

Lovibond® Color Measurement

Tintometer® Group



EComparator Range

- Advance from Visual to Electronic Color Measurement
- Guaranteed Agreement with International Standards
- Display Results with On-Screen Color and Numerical Options
- Flexible path length accomodates a variety of applications

www.wacolab.com

WACO

WILKENS-ANDERSON COMPANY

4525 W. Division, Chicago, Illinois 60651

Tel.: (773) 384 - 4433

Email: sales@wacolab.com

Fax: (773) 384 -6260

EComparator Range

The Lovibond® EComparator Range provides an easy way for customers to transition from taking visual measurements to electronic measurements.

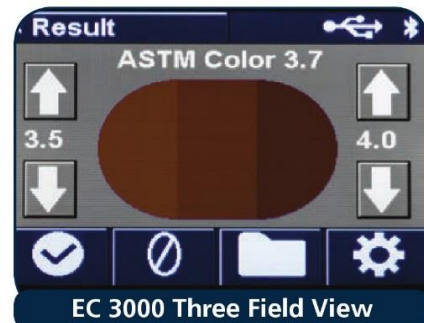
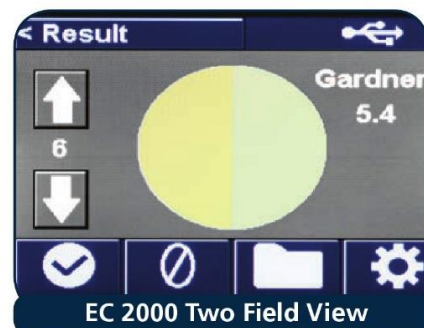
Users that are familiar with visual methods of color grading, using systems such as the Comparator 2000+ or Comparator 3000, can sometimes find the transition to an electronic system daunting.

The EComparator series allow users to easily get an automatic, digital reading while still getting the visual confirmation of a color match that they are comfortable with.

EComparators are supplied with Certified Glass and Liquid Reference Standards enabling quick and simple validation.

The instruments are equipped with an integrated light shield to protect the sample from ambient light and a flexible path length and cell choice (plastic or glass) for flexibility of application.

With robust casing and a small laboratory footprint, the EComparator Range is the ideal solution for users wishing to experience the benefits of immediate, accurate, electronic readings: the best of both worlds.



EComparator Features

- **Easy interpretation of Results:**
 - On-screen color comparison mode
 - Direct reading mode
- **Touch-screen Technology**
 - Instinctive menus
 - Easily set time, date, review preferences and create projects
- **On-screen warning system** to provide the user with immediate feedback on the sample
 - Within Tolerance = Green;
 - Outside Tolerance = Red;
 - On Border of Tolerance = Amber
- **Multi-lingual Interface** - English, French, Portuguese, German, Spanish, Italian, Chinese, Japanese & Russian
- **Data Management**
 - 20,000+ reading storage
 - USB Connectivity
 - Software packages for Windows® with multiple language support on-screen.
- **Integrated light shield** to protect the sample from ambient light
- **Flexible path length** and cell choice (plastic or glass) for flexibility of application.
- **Battery or AC powered** - with the small laboratory footprint, the EComparator Range is the ideal solution for a wide variety of applications.



Instrument Specifications

Light Source	White LED
Sensors	Tristimulus Detectors, Reference & Sample
Display	Size: 3.5 inch Resolution: 320x240 Color: 24 Bit (True Color)
Touchscreen	Resistive
Keypad	3 key tactile membrane
Sample Chamber	up to 50 mm path length
Cell Type	W100 Spectrophotometer
Verification	Glass or liquid reference standards
Instrument Housing	Flame retardant ABS
Dimensions (l x w x h)	210 mm x 106 mm x 57 mm
Power Supply	4 x AA Battery or 9V via USB cable
Interfaces	USB 2.0 (mini)
Data Storage	> 20,000 readings
Maximum Sample Temperature	80°C



Color Scale	Standard	Range	Resolution	Repeatability	Path Length	Comparator View
Platinum-Cobalt	ASTM D1209	0 - 500	1 Pt-Co Unit	± 3% or ±1 unit	50 mm	2 Field
Gardner	ASTM D1544, D6166	0 - 18	0.1 Gardner Unit	± 0.2	10 mm	2 Field
ASTM	ASTM D1500, D6045	0 - 8	0.1 Unit	± 0.1	33 mm	3 Field
Saybolt	ASTM D156, D6045	-16 - +30	1 Saybolt Unit	± 1	50 mm	3 Field

The Scales

PLATINUM-COBALT/HAZEN/APHA Color (ASTM D 1209)

Often referred to as Pt-Co, Platinum-Cobalt, Hazen or APHA Color - all terms are interchangeable and equally valid. Used to measure clear to dark amber liquids.

