



Mini Catalogue

Lovibond®

Colour, Perfectly Measured



www.lovibond.com



Why Measure Colour?

How would you describe the colour of a rose? Is it canary yellow or lemon yellow? The answer often depends on who you ask.

People naturally perceive and describe colour differently. Lighting conditions, surrounding colours, cultural influences, and individual eyesight all affect how we see and interpret colour. As a result, colour descriptions and comparisons are inherently subjective.

Without a common reference, communicating a specific colour accurately becomes difficult. What appears "golden" to one person may look "amber" to another. This subjectivity can lead to misunderstanding, inconsistency, and costly errors in production and quality control.

That's why objective colour measurement is essential.

Colour is typically defined using three key elements:

Hue – the basic colour family, such as red, yellow, green or blue

Chroma – the intensity or vividness of a colour, from dull and greyish to bright and pure

Lightness – how light or dark a colour appears, from black through grey to white

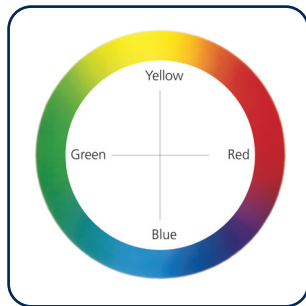
By measuring these components, colour can be specified accurately and consistently.

The CIELAB and Lovibond® RYBN colour scales define colour within a structured colour space, providing a universal, objective language for colour. This enables reliable communication, repeatable results, and confidence that your colour standards are being met – every time.

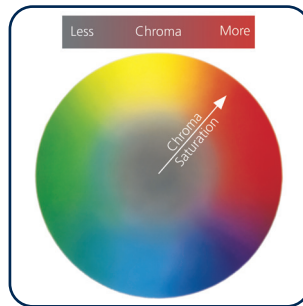
Flower



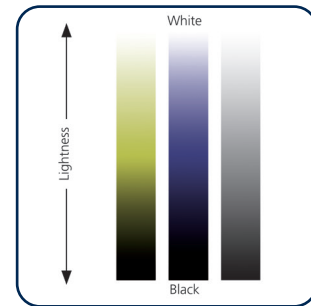
Hue



Chromaticity



Lightness



Scales and International Standards

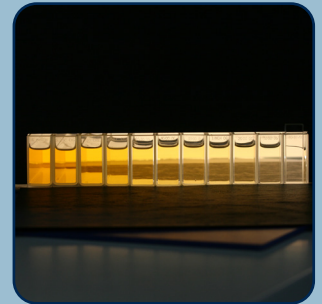
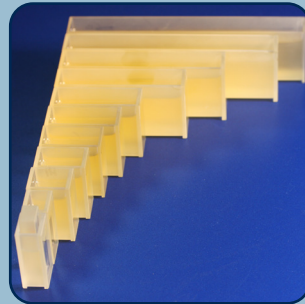
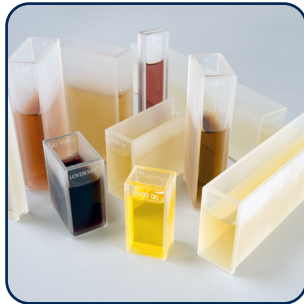
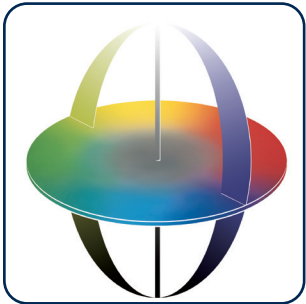
Today, colorimeters, spectrophotometers, and spectrophotometric colorimeters are the most commonly used instruments for measuring colour. They analyse how light interacts with a sample – some wavelengths are absorbed, while others are reflected or transmitted. By measuring light across the visible spectrum, these instruments generate a spectral curve, providing a precise and objective representation of colour.

To simplify colour assessment, grading techniques compare a product to a series of fixed colour standards. Over time, industry groups have agreed on specific sets of standards for many products. These traditional scales remain widely used and help ensure consistent colour quality and reliable communication of colour specifications across the supply chain.

Lovibond® instruments also measure samples according to internationally recognised colour spaces, such as CIE $L^*a^*b^*$. This allows colours to be defined accurately and communicated consistently, helping manufacturers maintain quality, meet specifications, and reduce the risk of rejection.

Colour is quantified by measuring the light reflected from or transmitted through an object.

3D Colour



Transmission - Visual

Comparator 2000 Series

The Comparator 2000 Series is a versatile two-field visual comparator designed for fast, reliable colour comparison. With an integrated lighting unit for improved viewing conditions and compatibility with Nesslerisers for longer path lengths, it delivers consistent, easy-to-read results across a wide range of applications.

Comparator 3000 Series

The Comparator 3000 Series is a compact, self-contained single-scale visual measurement system designed for fast and accurate colour assessment. Featuring a 3-field viewing area for optimum accuracy, it allows direct comparison of samples against coloured glass filters and is available with a wide range of industry-specific scales.

*Advance from visual (subjective)
to electronic (objective) colour
measurement.* →

Model F

The Model F is a visual colorimeter designed to optimise the use of Lovibond® Red, Yellow, Blue and Neutral glass filters for accurate colour measurement. Featuring a simple sliding rack system, balanced field of view and a prismatic optical system for improved colour matching, it delivers reliable and repeatable results across a wide range of applications.

Product	Description	Code
Model F	Model F Colorimeter	180000
Model F	Model F Colorimeter (BS684)	180270

Comparator 2000



Comparator 3000



Model F



EComparator Series

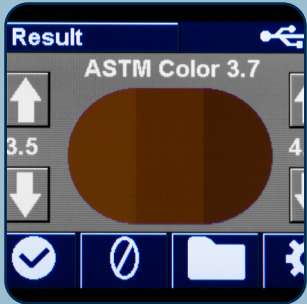


Automatic instruments provide
objective measurements.

