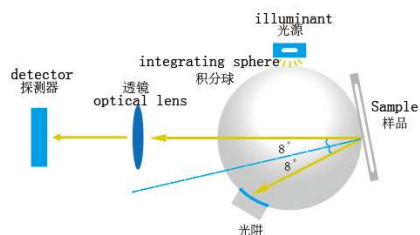


# Spectrophotometer CS-580



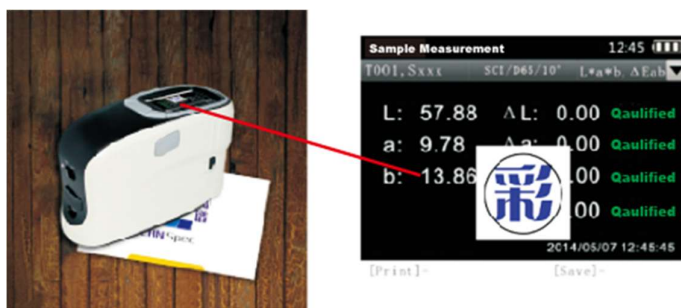
## 1. Brief Introduction

1). Our device adopts internationally agreed observe condition D/8 (Diffused lighting, 8 degrees observe angle) and SCI (specular reflection included)/SCE (specular reflection excluded). It could be used for color matching for many industries and widely used in painting industry, textile industry, plastic industry, food industry, building material industry and other industries for quality control.



## 2). Camera view to catch the testing area

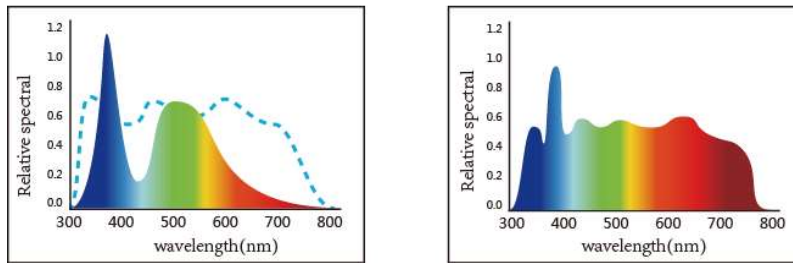
In previous measurement instrument, we can only aim at the testing area approximately, and this may introduce errors. Our spectrophotometers include a camera in our optical system, and the user can clearly see the tested area to avoid measurement errors.



## 3). Uses CLEDs light source – spectrally balanced LED light source

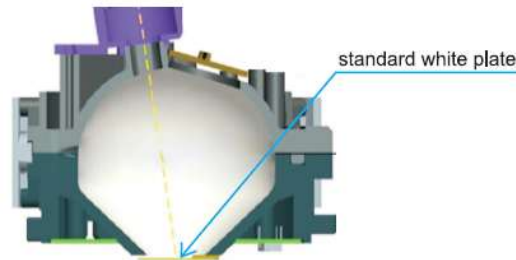
LED light source that has balanced intensity across visible spectrum avoids the spectral deficiency in certain parts of the spectrum in common white LEDs, and guarantees the speed of the measurement and the accuracy of the results. This research finding has

been published in national leading, SCI included optical journal, Chinese Optics Letter.



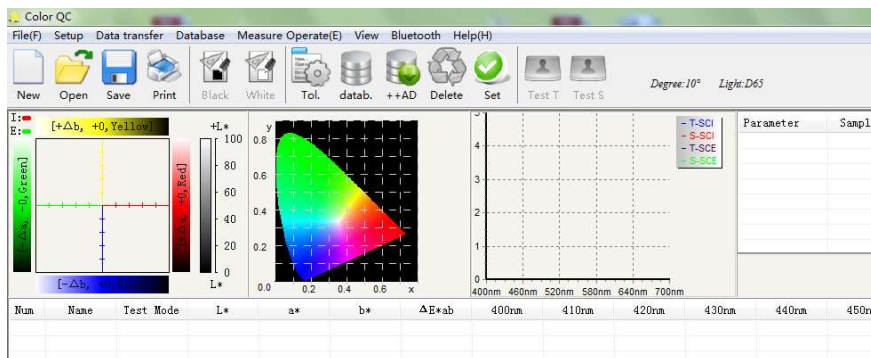
#### 4).Every Test calibration technology (ETC)

Currently, most instruments use standard white boards for calibration. When white board is damaged, the instrument's accuracy or precision will no longer be guaranteed. In CHNSpec's spectrophotometers, we adopt innovative ETC(Every Test Calibration); standard white board is included in the optical system, and therefore has reliable accuracy and repeatability in every measurement.



#### 5).Color QC Software

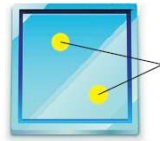
Our spectrophotometer comes with PC color QC software, which is applicable in various industries for management of color data. It is used for store test result, generate test report and print test report after connect with printer.



#### 6).Automatic gloss compensation technology

Gloss will greatly affect the measurement of color. Our instrument adopts automatic gloss compensation technology which guarantees the accuracy of color measurement value for

surfaces of different gloss. This research finding is published in international leading, SCI included journal, Optik.



The same color in different gloss will lead to different measured data.

#### 7).Innovative light splitting SCS optical engine

Adopt innovative single-grating-dual-light-paths light splitting system: SCS optical engine which creates the best measurement repeatability for portable spectrophotometers and guarantees accurate measurement of surface color of materials.



