100.00
0.092-0.104	0.00	0.00	1.215-1.374	0.88	4.99	15.99-18.08	5.05	64.82	210.5-238.0	0.00	100.00
0.104-0.118	0.00	0.00	1.374-1.553	0.98	5.97	18.08-20.44	5.16	69.98	238.0-269.0	0.00	100.00
0.118-0.133	0.00	0.00	1.553-1.756	1.09	7.06	20.44-23.11	5.21	75.19	269.0-304.2	0.00	100.00
0.133-0.150	0.00	0.00	1.756-1.985	1.21	8.27	23.11-26.13	5.09	80.28	304.2-343.9	0.00	100.00
0.150-0.170	0.00	0.00	1.985-2.245	1.38	9.65	26.13-29.54	4.78	85.06	343.9-388.8	0.00	100.00
0.170-0.192	0.00	0.00	2.245-2.538	1.54	11.19	29.54-33.40	4.28	89.34	388.8-439.6	0.00	100.00
0.192-0.218	0.06	0.06	2.538-2.869	1.70	12.89	33.40-37.76	3.61	92.95	439.6-497.0	0.00	100.00
0.218-0.246	0.10	0.16	2.869-3.244	1.89	14.78	37.76-42.69	2.88	95.83	497.0-561.9	0.00	100.00
0.246-0.278	0.11	0.27	3.244-3.668	2.10	16.88	42.69-48.27	2.11	97.94	561.9-635.3	0.00	100.00
0.278-0.315	0.06	0.33	3.668-4.147	2.31	19.19	48.27-54.57	1.30	99.24	635.3-718.2	0.00	100.00
0.315-0.356	0.04	0.37	4.147-4.688	2.52	21.71	54.57-61.70	0.59	99.83	718.2-812.0	0.00	100.00
0.356-0.402	0.03	0.40	4.688-5.300	2.73	24.44	61.70-69.76	0.17	100.00	812.0-918.1	0.00	100.00
0.402-0.455	0.05	0.45	5.300-5.992	2.94	27.38	69.76-78.87	0.00	100.00	918.1-1037	0.00	100.00
0.455-0.514	0.10	0.55	5.992-6.775	3.15	30.53	78.87-89.16	0.00	100.00	1037-1173	0.00	100.00
0.514-0.582	0.19	0.74	6.775-7.660	3.38	33.91	89.16-100.8	0.00	100.00	1173-1326	0.00	100.00
0.582-0.658	0.30	1.04	7.660-8.660	3.62	37.53	100.8-113.9	0.00	100.00	1326-1500	0.00	100.00

BET Surface Area Report

Model: TB220A

Project:

Adsorbate: N2

Bath Temperature: 77.35 K

Operator:

Started:

Reviewer:

Method: static volumetric method

Sample: PB32 C01

Charge Number: #1

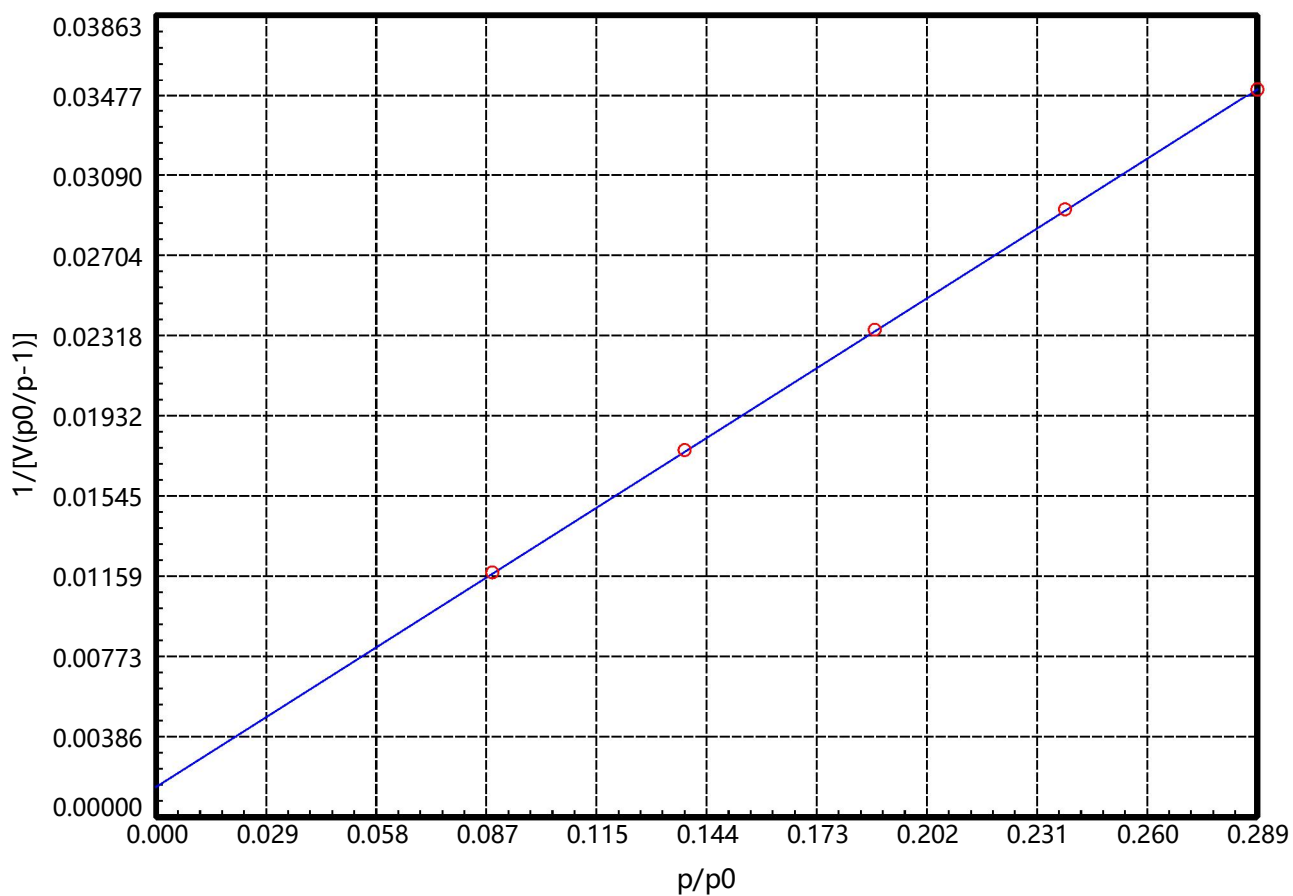
Sample Weight: 0.5703(g)

Degas Conditions:

Completed:

Reviewed:

BET Surface Area Plot



BET Surface Area Report

Model: TB220A	Method: static volumetric method
Project:	Sample: PB32 C01
Adsorbate: N2	Charge Number: #1
Bath Temperature: 77.35 K	Sample Weight: 0.5703(g)
Operator:	Degas Conditions:
Started:	Completed:
Reviewer:	Reviewed:

Surface Area

BET Surface Area:	36.906	(m ² /g)
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Pore Volume

Total Pore Volume at p/p0 = 0.99000:	0.018	(cm ³ /g)
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Pore Size

Average Pore Diameter (4V/A):	1.937	(nm)
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BET Surface Area Report

Model: TB220A	Method: static volumetric method
Project:	Sample: PB32 C01
Adsorbate: N2	Charge Number: #1
Bath Temperature: 77.35 K	Sample Weight: 0.5703(g)
Operator:	Degas Conditions:
Started:	Completed:
Reviewer:	Reviewed:

BET Equation

$$(P/P_0)/[V(1-P/P_0)] = (C-1)/(V_m \cdot C) \cdot P/P_0 + 1/(V_m \cdot C)$$

$$\text{(For N2) } S_w = 4.35 \cdot V_m / \text{Mass}$$

Single Point BET Equation ($C \gg 1$)

$$V_m = V \cdot (1 - P/P_0)$$

BET Surface Area Report

BET Surface Area:	36.90579	m ² /g
Slope:	0.11642	
Y-Intercept:	0.00152	g/cm ³ STP
V _m :	8.47900	cm ³ /g STP
C:	77.53868	
Correlation Coefficient:	1.00000	