EComparator

The EComparator is a hybrid colour measurement instrument that combines traditional visual assessment with electronic colour measurement in one compact, portable unit. Featuring three-field visual viewing with on-screen colour and numerical display, it enables users to clearly see colour differences while capturing objective digital results. Designed for simple push-button operation and immediate reporting in the lab or on-site, the EComparator delivers fast, reliable and repeatable colour measurement across a wide range of applications.

Product	Description	Code
EC 2000 Pt-Co	EC 2000 Pt-Co Kit	162010
EC 2000 Gardner	EC 2000 Gardner Kit	162020
EC 3000 ASTM	EC 3000 ASTM Kit	163010
EC 3000 Saybolt	EC 3000 Saybolt Kit	163020



Transmission – Automatic

Model Fx

The Lovibond® Model Fx is a benchtop spectrophotometer optimised for the colour measurement of edible oils. Featuring an integrated sample cell heater and removable sample chamber, it maintains consistent sample temperature, eliminates errors from crystallisation, and ensures accurate, reliable, and reproducible results. Its compact footprint saves valuable benchtop space, while simple push-button operation allows fast and efficient analysis. Designed for production and laboratory environments, the Model Fx provides site-to-site comparable measurements and supports compliance with widely used edible oil colour scales, giving users confidence in quality control and decision-making.

Product	Description	Code
Model Fx	Model Fx Kit	169200

Model Fx



Download Lovibond®
Model Fx Brochure

Transmission – Automatic

PFXi Series

The PFXi Series spectrophotometric colorimeters combine precise, non-subjective colour measurement with RCMSi technology, enabling remote calibration and maintenance via the internet. This innovative capability reduces on-site servicing costs, minimises downtime, and ensures compliance with international standards.

Designed for demanding production and laboratory environments, the PFXi instruments feature rugged, chemically resistant steel construction and optional heated sample chambers to maintain consistent high sample temperatures. Unique long path-length cells of up to 6" (153mm) allow accurate analysis of even highly coloured or concentrated liquids.

The PFXi Series supports a wide range of standard colour scales across multiple industries, including petroleum, edible oils, pharmaceuticals, brewing, and honey. Scales can be upgraded or added remotely, giving users maximum flexibility and future-proofing their investment.

With consistent, reproducible results, simple operation, and remote service capabilities, the PFXi Series provides reliable colour control while saving time, reducing errors, and supporting critical quality and production decisions.

Lovibond® ICx

The Lovibond® ICx delivers high-precision Platinum Cobalt (Pt-Co / Hazen / APHA) colour measurement for clear liquids, with values from 0 (clear) to 500 (dark yellow). Using high-precision spectrophotometric optics, it achieves outstanding performance at very low Pt-Co levels. When used with Lovibond® Premium Pt-Co Liquid Reference Standards, it provides ± 0.5 accuracy, ± 0.2 repeatability, and ± 0.3 reproducibility at Pt-Co 5, meeting the demanding requirements of chemical manufacturing and ultra-clear liquid applications.

Built for harsh laboratory environments, the ICx features a chemically resistant aluminium chassis, fully protected optics, and an intuitive interface for fast, simple operation.

PFXi Series



Lovibond ICx



Measurements take seconds, with results stored internally or exported to PC or printer, supported by on-board prompts and global Lovibond service support. Built for harsh laboratory environments, the ICx features a chemically resistant aluminium chassis, fully protected optics, and an intuitive interface for fast, simple operation. Measurements take seconds, with results stored internally or exported to PC or printer, supported by on-board prompts and global Lovibond service support.

Accessories

A range of optional accessories is available to enhance the performance and flexibility of the Lovibond® ICx. These include calibrated Platinum Cobalt liquid reference standards for verification and calibration, additional sample cells for different volumes or path lengths, and PTFE cell holders for increased resistance to aggressive chemicals. Protective covers are also available to help safeguard the instrument in demanding laboratory environments, supporting long-term reliability and consistent measurement performance.

Transmission – Automatic

Product	Description	Code
Lovibond ICx	ICx Instrument and core accessories	169300
ICx PTFE sample chamber	Optional PTFE adaptor and ICx sample chamber	401120

Liquid Reference Standards

Premium Pt-Co Liquid Reference Standard Set	500ml bottle, Pt-Co 0 (x2), 5, 10, 15	169400
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W600 Glass Borosilicate Cells

W600.B.100mm Cell Pk 10	W600, Borosilicate, 100 mm cell	656035
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Cell Lid

W600 Cell Lid PTFE 100mm Pk 5	W600, PTFE Cell Lid, 100 mm cell	690514
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Download Lovibond®
ICx Brochure

Liquid Reference Standards



PTFE Cell Holder



Automatic Reflectance Measurement

TR Series

The Lovibond® TR Series offers fast, accurate and precise colour measurement for solid surfaces and non-solids such as gels, pastes and powders. Available as both handheld and benchtop units, the TR Series combines ergonomic design with flexible measurement options, making it ideal for use in the laboratory or on the go. With sphere geometry, on-screen target positioning and free OnShade software for detailed analysis, the TR Series helps reduce rejection rates, improve production speed and support effective colour quality control across a wide range of industries.

Applications

Coatings & Paints

From paints and varnishes to powder coatings, accurate colour control is essential for visual quality. The TR Series removes subjectivity from colour assessment, helping manage batch variation, substrate differences and lighting effects.

Plastics

Monitor colour consistently from raw material through to finished product. With free OnShade software, colour data can be easily shared across the supply chain to improve consistency and reduce waste.

Textiles

Control colour throughout dyeing, weaving and finishing processes. The TR Series supports the management of dye strength, batch variation and metamerism from production through to retail.

