

TM - 3995

Tintometer TM 3995



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

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

►► Features

- Dark Oils & Fats
- Liquid Chemicals & Industrial Oils
- Petroleum Oils & Fuels
- Beers, Malts & Caramels
- Pharmaceutical Solutions
- Industrial Oil & Surfactants
- Sugar Solutions, Syrups & Honey
- Optically Clear Samples
- Water & Waste Waters

►► Product Introduction

- RCMSi Remote Calibration & Maintenance Service via internet
- USB & LAN Interface
- Large clear LCD screen for ease of use and ability to display graphs and data in a wide variety of languages
- Extensive yet flexible choice of standard colour scales
- Optional heated sample chamber for maintaining samples at high temperatures
- Accommodates a range of sample cells and tubes: includes a unique long path length sample chamber which can accommodate cells of up to 6" (153 mm) in length
- Remote upgrade facility for adding scales once in service
- Allows calculation and description of off-hue status
- Gives closest match to stored references
- Generates a customised colour scale from reference samples
- Robust steel construction with excellent chemical resistance
- Easy maintenance with removable sample chamber
- Supplied with colour control software for data analysis
- Output conforming to GLP including date, time, sample & user ID

►► Objective Colour Data for Process Control

TM 3995 instrument is accurate, highly efficient spectrophotometers for optically clear samples that meet the demand for consistent and reliable colour data for a wide range of samples. The long path-length cell chamber also allows the measurement of extremely unsaturated, light samples and also colour scales which are defined with long path lengths including the Tintometer colour. The instruments remove all subjectivity involved in colour grading, supplying unbiased readings that are unaffected by operator or environment.

►► Comprehensive Selection of Standard Colour Values

The TM 3995 series of colorimeters automatically measure colour and display the results directly, either according to the traditional grading scales that have been widely adopted as industry standards for colour assessment and control, or in terms of internationally recognised CIE values and spectral data:

Colour Scale	Scope	Range
ADMI (full spectrum and tristimulus filter)	Coloured waters and tinted liquids	1 – 500
Acid Wash Color	Quality testing of industrial aromatic hydrocarbons	1 – 14
AOCS-Tintometer	Special red and yellow version of the ATL RYBN scale used for oils, fats and derivatives	0 – 20 Red, 0 – 70 Yellow
ASBC	American standard for colour grading of beers; derived from EBC Colour	1.2 – 10.6 (extended range by dilution and reduction in path length)
ASTM Color	A wide range of petroleum products including lubricating oils, heating oils and diesel fuel oils	0.5 – 8 units
Beta Carotene	Direct measurement of content in parts per million	0 – 1000 ppm
Chlorophyll A	Direct measurement of content in parts per million	0 – 100 ppm
EBC Colour	Beers, malts and caramels and similarly coloured liquids. Based either on absorption at 430 nm or CIE x y chromaticity co-ordinates	2 – 27 units (extended range by dilution and reduction in path length)
European Pharmacopoeia Colour Series	Pharmaceutical solutions	R1 – 7; Y1 – 7; B1 – 9; BY1 – 7; GY1 – 7
FAC Color	Approved by the Fats Analysis Committee of the American Oil Chemists Society for grading dark coloured oils, fats and tallows.	1 – 45 (odd numbers)
Gardner Color	Chemicals and oils ranging from pale yellow to red, such as resins, varnishes, drying oils, lecithins and fatty acids	1 – 18 units
Honey Colour (Pfund Equivalents)	Commercial honeys, ranging from pale yellow through amber to deep red	0 – 115 mm Pfund
ICUMSA Colour	Sugar solutions & syrups	
IP Units	Light coloured products such as refined undyed motor fuel, white spirit or kerosene	Water White (0.25) to Standard White (4.0)
Iodine Colour	Solvents, plasticisers, resins, oils and fatty acids ranging from yellow to brown	1 – 500 units
Kreis Value	Quality testing of fats and oils for oxidative rancidity	Depends on concentrations and path length
RYBN	Oils, fats, chemicals, resins and other transparent liquids in terms	0 – 70 Red, Yellow; 0 – 40 Blue; 0 – 3.9 Neutral

RYBN	Oils, fats, chemicals, resins and other transparent liquids in terms of ATL Red, Yellow, Blue and Neutral units	0 – 70 Red, Yellow; 0 – 40 Blue; 0 – 3.9 Neutral
AF960	Abridged red and yellow scale that was introduced on the AF960, an early electronic colorimeter	0 – 20 Red, 0 – 70 Yellow
Pt-Co/Hazen/APHA Scale	Water and other clear liquids such as plasticisers, solvents and petroleum spirits	0 – 500 mg Pt/l
Rosin, US Naval Stores ¹⁾	Rosins varying in colour from yellow to reddish orange	XC – D + FF
Saybolt Color	Light coloured petroleum products including aviation fuels, kerosene, white mineral oils, hydrocarbon solvents and petroleum waxes	–16 (darkest) to +30 (lightest)
Series 52 (Brown)	Beers, whiskies and sugar solutions	1– 38 units
Yellowness Index ¹⁾	Determination of the degree of yellowness under daylight Illumination. Calculated from X Y Z tristimulus values	
US Pharmacopoeia Color	Pharmaceutical solutions	A – T
CIE Values	X Y Z tristimulus values; x y Y chromaticity co-ordinates; CIE L*a*b* colourspace; ΔE colour difference; L*C*h colour space ²⁾ , Hunter L a b colour space ²⁾	Defined by spectrum locus
Spectral data (420 – 710 nm)	Transmittance (full spectrum and at specified wavelengths) Optical density (full spectrum and at specified wavelengths)	0 – 100% 0 – 2.5

TM 3995 instrument is accurate, highly efficient spectrophotometers for optically clear samples that meet the demand for consistent and reliable colour data for a wide range of samples. The long path-length cell chamber also allows the measurement of extremely unsaturated, light samples and also colour scales which are defined with long path lengths including the Tintometer colour. The instruments remove all subjectivity involved in colour grading, supplying unbiased readings that are unaffected by operator or environment.