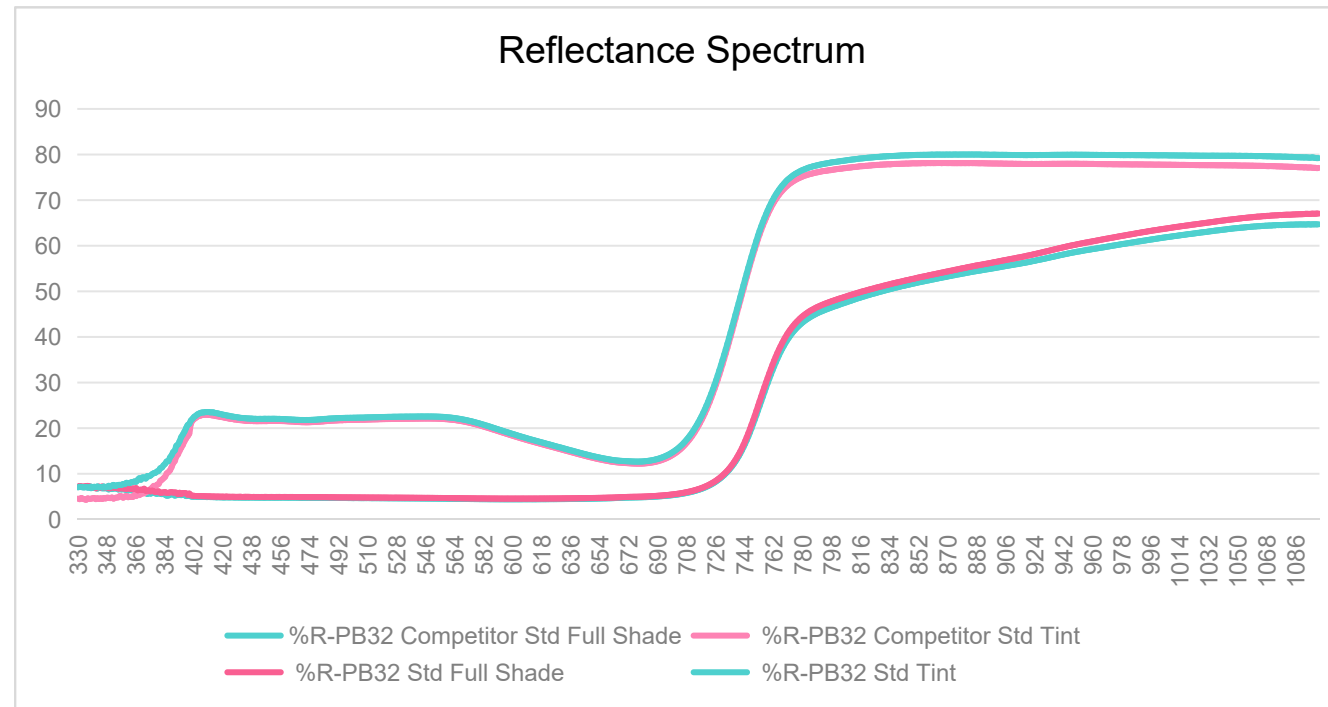
Reflectance Spectrum

Instrument Settings

Wavelength From	330	nm
Wavelength To	1100	nm
Scan Speed	480	nm/min
Interval	1	nm
Number of cycles	1	
Time of cycles	1	s
Scan Mode	Auto	
Destiny	5	nm
UV light	On	
Visible light	On	
Lamp changes wavelength	400	nm