Automotive

Achieve precise colour matching across the entire manufacturing process, from laboratory and supplier through to paint shop and assembly line, ensuring visual consistency in finished vehicles.

Food & Beverage

Measure and control colour in powders, pastes, granules, gels, cereals and liquids to identify substandard materials early, maintain quality during processing, and ensure products meet consumer expectations.

TR Series



TR Handheld



TRA Benchtop



Product	Measurement Area	Code
TR 500 (d/8° Sphere)	8 mm Aperture	403040
TR 500 (d/8° Sphere)	4 mm Aperture	403041
TR 500 (d/8° Sphere)	3 mm Aperture	403042
TR 515 (45°/0)	4 & 8 mm Aperture	403032
TR 520 (d/8° Sphere)	4 & 8 mm Aperture	403035
TRA 500 (d/8° Sphere)	8 mm Aperture	403220
TRA 520 (d/8° Sphere)	4 & 8 mm Aperture	403225

LC 100 / SV 100 Series

The Lovibond® LC 100 and SV 100 are entry-level, budget-friendly spectrophotometers designed for fast, accurate and precise colour measurement. Compact and lightweight, they fit comfortably in the hand and are small enough to carry in a pocket, making them ideal for use on the go or in the laboratory.



Download Lovibond®
Reflectance Brochure

Automatic Reflectance Measurement

Using unique imaging technology with 45/0 optical geometry, the LC 100 / SV 100 delivers consistent and reliable results across a wide range of applications, including food, powders, pastes, cosmetics, pharmaceuticals and plastics. The SV 100 includes an ergonomic stand for increased flexibility, while both models allow storage of reference standards and sample measurements, with automatic conformance reports generated in PDF or Excel format.

Product	Measurement Area	Code
LC 100	45/0 Image Capture	401100
LC 100 SV 100 Kit	45/0 Image Capture	401120

LC 100



LC 100 SV 100 Kit



Cells

Lovibond® High Quality Optical Cells

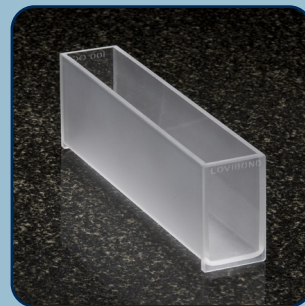
Lovibond® high quality optical cells are crafted for precision, ensuring accurate, reliable and repeatable colour and absorbance measurements in demanding laboratory environments. Manufactured in Lovibond's purpose-built facilities and subjected to rigorous quality control, each cell is meticulously inspected to eliminate imperfections that could compromise measurement accuracy. With optically parallel windows and blemish-free surfaces, Lovibond cells maintain a consistent light path through the sample, minimising scattering and ensuring compliance with the Beer-Lambert Law for dependable results.

Using a specialised heat-fusing process, Lovibond cells offer exceptional strength, durability and resistance to chemical attack, making them suitable for continuous use and harsh applications.

Bevelled edges allow easy handling and effortless placement into instruments, while optical matching ensures consistent absorbance and transmission readings across multiple cells. This level of precision removes the need for frequent recalibration and gives users confidence in their data, even in high-accuracy applications.

Available in optical glass, quartz or borosilicate, and in a wide range of path lengths, Lovibond cells are designed to meet the needs of multiple industries and applications. Borosilicate cells are ideal for heated samples and thermal shock conditions, while optical glass provides exceptional clarity for high-precision measurements. Fully compliant with AOCS, ASTM and ISO standards, Lovibond® optical cells are engineered to integrate seamlessly with Lovibond instruments, delivering long-term reliability, performance and peace of mind in every analysis.

Lovibond® Cell



Conformance Filters & Reference Standards

Lovibond® Conformance Filters and Reference Liquid Standards are manufactured to UKAS/ISO 17025 or ISO 9001 standards and are designed for routine calibration and verification of colour measurement instruments. They provide full traceability to internationally recognised standards, ensuring confidence in measurement accuracy and strong correlation between instruments and laboratories. Each standard is supplied with full certification.

Conformance Filters

Conformance filters are assigned a nominal value and carefully manufactured to match this value as closely as possible. Glass conformance filters offer several practical advantages over liquid references:

- Direct instrument check, independent of sampling technique
- No risk of spillage
- Compact and easy to store
- Simple to clean if contaminated
- Long life stable glass reference

Their use is independent of sample preparation and operator technique, making them particularly useful for verifying instrument stability alone.

Reference Standards

Lovibond® reference liquid standards are precision-formulated and gravimetrically prepared to achieve consistent, reliable performance. As with conformance filters, each standard is assigned a nominal value and manufactured to match this as closely as possible, with achieved values and tolerances fully documented.

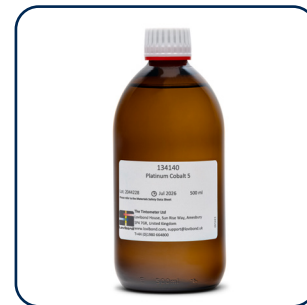
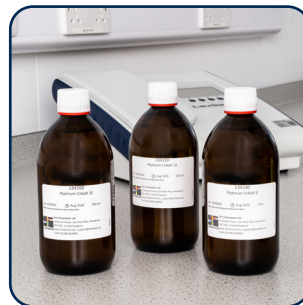
Liquid references offer key advantages over glass conformance filters, most notably because they closely resemble the samples measured in routine testing. Hence using them in conjunction with conformance filters has many benefits.

Together with Lovibond's global network of qualified Service Centres, these standards help protect your instrument investment, maximise uptime, and ensure your colour measurement results remain accurate, traceable and standard compliant.