Colour scale upgrades give the flexibility to meet individual requirements, enabling additional colour scales to be added to standard instrument versions either at the time of order or remotely once the instrument is in service. For product types that are incompatible with standard colour scales, the TM range allows users to build up a customised scale from a series of reference samples and then to obtain a closest match to the stored references.

►► **RCMSi Technology (Remote Calibration & Maintenance Service via internet)**

The TM range includes new RCMSi technology (Remote Calibration & Maintenance Service via internet). This unique feature allows a calibrated measurement to be taken using an certified liquid standard. The spectral response is transmitted to the ATL secure calibration server. On completion of this procedure, a traceable calibration certificate is made electronically available to the user. The RCMSi system not only gives the user added confidence that the instrument is working within tight ISO standards but also reduces the need for expensive on-site servicing and preventative maintenance of the unit.

►► **Colour Testing Made Simple**

The TM Series provides easy-to-use, automatic instruments that require no special skills to operate. The built-in menu guides users through the selection of operating parameters such as colour scale. Thereafter, readings are made with a single key press, taking less than 30 seconds to complete. Built-in help files are available.

►► **Easily Customised to User Specifications**

Adaptable software and design allow users to configure the TM Series to their requirements. Operators can set the language for display, program the TM to show only those scales of interest or restrict access to the menu system. As well as standard colorimetry cells, the TM can be used with a range of tubes and standard, flow-through and disposable spectrophotometer cells.

►► **Calculation and Description of Off-Hue Status**

The off-hue status of the TM range is a useful facility that reveals whether the sample colour is characteristic of the selected scale. Where appropriate, it includes a description of hue difference (eg. redder, greener), relative saturation (stronger or weaker) and an off-hue factor (a relative measure of the distance away in colour space of the sample colour from the 'true' colour scale).

►► Optimised Use of Colour Data

Data sets can be saved in the instrument, printed out or automatically downloaded to a PC where they can be processed and stored for future analysis, traceability and trend monitoring. The colour control software supplied with the TM enables the generation of spectral and CIE diagrams as well as analysis of spectral data. It also permits direct control of the instrument from the computer.

►► Confidence in Colour Measurement

For regular conformance checking, certified colour reference standards are also available for routine calibration and verification of test data. Conformance filters are supplied with a Certificate of Conformity stating their colour values and confirming that they have been manufactured and inspected under the control of The Tintometer quality system. Certified colour reference standards are supplied with full traceability to internationally recognised standards, either (ASTM Color, Saybolt and Gardner Color)

►► Technical Specification

Measuring principle	16 interference filters
Spectral response	420 – 710 nm
Bandwidth	10 nm
Repeatability Chromaticity (x y) ΔE	On measurements of de-ionized water +/- 0.0002 0.2
Measurement time	Less than 30 seconds
Baseline calibration	Single key press; fully automated
Light source	5 Volt, 10 Watt Tungsten Halogen
Illuminants	CIE Illuminant A, B, C, D65
Observer	2°, 10°
Path length	0.1 – 153 mm (0.004" – 6")
Interfaces	USB, LAN, RS232
Data storage	100,000+ Measurements
Input voltage	Universal (90 – 240 Vac), via external power supply
Compliance	CE, RoHS, WEEE
Display	240 x 128, back-lit graphic display, (white on blue)
Keypad	23 key tactile membrane keypad; washable polyester with audible feedback
Languages	English
Instrument housing	Fabricated steel with tough, textured paint finish
Dimensions	Width 515, depth 196, height 170 (mm)
Weight	7.7 kg

Version	Application	Standard Colour Scales
TM 3880/L	Oils and Fats	RYBN colour, CIE values, spectral data
TM 3880/AT	Oils and Fats	AOCS-Tintometer, CIE values, spectral data
TM 3880/P	Fuels and Waxes	Saybolt, ASTM Color, CIE values, spectral data
TM 3880/IP17	Fuels and Waxes	IP Units, ATL RYBN, CIE values, spectral data
TM 3880/S	Sugar Solution, Syrups and Honey	ICUMSA Colour Index, RYBN, CIE values, spectral data
TM 3880/CIE	Transparent Samples	Acid Wash Test (ASTM D848), CIE values, spectral data
TM 3950	Chemicals, Oils and Fats	AOCS-Tintometer, Gardner, ATL RYBN, CIE values, spectral data
TM 3950/P	Fuels and Waxes	Saybolt, ASTM Color, Pt-Co/Hazen/APHA, CIE values, spectral data
TM 3995	Transparent Samples	AOCS-Tintometer, Gardner, Kreis, Hunter Lab, Iodine colour, Pt-Co/Hazen/APHA, CIE values, spectral data, ATL , FAC, Chlor A, beta Carotene
TM 3995/P	Fuels and Waxes	Saybolt, IP Units, ASTM Color, Pt-Co/Hazen/APHA, CIE values, spectral data, ATL, Gardner

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HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

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Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
Chemistry Analyzer



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Hematology
Analyzer



Micro Plate
Reader/Washer



URINOVA 2800
Urine Analyzer



Total Organic
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