Originally defined by specified dilutions: range from 0 at the light end of the scale to 500 at the darkest.

Used extensively in the water industry but also for clear oils, chemicals and petrochemicals such as glycerine, plasticizers, solvents, carbon tetrachloride and petroleum spirits.

GARDNER COLOR (ASTM D 1544, ASTM D 6166, AOCs Td 1a, MS 817 Part 10)

Single number, one dimensional, color scale for grading the color of similarly colored liquids

The scale ranges from a pale yellow to a red in shade and is described in terms of the values 1-18.

Used to measure color of resins, varnishes, lacquers, drying oils, fatty acids, lecithins, sunflower oil and linseed oil.

SAYBOLT COLOR (ASTM D 156, ASTM D 6045)

The Saybolt Color scale is used for grading light colored petroleum products

The color range of the Saybolt-scale is similar to that of the Platinum-Cobalt/Hazen/APHA Color (ASTM D 1209) scale and is therefore employed for the measurement of water-clear, colorless to slightly yellowish products.

The faintest coloration is Saybolt-color number +30, the strongest evaluable Saybolt coloration value is -16.

Popular for aviation fuels, kerosene, naphthas, white mineral oils, hydrocarbon solvents and petroleum waxes.

ASTM COLOR (ASTM D 1500, ASTM D 6045, ISO 2049, IP196)

ASTM D1500 is a single number, one dimensional, color scale ranging from a pale straw through to a deep red in sixteen steps (0.5 - 8.0 units in increments of 0.5 units).

Please note the Chinese Industrial Standard SH/T 0168 (0 to 25) is directly related to ASTM D1500 (0 to 8.0).

Sometimes referred to as the "mineral oil color value", the ASTM Color Scale is widely used for the grading of petroleum products such as lubricating oils, heating oils and diesel fuel oils.

Ordering Information

EComparator Instruments

Item Description	Part Number
EC 2000 - Platinum Cobalt Includes: 3 x plastic cells, 1 x glass cell, 2 x Liquid Reference Standards, 2 x Glass Standards	16 20 10
EC 2000 - Gardner Color Includes: Includes: 3 x plastic cells, 1 x glass cell, 1 x Liquid Reference Standard, 1 x Glass Standard	16 20 20
EC 3000 - ASTM Color Includes: Includes: 2 x plastic cells, 2 x glass cells, 2 x Liquid Reference Standards, 2 x Glass Standards	16 30 10
EC 3000 - Saybolt Color Includes: Includes: Includes: 2 x plastic cells, 2 x glass cells, 2 x Liquid Reference Standards, 2 x Glass Standards	16 30 20
Cell Divider Insert	19 04 33
Cleaning Cloth for Cells	19 76 35
Conformance Filter Calibration	CAL3
USB Power Supply Unit	19 06 20
USB A to USB Micro Cable	19 06 30



Sample Cells

Item Description	Qty.	Material	Path Length	For Use With	Part Number
W100 50mm Cell	50	Plastic	50 mm	Pt-Co / Saybolt	35 21 01
W100.OG.50mm Cell	1	Optical Glass	50 mm	Pt-Co / Saybolt	60 10 70
W100 10mm Cell	100	Plastic	10 mm	Gardner	13 27 70
W100.OG.10mm Cell	1	Optical Glass	10 mm	Gardner	60 10 40
W100 33mm Cell	50	Plastic	33 mm	ASTM	35 20 91
W100.OG.33mm Cell	1	Optical Glass	33 mm	ASTM	60 10 80

Liquid Reference Standards

Item Description	Part Number
EC 2000 Pt-Co 0, 60 ml	13 50 59
EC 2000 Pt-Co 15 (±2), 60 ml	13 50 49
EC 2000 Gardner 2 (±0.3), 60 ml	13 50 69
EC 3000 ASTM 3 (±0.3), 60 ml	13 50 19
EC 3000 ASTM 5 (±0.3), 60 ml	13 50 09
EC 3000 Saybolt 1.0 (±1.0), 60 ml	13 50 29
EC 3000 Saybolt -10 (±1.0), 60 ml	13 50 39

Glass Reference Standards

Item Description	Part Number
Pt-Co 30 Conformance Filter	13 51 19
Gardner 12 Conformance Filter	13 51 39
ASTM 0.5 Conformance Filter	13 50 79
ASTM 5.0 Conformance Filter	13 50 89
Saybolt +12 Conformance Filter	13 50 99
Saybolt +25 Conformance Filter	13 51 09

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