Conformance Filters



Liquid Reference Standards





Tintometer GmbH
Tel.: +49 (0)231/94510-0
sales@lovibond.com
Germany

The Tintometer Ltd
Tel.: +44 (0)1980 664800
support@lovibond.uk
UK

Tintometer Inc.
Tel.: +1 941 756 6410
sales@lovibond.us
USA

Tintometer India Pvt. Ltd
Tel.: +91 (0) 40 23883300
indiaoffice@lovibond.in
India

Tintometer China
Tel.: +86 10 85251111 App. 330
chinaoffice@tintometer.com
China

Tintometer South East Asia
Tel.: +60 (0)3 3325 2285/6
lovibond.asia@lovibond.com
Malaysia

Tintometer Brazil
Tel.: +55 (11) 3230-6410
sales@lovibond.us
Brazil

Tintometer Spain
Tel.: +34 661 606 770
sales@lovibond.com
Spain

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Lovibond® Colour Measurement

Tintometer® Group



Model F

The Lovibond® Colour Scale

Visual Colorimetry : Lovibond® Precision

- Glass colour standards housed in durable racks
- External, low-voltage regulated power supply
- Prismatic optical system provides improved colour matching
- Balanced field of view
- Diffused tungsten-halogen light source
- Replaceable sample chamber liner



Lovibond® Tintometer® Model F

Operating Principle

The Lovibond® Tintometer is a visual colorimeter designed to optimise the use of Lovibond® glass filters. It is arranged with two adjacent fields of view, seen through the viewing tube, so that the product in the sample field and a white reflective surface in the comparison field are observed side by side, suitably illuminated. The Lovibond® glasses are introduced into the comparison field by a simple system of sliding racks, allowing the user to compare the colour of light which is either transmitted through or reflected from the sample with that transmitted through the glasses. A series of neutral glasses in racks is also supplied; these can be introduced into the sample field to dull the colour of products which are too bright to obtain a good colour match using Lovibond® Red, Yellow or Blue glasses. The racks are varied until a visual colour match is found for the light from the sample and its colour can then be expressed in Lovibond® units.



Easy Maintenance for Optimum Performance

The Lovibond® Tintometer is a precision optical instrument which should be kept clean to preserve its accuracy, even in the harsh operating conditions often encountered. This is why the Model F has been designed to allow easy cleaning and maintenance with the



minimum of cost and effort. The instrument includes a white plastic liner in the sample chamber which can be removed for cleaning if a spillage takes place. It can be replaced at intervals to maintain the whiteness of the interior, an essential feature for accurate colour matching. Separate filters in the racks also simplify cleaning and allow replacement of single glasses (as opposed to complete racks) if required. The Model F is an easy-to-use instrument with versatile application in colour measurement of products which transmit light as well as opaque

solids, powders and pastes (an optional 'solid' sample accessory pack may be required for colour grading of light-reflecting products). It is available in slightly varying formats to meet the requirements of different applications and the national and international standardising bodies which specify the instrument in their official methods for colour measurement:

Order No.	Lovibond® Tintometer	Description
18 00 00	Model F	Standard model for applications including fats and fatty oils, bleached lac, liquid chemicals and pharmaceuticals.
18 02 70	Model F (BS 684)	Version for measuring animal and vegetable fats and oils according to BS 684 Section 1.14, ISO 15305 and AOCS Method Cc 13e-92. Racks are fitted with colourless glass compensating slides in the sample field.

Each format of the Model F is supplied with a complete set of 11 racks containing permanently coloured glass filters for the Lovibond® colour scale (Red 0.1 - 0.9, 1.0 - 9.0, 10.0 - 70; Yellow 0.1 - 0.9, 1.0 - 9.0, 10.0 - 70; Blue 0.1 - 0.9, 1.0 - 9.0, 10.0 - 40; Neutral 0.1 - 0.9, 1.0 - 3.0), a sample chamber liner with a white PVC reference, a spare white reference, a pair of spare bulbs, rectangular fused glass cells (one each of 1" and 5¼") for the Model F and one each of 1/16", 1/8", 1/4", 1/2", 1", 5¼" for the Model F (BS 684)), a colour analysis record sheet and instructions.

TECHNICAL SPECIFICATION

Measuring principle	Visual, in terms of Lovibond® units
Modes	Transmittance, reflectance
Range	0.1 - 79.9 Red, Yellow; 0.1 - 49.9 Blue; 0.1 - 3.9 Neutral
Resolution	0.1 Lovibond® unit
Optical system	11 glass-filled nylon racks containing a graduated range of Lovibond® colour glasses
Viewing system	Fully adjustable, prismatic with integral blue filter for light standardisation
Light source	2 x 12 Volt, 10 Watt tungsten halogen lamp
Illuminant	Approximates to daylight
Path length	Up to 153 mm (6")
Power pack	12 Volt ac, switchable to suit 220/110 Volt supply
Approvals	CE
Instrument housing	Fabricated sheet steel with a tough, textured paint finish
Dimensions	Width 330 mm, depth 410 mm, height 230mm
Weight	8.3 kg

Optional Accessories for use with the Lovibond® Tintometer Model F

- A range of optical glass cells up to 6" path length.
- Conformance filters and certified colour reference solutions representing a range of Lovibond® colours, for quick and simple quality control checks on instruments and operators.
- Replacement sample chamber liners available as single units (Order No. 18 10 39) or in a pack of three (Order No. 18 01 10).
- An optional 'solid' sample accessory pack for measuring light-reflecting products in terms of Lovibond® units (Order No. 18 01 00).