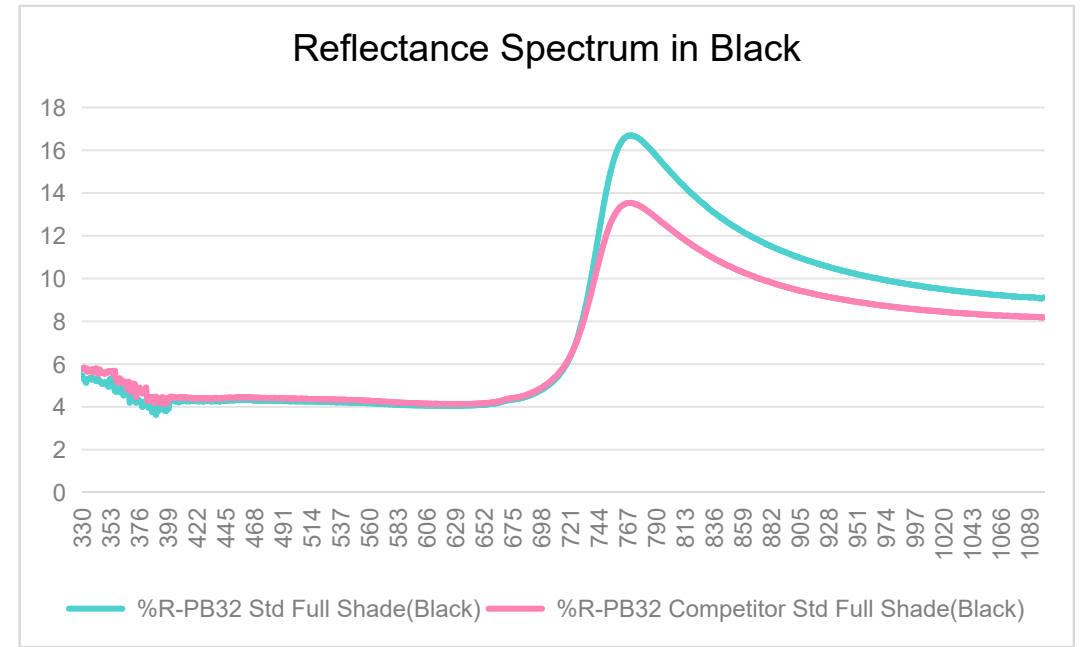
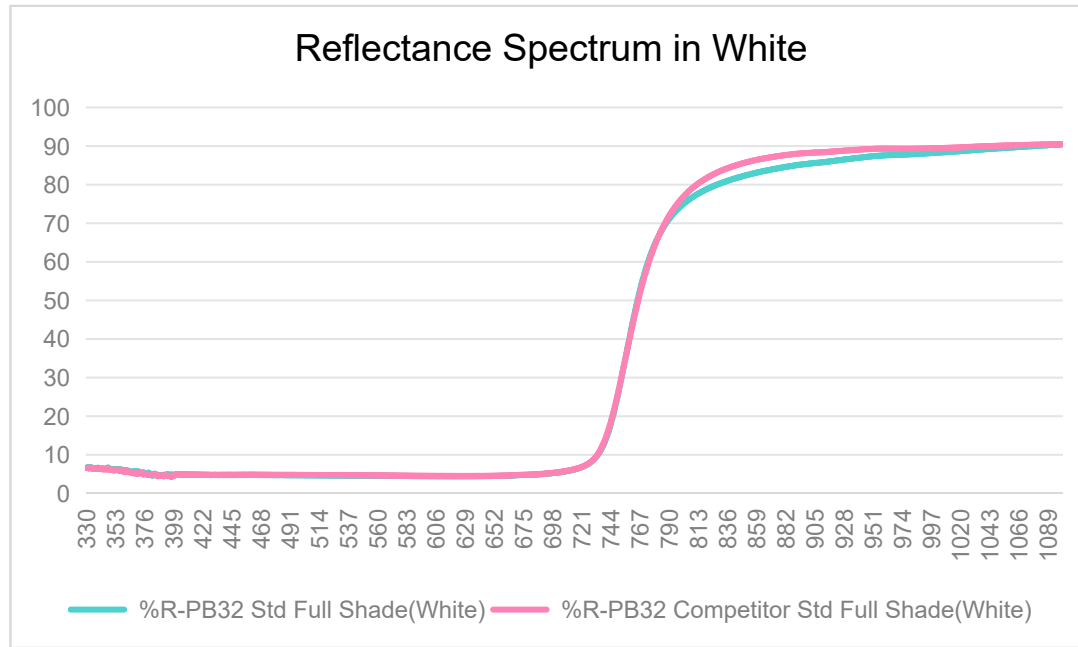
Reflectance Spectrum



Pigment	Paint	DE*	L*	a*	b*	C*	h°
Std	Full Shade	0.15	25.5	-0.5	-0.5	0.7	229.6
	Tint	0.06	53.6	-6.1	-1.4	6.2	193.1
Competitor Std	Full Shade	0.02	25.6	-0.4	-0.6	0.7	231.5
	Tint	0.02	53.2	-6.1	-1.6	6.3	194.7



Reflectance Spectrum



Pigment	Paint	DE*	L*	a*	b*	C*	h°
Std	White	0.12	25.1	-0.5	-0.4	0.7	217.8
	Black	0.01	24.8	-0.6	-0.5	0.8	220.7
Competitor Std	White	0.12	25.3	-0.6	-0.5	0.8	218.7
	Black	0.4	25.7	-0.5	-0.6	0.8	228.1