

CS-3820N

Color Spectrophotometer



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

Color spectrophotometer CS-3820N made by ATL is all-in-one spectrophotometer which can measure both reflectance and transmittance. It is widely used for many industries for surface color measurement of paint, plastic, master batches, pigment, textile, printing products, food, chemical and other kinds of materials.

▶▶ Product Advantages

Transmittance and reflectance in one instrument

Transmittance measurement: D/O Geometry (diffuse illumination, 0 degree viewing) to measure liquid APHA, Pt-Co index, Gardner index and other parameter measurement.

D/8 geometry, simultaneous SCI/SCE measurement

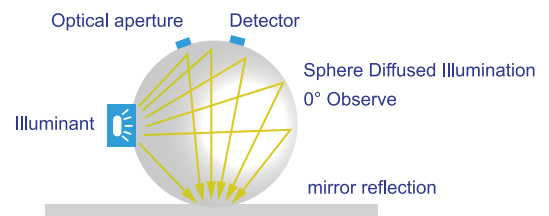
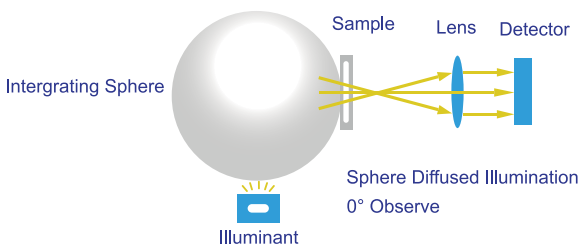
Reflectance measurement: D/8 Geometry (diffuse illumination, 8 degree viewing)

4 Testing Calibers

CS-3820N contains 4 kinds of testing calibers and the largest reaches 25.4mm to meet the color measurement requirement for different kinds of materials.

Double optical path spectrum analysis technology

Simultaneously obtains the sample reflection signal and the light source intensity signal, guarantees the instrument measuring accuracy and the long-term repeatability.



Changeable position of the system (Vertical or Horizontal)

Any types of sample can be measured. It can be specialized for the measurement of a powder type (an indeterminate form) sample by placing the equipment perpendicularly.

UV control for fluorescence-activated sample

Data of the samples such as a clothing or a paper that has been processed with the fluorescent whitening agent (FWA) can be accurately measured with the UV light adjustment.

High repeatability & high accuracy

Highly accurate data through the dual beam structure
Implementation of high reproducibility up to 0.01 RMS level

Switchable SCI / SCE mode control

ColorMate can measure both the SCI and SCE mode by controlling the light trap.

Specular component included (SCI) geometry is suitable for actual color content or doing color formulation.

Specular component exclude (SCE) is for measurement of appearance and appearance difference as seen by eye.

Automatic recognition of sample aperture size

Three types of the reflectance apertures are provided as standard accessories

(LAV,(large area view), (24.5 mm))

(MAV, (medium area view), (10 mm))

(SAV, (small area view), (6 mm)).

User can choose the proper aperture depending on the sample size, and each aperture is automatically recognized in the system.

Observing mirror for exact sample loading

Exact sample loading by using the slide-type observing mirror that enables the user to check whether the sample is properly loaded.

►► Technical Data

Type	CS-3820N
Illumination / Viewing System	Viewing:2°/10° Reflectance: d/8 (diffused illumination, 8 degree viewing) Simultaneous measurement of SCI /SCE (conforms to CIE No.15, IS07724/1,ASTM E1164,DIN5033 Teil 7, JIS Z8722, Condition c standard)Transmittance: d/0 (diffused illumination, perpendicular reception)
Integrating Sphere Illumination	15.2cm, Avian-D Fully diffuse reflective surface coating CLEDS
Detector	Dual optical sensor array
Wavelength	360-780nm
Wavelength Pitch	10nm
Half Band Width	5nm
Reflectance Range / Resolution	0-200% 0.01%
UV Measurement	Include UV, 400nm cut, 420nm cut, 460nm cut
Light Source	Pulse Xenon Lamp
Display	Reflectance graph/value, chromaticity value, color difference values, color assessment results, color tendency, display measurement area, history color value simulation, manual input standard sample, generate measurement reports
Measurement Aperture	Large (LAV):2.54cm (1 inch) Medium (MAV):1.5cm (0.6 inch) Small (SAV):0.75cmx1.01cm (0.3inchx0.4inch) Extra Small (VSAV):0.3 cmx-0.8cm (0.12inchx0.31 inch)
Measurement Time	SCI/SCE <2s, SCI+SCE <4s
Transmittance Sample size	No limit on sample width and hight, thickness ≤50mm
Color Space	CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy,Transmittance,Hunterlab, Munsell, MI,CMYK, RGB,HSB
Illuminants	A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,CWF, U30,DLF,NBF,TL83,TL84
Color Difference Formula	ΔE^*ab , ΔE^*CH , ΔE^*uv , $\Delta E^*cmc(2:1)$, $\Delta E^*cmc(1:1)$, ΔE^*94 , ΔE^*00 , Eab (Hunter), 555 shade sort
Other Indices	WI(ASTM E313-00, ASTM E313-73,CIE/ISO, AATCC, Hunter, Taube, Berger Stensby), YI(ASTM D1925,ASTM E313-00, ASTM E313-73), Tint(ASTM E313-00, CIE, Ganz), Metamerism index Milm, staining fastness, color fastness, APHA, Pt-Co Index, Gardner, ISO Brightness, Saybolt, ASTM color, Haze.