The Tintometer Ltd
T: +44 (0)1980 664800
F: +44 (0)1980 625412

Tintometer Inc
T: +1 941 758 8671
F: +1 941 727 9654

Tintometer - China
T: +86 10 8525 1111 Ext 330
F: +86 10 8525 1001

Tintometer - South East Asia
T: +603 3325 2286
F: +603 3325 2287

Tintometer India Pvt. Lt.
T: +91 (0) 40 4647 9911
Toll Free: 1800 102 3891

Lovibond® Colour Measurement

Tintometer® Group



Lovibond® Model Fx

- Automatic Colour Measurement for the Edible Oils Market
- Measures Lovibond® RYBN, Lovibond RY10:1, AOCS RY, Chlorophyll & β -Carotene
- Ensures Compliance to Standards
- Allows the Measurement of Hot Samples (Integrated Heater)
- Reports Oil's Sample Temperature to Avoid Misreadings from Crystallisation
- Simple to Operate with Integrated Help Menus
- Robust, Chemically Resistant Housing for Continual Use in Edible Oil Refineries
- Aluminium Casing - 100% Recyclable and Sustainable
- Sealed Unit & Removable Sample Chamber (Oil Spillages will Not Impact Accuracy)
- New Technology Giving High Resolution, Repeatability, Reliability and Accuracy

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The increasing trend of oil usage worldwide and the resultant effect on price fluctuations is driving the need for more accurate analysis within the supply chain. Non-repetitive analysis across refineries, however, is still an issue.

Many edible oils are also unique in their fractionation – resulting in different melting points for different applications. This makes the sample temperature, and sample heating to maintain the temperature during measurement, more important since temperature and colour go hand in hand.

Temperature and duration times must be accurately set to ensure heating to the full liquid phase for measurement, while bearing in mind that overheating can cause the oil to turn darker. Microwave heating is faster but may not result in uniform temperatures of the oil.

Further, due to the high melt temperature, certain oils shorten very quickly: as soon as the temperature is removed, they start to solidify, visually turning the sample increasingly whiter.

“The Lovibond® Model Fx solves the problem of measuring the colour of edible oils with its unique ability to not only keep the oil at a constant temperature but also to measure and report on the temperature of the sample, avoiding any misreadings from crystallization.”



Technical Specifications	
Measurement Method	Spectrometer
Lamp Source	Tungsten Halogen
Wavelength Range	380 - 780nm
Photometric Measuring Range	0 - 100% T
Wavelength Accuracy	0.2nm
Spectral Bandwidth	< 15nm
Photometric Linearity	± 0.01% T
Wavelength Selection	Software
Stray Light	< 0.01% T
Repeatability	± 0.5% T
Detectors	Spectrometer

Physical & Environmental Specifications	
Enclosure	Aluminium
Dimensions	301mm w x 152mm h x 331mm d
Weight	5.16Kg
Environmental Conditions (operating)	Humidity: Up To 90% non condensing Temperature: +5°C to +40°C
Environmental Conditions (storage)	Humidity: Up To 90% non condensing Temperature: -20°C to +85°C

Additional Technical Data	
Input Voltage	Universal via External Power Supply
Interface	USB, RS232
Certification	CE
Languages	English, French, German, Italian, Spanish, Portuguese, Russian, Japanese, Chinese

Standards Compliance	
Lovibond® RYBN	AOCS Cc 13e, AOCS Cc 13j, ISO 15305, MS 252: Part 16, IP17 Method A
Lovibond RY10:1	Chinese GB/T 22460-2008 Standard adopted from the ISO 15305-1998
AOCS RY	AOCS Cc 13b-45 the Wesson Method, AOCS Cc 8d-55, AOCS Cc 13j-97
Chlorophyll	AOCS Cc13d-55
β-Carotene	BS 684 Section 2.20

Order Code	Product
169200	Lovibond® Model Fx



The Tintometer Ltd
T: +44 (0)1980 664800
F: +44 (0)1980 625412

Tintometer - China
T: +86 10 8525 1111 Ext 330
F: +86 10 85251001

Tintometer Inc
T: +1 941 758 8671
F: +1 941 727 9654

Tintometer - South East Asia
T: +603 3325 2286
F: +603 3325 2287

Tintometer GmbH
T: +49 (0) 231/94510-0
F: +49 (0) 231/94510-20

Tintometer India Pvt. Ltd
T: +91 (0) 40 4647 9911
Toll Free: 1800 102 3891

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sales@tintometer.com

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Lovibond® Colour Measurement

Tintometer® Group



Colour Management for Industry

Lovibond® PFXi-195 Series

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

Accurate, efficient spectrophotometric colorimeters

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Lovibond® PFXi-195 Series

- 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
- 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
- Accommodates a range of sample cells and tubes

Objective Colour Data for Process Control

The Lovibond® PFXi-195 Series is a highly efficient colorimeter for optically clear samples that meets the demand for consistent and reliable colour data. It removes all subjectivity involved in colour grading, supplying unbiased readings that are unaffected by operator or environment.