#### 8).Complete light sources compares with similar products.

Comparing with similar products, our spectrophotometers offer the most complete, 28 kinds of standard light sources and 40 measurement color value indicators; It can also customize measurement methods according to your requirement, and satisfy all your color measurement needs.

#### 9).Long Device Guarantee Time



- a. One Year Guarantee Time.
- b. If testing data is not correct, we can do refund.
- c. We will provide testing report for every device to assure the authority of the data and it will save the calibration cost for 1 year.

#### 10). More Pictures For Spectrophotometer CS-580



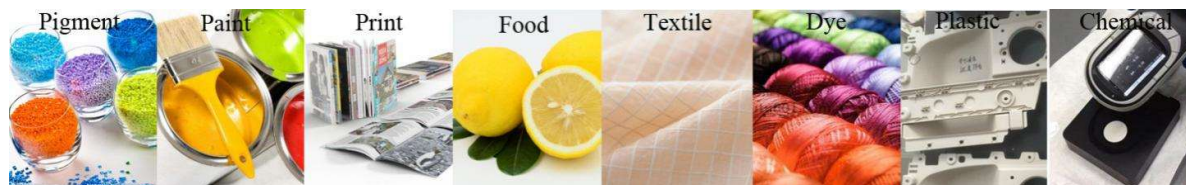
#### 11). Technical Data

|              |   |
|--------------|---|
| Type         | CS-580  |
| Illumination | d/8(Diffused lighting, 8 degrees observe angle)、SCI(specular reflection included)/SCE(specular reflection excluded)simultaneous measurement。 (conform to CIE No.15、 |

|                            |   |
|----------------------------|---|
|                            | ISO 7724/1、ASTM E1164、DIN 5033 Teil7、JIS Z8722 Condition c standards)   |
| Size of integrating sphere | Φ40mm, diffused reflection surface coating  |
| Illumination Light source  | CLEDs(entire wavelength balanced LED light source)  |
| Sensor                     | dual light path sensor array  |
| Wavelength Range           | 400-700nm   |
| Wavelength Interval        | 10nm  |
| Half spectral width        | 5nm   |
| Reflectivity range         | 0-200%  |
| Reflectivity resolution    | 0.01%   |
| Observation angle          | 2°/10°  |
| Measurement light source   | A,C,D50,D55,D65,D75,F1,F2,F3,F4,F5,F6,F7,F8,F9,F10,F11,F12,DLF,TL83,TL84,NBF,U30,CWF  |
| Data being displayed       | SPD distribution/data,sample's color values,color difference values/graph, pass/fail results, color error tendency, color simulation,display measurement area,history data color simulation>manual input standard sample,generate measurement report                          |
| Measurement time interval  | 2 seconds   |
| Measurement time           | 1 second  |
| Color space                | CIE-L*a*b, L*C*h, L*u*v, XYZ, Yxy, Reflectance  |
| Color difference formulas  | $\Delta E^*_{ab}$ , $\Delta E^*_{CH}$ , $\Delta E^*_{uv}$ , $\Delta E^*_{cmc}(2:1)$ , $\Delta E^*_{cmc}(1:1)$ , $\Delta E^*_{94}$ , $\Delta E^*_{00}$   |
| Other colorimetric indices | WI(ASTM E313-10,ASTM E313-73,CIE,ISO2470/R457, AATCC, Hunter, Taube Berger, Ganz, Stensby); YI(ASTM D1925, ASTM E313-00,ASTM E313-73); Tint(ASTM E313,CIE,Ganz)<br>Metamerism index Milm, Stick color fastness, Color fastness, Covering power, force,Opacity, color strength |
| Repeatability              | light splitting reflectivity:standard deviation within 0.08%  |
|                            | color values: $\Delta E^*_{ab} \leq 0.03$ (After calibration, standard deviation of 30 measurements on test white board, 5 second intervals), Maximum:0.05  |
| Test Aperture              | Type A: 10mm, Type B: 4mm, 6mm  |

|                            |  |
|----------------------------|--|
| Battery capacity           | rechargeable, 10000 continuous tests, 7.4V/6000mAh   |
| Interface                  | USB  |
| Data storage               | 20000 test results   |
| Light source longevity     | 5 years, 1.5 million tests   |
| Inter-instrument agreement | $\Delta E^*ab$ within 0.2(BCRA color charts II, average of the 12 charts)  |
| Size                       | 181*73*112mm(L*W*H)  |
| Weight                     | about 550g(does not include battery's weight)  |
| Display                    | True color screen that includes all colors   |
| Work temperature range     | 0~45℃, relative humidity 80% or below( at 35℃ ),no condensation  |
| Storage temperature range  | -25℃ to 55℃, relative humidity 80% or below(at 35℃ ),no condensation   |
| Standard accessories       | DC adapter, Lithium battery, manual, color management software, drive software, electronic manual, color management guide, USB cable, black/white calibration tube, protective cover, spire lamella, portable bag, electronic color charts |
| Optional accessories       | powder molding device, micro printer, measurement and test report  |

## 12).Application



## 13).Packing List



| Qty. | Name              | Qty. | Name                         |
|------|-------------------|------|------------------------------|
| 1    | Main Instrument   | 1    | Power Line                   |
| 1    | Operating Manual  | 1    | USB Cable                    |
| 1    | Driving Software  | 1    | Black/White Calibration Tile |
| 1    | Color QC Software | 1    | Verification Certification   |
| 1    | Packing List      | 1    | Warranty Card                |