Repeatability	Standard deviation within 0.08%; Chromaticity value: AE*ab 0.015 (When a white calibration plate is measured 30 x at 5-second intervals after white calibration), max. 0.03
Inter-instrument agreement	Within AE*ab 0.2 (BCRA Series II, average measurement of 12 color charts)
Storage memory	8GB
Storage Temperature	-20-45°C(-4-113F), relative humidity 80% (at 35°C) no condensation
Screen Size	7 Inches Touch Screen
Interface	USB and RS-232
Power	117VAC/50-60Hz, 230VAC/50-60Hz
Size	430x240x260mm
Weight	10.8kg
Working Temperature	0-45°C,relative humidity 80% or below (at 35°C); no condensation

One of our customers requires me to compare our test result with datacolor bench-top spectrophotometer. Today we will use our CS-3820N color spectrophotometer to compare with Datacolor spectrophotometer 800V. The following is the sample picture.



Painted Metal Samples

Test Condition	
Test Mode:	Reflectance
Light Source and Angles:	D65/10°
Test Parameter	L*a*b
Test Method	
One sample measure one same point to get the test result.	
Test Result	

				Test Result							
Test Condition				Datacolor 800V				ATL CS-3820N			
Name	Test Mode	Light Source	Angle	L*	a*	b*		L*	a*	b*	
Sample 1	SCI	D65	10°	50.66	44.26	3.48		50.44	43.31	2.77	
Sample 2	SCE	D65	10°	42.47	-8.18	17.39		42.53	-8.37	17.65	
Sample 3	SCI	D65	10°	64.89	36.14	-16.09		64.65	35.2	-15.62	
Sample 4	SCE	D65	10°	75.21	-30.31	1.69		74.77	-29.75	2.05	
Sample 5	SCI	D65	10°	83.25	-3.5	-12.29		82.77	-3.45	-12.09	

►► WIDE RANGE OF APPLICATIONS

Required to control colors in the products, ColorMate and ColorMaster software are widely used in variety of industries, and provide easy and user-friendly operation and reliable data acquisition.

Plastic Industry

- Color measurement, Transmittance haze, Yellowness and Whiteness in the plastic industry
- Film, Resins, Plaques, Pellets, Molded samples, etc.

Textile Industry

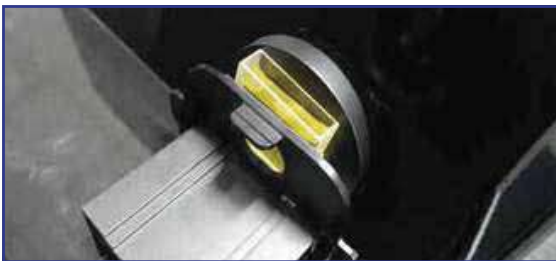
- QC, Process control, Shade sorting, etc. as well as Color measurement in the textile industry
- Dyes, Fiber, Fabric, Clothes, Texture, etc.

Paper Industry

- Color, Brightness and Opacity of Paper & Pulp

Paint Industry

- QC, Process control, Color formulation In the paint industry
- Pigments, Dyes, Ink, etc.



▲ Liquid



▲ Plastic



▲ Paint



▲ Spraying Industry



▲ Building materials

Pharmaceutical Industry

- Color measurement, Whiteness, etc. for Pharmaceutical products
- Powder, Capsules, Tablets, Syrups, etc.

Food Industry

- Mainly color measurement for various sample ranging from liquid such as juices and sauce, meat, snacks to cereals, even non-uniform shape samples

Chemical Industry

- APHA, Gardner, Transmittance haze, Yellowness, Whiteness, etc. including color measurement for chemical and petroleum, regardless of sample types such as powder, liquid, fibers, tablets, pellets, pastes, etc.s

Other Industries

- Cosmetics, Agriculture, Automobile, etc.

Regulatory compliances



Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:



Analytical Foundation

1. Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personalities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @



 **Analytical**®
Technologies Limited

HPLC Solutions MultipleLabs Analytical Bio-Med Analytical Distributors Analytical Foundation (Trust)

Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net
info@analyticalbiomed.com

W. www.analycalgroup.net
www.hplctechnologies.com
www.multiplelabs.com
www.ais-india.com

Sales & Support Offices:
across the country :
Distributors & Channel
partners World Wide

Note : Company reserves rights to add/delete/modify the contents / technical specifications of the catalogue without prior notice.