Comprehensive Selection of Standard Colour Values

The PFXi-195 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	References	Scope	Range
ADMI (full spectrum and tristimulus filter)	American Standard Methods 2120 E	Coloured waters and tinted liquids	1 – 500
Acid Wash Color	ASTM D848	Quality testing of industrial aromatic hydrocarbons	1 – 14
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	ASTM D1500, D6045, ISO 2049	A wide range of petroleum products including lubricating oils, heating oils and diesel fuel oils	0.5 – 8 units
Chinese Pharmacopoeia Colour Series ¹⁾	CP Appendix IX A	Pharmaceutical solutions	YG1 – 10; Y1 – 10; OY – 10; OR1 – 10; BR1 – 10
EBC Colour	Analytica	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	Ph. Eur. Method 2.2.2	Pharmaceutical solutions	R1 – 7; Y1 – 7; B1 – 9; BY1 – 7; GY1 – 7
FAC Color	AOCS Cc 13a-43	Approved by the Fats Analysis Committee of the American Oil Chemists Society for grading dark coloured oils, fats and tallowes.	1 – 45 (odd numbers)
Gardner Color	ASTM D1544, D6166, AOCS Td 1a,	Chemicals and oils ranging from pale yellow to red, such as resins, varnishes, drying oils, lecithins and fatty acids	1 – 18 units
Hess-Ives Color Units	DGK F050.2	Chemicals and surfactant liquids	
Honey Colour (Pfund Equivalents)		Commercial honeys, ranging from pale yellow through amber to deep red	0 – 115 mm Pfund
ICUMSA Colour	ICUMSA GS1-7, ICUMSA GS2/3-9	Sugar solutions & syrups	
Iodine Colour	DIN 6162	Solvents, plasticisers, resins, oils and fatty acids ranging from yellow to brown	1 – 500 units
Klett Color (blue filter KS-42)	AOCS Dd 5-92	Detergents and surfactants	0 – 1000 units
Pt-Co/Hazen/APHA Scale	ASTM D1209, D5386	Water and other clear liquids such as plasticisers, solvents and petroleum spirits	0 – 500 mg Pt/l
Rosin, US Naval Stores ¹⁾	ASTM D509	Rosins varying in colour from yellow to reddish orange	XC – D + FF
Saybolt Color	ASTM D156, D6045, JIS K 2580	Light coloured petroleum products including aviation fuels, kerosine, 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⁾	ASTM D1925, E 313	Determination of the degree of yellowness under daylight illumination. Calculated from X Y Z tristimulus values	
US Pharmacopoeia Color	USP (631) Color and Achromicity	Pharmaceutical solutions	A – T
CIE Values	ASTM E308	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

¹⁾ These scales are not included on standard instrument versions but are available as a colour scale upgrade

²⁾ included as standard on PFXi-195/9 only

Version	Application	Standard Colour Scales
PFXi-195/1	Liquid chemicals & industrial oils	Pt-Co/Hazen/APHA, Gardner, Iodine, CIE values, spectral data
PFXi-195/2	Petroleum oils & fuels	Saybolt, ASTM Color, Pt-Co/Hazen/APHA, CIE values, spectral data
PFXi-195/3	Dark oils & fats	FAC, Gardner, CIE values, spectral data
PFXi-195/4	Beers, malts & caramels	EBC (CIE & 430 nm), ASBC (CIE & 430 nm), Series 52 (Brown), CIE values, spectral data
PFXi-195/5	Pharmaceutical solutions	European Pharmacopoeia (includes automatic selection of colour series), US Pharmacopoeia, Pt-Co/Hazen/APHA, CIE values, spectral data
PFXi-195/6	Industrial oils & surfactants	Klett Color (blue filter KS-42), Pt-Co/Hazen/APHA, Hess-Ives Color Units, CIE values, spectral data
PFXi-195/7	Sugar solutions, syrups & honey	ICUMSA Colour (420, 560, 710 nm), Honey Colour (Pfund Equivalents), Series 52 (Brown), CIE values, spectral data
PFXi-195/8	Waters & waste waters	ADMI (spectral & tristimulus filter methods), Pt-Co/Hazen/APHA, CIE values, spectral data
PFXi-195/9	Transparent samples	CIE values (standard selection), L*a*b* colour space, Hunter L a b colour space, spectral data

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 PFXi-195 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 PFXi range includes new RCMSi technology (Remote Calibration & Maintenance Service via internet). This unique feature allows a calibrated measurement to be taken using an ISO 17025 certified liquid standard. The spectral response is transmitted to the Lovibond® 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 PFXi-195 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 20 seconds to complete. Built-in help files are available.

Easily Customised to User Specifications

Adaptable software and design allow users to configure the PFXi-195 Series to their requirements. Operators can set the language for display, program the PFXi-195 to show only those scales of interest or restrict access to the menu system. As well as standard colorimetry cells, the PFXi-195 can be used with a range of tubes and standard, flow-through and disposable spectrophotometer cells.

Calculation and Description of Off-Hue Status

The PFXi-195 off-hue status 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).

Suited to Laboratory or Production Environments

Comprehensive facilities for colour management make the PFXi-195 Series an ideal choice for the laboratory. However, with excellent calibration stability, password protection for tamper proof control and simple operation, the PFXi-195 also supports the migration of quality control to the manufacturing area, making it a cost effective option for dedicated production testing. For easy maintenance, the Lovibond® PFXi-195 Series includes a robust steel sample chamber, which is simply removed and cleaned if a spillage occurs, and the precision filament lamp is easily accessed and changed from outside the instrument.

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 PFXi-195 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 Ltd's ISO 9001 quality system. Certified colour reference standards are supplied with full traceability to internationally recognised standards, either ISO/IEC 17025 (ASTM Color, Saybolt and Gardner Color) or the ISO 9001 quality system (Pt-Co Units).



Lovibond® PFXi-195

PFXi-195 Technical Specification

Measuring principle	9 interference filters
Spectral response	420 – 710 nm
Bandwidth	10 nm
Repeatability	on measurements of de-ionised water
Chromaticity (x y)	+/- 0.0004
ΔE	0.4
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 – 50 mm
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, French, German, Italian, Portuguese, Russian, Spanish, Chinese and Japanese
Instrument housing	Fabricated steel with tough, textured paint finish
Dimensions	Width 435, depth 195, height 170 (mm)
Weight	6.8 kg

Accessories

Version	Optical Glass Cells
PFXi-195/1	1 x 10 mm, 1 x 50 mm
PFXi-195/2	1 x 33 mm, 1 x 50 mm
PFXi-195/3	1 x 10 mm
PFXi-195/4	1 x 10 mm, 1 x 25 mm
PFXi-195/5	1 x 40 mm, 1 x 50 mm
PFXi-195/6	1 x 10 mm, 1 x 40 mm, 1 x 50 mm
PFXi-195/7	1 x 10 mm, 1 x 50 mm
PFXi-195/8	1 x 10 mm, 1 x 50 mm
PFXi-195/9	1 x 10 mm

* Whenever cells are subjected to thermal shock, only borosilicate glass cells should be used.

Ordering Information

PFXi-195 Instruments

PFXi-195/1 (Pt-Co, Gardner, Iodine)	1371951
PFXi-195/2 (Saybolt, ASTM Color, Pt-Co)	1371952
PFXi-195/3 (FAC, Gardner)	1371953
PFXi-195/4 (EBC (CIE & 430 nm), ASBC (CIE & 430 nm), Series 52)	1371954
PFXi-195/5 (EP Colour (includes auto selection), USP, Pt-Co)	1371955
PFXi-195/6 (Klett Color (blue filter KS-42), Pt-Co, Hess-Ives)	1371956
PFXi-195/7 (ICUMSA (420, 560, 710 nm), Honey Colour, Series 52)	1371957
PFXi-195/8 (ADMI (spectral & tristimulus filter methods), Pt-Co)	1371958
PFXi-195/9 (full range of CIE values)	1371959

Order Code

Colour Scale Upgrades (include required cell)

Acid Wash Color (ASTM D848)	132950
ASTM Color	132840
Chinese Pharmacopoeia	132850
Gardner Color	132860
Klett Color (blue filter KS-42); order with instrument only	132930
Pt-Co/Hazen/APHA scale	132880
Rosin, US Naval Stores	132890
Saybolt Colour	132900
Yellowness Index	132910
CIE L*a*b*	132920

Many other Scale Upgrades are available.

Please contact sales@tintometer.com for details.

Spares & Optional Accessories

PFXi-195 Lamp 5V	138180
Replacement sample chamber	133830
Holder for standard spectrophotometer cells (12.5 mm width)	131907
Adapter for 10.65 mm tubes	132800
Adapter for 33 mm tubes	132810
Tube, 10.65 mm diameter	352290
Tube, 33 mm diameter for ASTM Color	352300
Acid Wash Tube	352220
Dark sample cell for CIE Values, 1 mm path length (W600/OG/10 mm cell with a 9 mm spacer)	132820
Plastic, disposable cells, 10 mm path length, pack of 100 *	132770
Plastic, disposable cells, 33 mm path length, pack of 50 *	352091
Plastic, disposable cells, 50 mm path length, pack of 50 *	352101
Flow through control software (for use with PC)	137690
Flow through cell, 50 mm path length *	658010
Flow through cell, 10 mm path length *	658020
PFXi-195 IQ/OQ Documentation	137680

* For use with holder for standard spectrophotometer cells

Conformance Filters (nominal values quoted)

EBC Colour, set of 5 filters (4, 9.5, 15, 18, 25)	139400
FAC Color, set of 5 filters (7, 13, 15, 29, 39)	139700
EP Red, set of 2 filters (R2, R6)	139410
EP Yellow, set of 2 filters (Y2, Y4)	139420
EP Brown, set of 2 filters (B2, B5)	139430
EP Brown/Yellow, set of 2 filters (BY3, BY5)	139440
EP Green/Yellow, set of 2 filters (GY2, GY5)	139450
Honey Colour (Pfund Equivalents), set of 5 filters (15, 30, 60, 85, 100)	139370
Klett (blue filter KS-42), set of 5 filters (21, 66, 162, 318, 616)	139710
US Pharmacopoeia, set of 3 filters (G, H, P)	139460
Single filter, certificated (select scale & nominal value from above)	109970
User specified filter (specify scale and value)	109980

Certified Reference Materials, 500 ml (nominal values quoted)

ASTM Color <0.5, (certified to ISO/IEC 17025)	134290
ASTM Color 1, (certified to ISO/IEC 17025)	134000
ASTM Color 3, (certified to ISO/IEC 17025)	134010
ASTM Color 5, (certified to ISO/IEC 17025)	134020
ASTM Color 7, (certified to ISO/IEC 17025)	134030
Gardner Color 2, (certified to ISO/IEC 17025)	134200
Gardner Color 5, (certified to ISO/IEC 17025)	134210
Gardner Color 8, (certified to ISO/IEC 17025)	134220
Pt-Co 5 mg Pt/l, certified under ISO 9001 quality system	134140
Pt-Co 10 mg Pt/l, certified under ISO 9001 quality system	134150
Pt-Co 15 mg Pt/l, certified under ISO 9001 quality system	134160
Pt-Co 30 mg Pt/l, certified under ISO 9001 quality system	134170
Pt-Co 50 mg Pt/l, certified under ISO 9001 quality system	134180
Pt-Co 100 mg Pt/l, certified under ISO 9001 quality system	134190
Pt-Co 500 mg Pt/l (certified to ISO/IEC 17025)	462803
Saybolt Color -10, (certified to ISO/IEC 17025)	134040
Saybolt Color 0, (certified to ISO/IEC 17025)	134050
Saybolt Color +12, (certified to ISO/IEC 17025)	134060
Saybolt Color +25, (certified to ISO/IEC 17025)	134070
Service pack for RCMSi	137380

The Tintometer Ltd
UNITED KINGDOM
Tel.: +44 (0)1980 664800
sales@tintometer.com

Tintometer - North America
USA
Tel.: +1 941-758-8671
www.lovibondcolour.com

Tintometer - South East Asia
MALAYSIA
Tel.: +603 3325 2286

Tintometer - China
CHINA
Tel.: +86 10 85251111 ext.330

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Lovibond® Colour Measurement

Tintometer® Group



Colour Management for Industry

Lovibond® PFXi-880/950/995 Series

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

Accurate, efficient spectrophotometric colorimeters

www.lovibondcolour.com

Lovibond® PFXi-880/950/995 Series

- 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

The Lovibond® PFXi-880, PFXi-950 and PFXi-995 instruments are 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 Lovibond® RYBN and AOCS 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 PFXi-880/950/995 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	References	Scope	Range
ADMI (full spectrum and tristimulus filter)	American Standard Methods 2120 E	Coloured waters and tinted liquids	1 – 500
Acid Wash Color	ASTM D848	Quality testing of industrial aromatic hydrocarbons	1 – 14
AOCS-Tintometer®	AOCS Cc 13b-45 AOCS Cc 8d-55 AOCS Cc 13j-97	Special red and yellow version of the Lovibond® 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	ASTM D1500, D6045, ISO 2049	A wide range of petroleum products including lubricating oils, heating oils and diesel fuel oils	0.5 – 8 units
Beta Carotene	BS684 Section 2.20	Direct measurement of content in parts per million	0 – 1000 ppm
Chinese Pharmacopoeia Colour Series ¹⁾	CP Appendix IX A	Pharmaceutical solutions	YG1 – 10; Y1 – 10; OY – 10; OR1 – 10; BR1 – 10
Chlorophyll A	AOCS Cc 13d-55	Direct measurement of content in parts per million	0 – 100 ppm
EBC Colour	Analytica	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	Ph. Eur. Method 2.2.2	Pharmaceutical solutions	R1 – 7; Y1 – 7; B1 – 9; BY1 – 7; GY1 – 7
FAC Color	AOCS Cc 13a-43	Approved by the Fats Analysis Committee of the American Oil Chemists Society for grading dark coloured oils, fats and tallowes.	1 – 45 (odd numbers)
Gardner Color	ASTM D1544, D6166, AOCS Td 1a,	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	ICUMSA GS1-7, ICUMSA GS2/3-9	Sugar solutions & syrups	
IP Units	IP 17 Method B	Light coloured products such as refined undyed motor fuel, white spirit or kerosene	Water White (0.25) to Standard White (4.0)
Iodine Colour	DIN 6162	Solvents, plasticisers, resins, oils and fatty acids ranging from yellow to brown	1 – 500 units
Kreis Value	BS 684 : 2.32 (1991)	Quality testing of fats and oils for oxidative rancidity	Depends on concentrations and path length
Lovibond® RYBN	ISO 15305 AOCS Cc 13e-92 AOCS 13j-97 IP 17 Method A	Oils, fats, chemicals, resins and other transparent liquids in terms of Lovibond® Red, Yellow, Blue and Neutral units	0 – 70 Red, Yellow; 0 – 40 Blue; 0 – 3.9 Neutral
AF960 Lovibond®		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	ASTM D1209, D5386	Water and other clear liquids such as plasticisers, solvents and petroleum spirits	0 – 500 mg Pt/l
Rosin, US Naval Stores ¹⁾	ASTM D509	Rosins varying in colour from yellow to reddish orange	XC – D + FF
Saybolt Color	ASTM D156, D6045, JIS K 2580	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⁾	ASTM D1925, E 313	Determination of the degree of yellowness under daylight illumination. Calculated from X Y Z tristimulus values	
US Pharmacopoeia Color	USP (631) Color and Achromaticity	Pharmaceutical solutions	A – T
CIE Values	ASTM E308	X Y Z tristimulus values; x y Y chromaticity co-ordinates; CIE L*a*b* colour space; 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

¹⁾ These scales are not included on standard instrument versions but are available as a colour scale upgrade

²⁾ included as standard on PFXi-995 and 995/P only

A number of industry-specific instrumental options are available which contain different combinations of colour scales. These are available with heated or non-heated sample chambers and are supplied with appropriate path length cells.

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 PFXi 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 PFXi range includes new RCMSi technology (Remote Calibration & Maintenance Service via internet). This unique feature allows a calibrated measurement to be taken using an ISO 17025 certified liquid standard. The spectral response is transmitted to the Lovibond® 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 PFXi 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 PFXi Series to their requirements. Operators can set the language for display, program the PFXi to show only those scales of interest or restrict access to the menu system. As well as standard colorimetry cells, the PFXi 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 PFXi 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).

Suited to Laboratory or Production Environments

Comprehensive capabilities for colour management make the PFXi Series an ideal choice for the laboratory. However, with excellent calibration stability, password protection for tamper proof control and simple operation, the PFXi range also supports the migration of quality control to the manufacturing area, making it a cost effective option for dedicated production testing. For easy maintenance, the Lovibond® PFXi Series includes a robust steel sample chamber, which is simply removed and cleaned if a spillage occurs, and a precision filament lamp, which is easily accessed and changed from outside the instrument.

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 PFXi 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 Ltd's ISO 9001 quality system. Certified colour reference standards are supplied with full traceability to internationally recognised standards, either ISO/IEC 17025 (ASTM Color, Saybolt and Gardner Color) or the ISO 9001 quality system (Pt-Co Units, the Lovibond® RYBN and the AOCS Tintometer® colour).



PFXi-880/950/995 Technical Specification

Measuring principle	16 interference filters
Spectral response	420 – 710 nm
Bandwidth	10 nm
Repeatability	On measurements of de-ionised water
Chromaticity (x y)	+/- 0.0002
ΔE	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, French, German, Italian, Portuguese, Russian, Spanish, Chinese and Japanese
Instrument housing	Fabricated steel with tough, textured paint finish
Dimensions	Width 515, depth 196, height 170 (mm)
Weight	7.7 kg

Each PFXi-880/950/995 is supplied with Windows® compatible software, Lovibond® optical glass cells for the included colour scales, a spare lamp, instructions and an RCMSi Starter Pack.

Version	Application	Standard Colour Scales
PFXi-880/L	Oils and Fats	Lovibond® RYBN colour, CIE values, spectral data
PFXi-880/AT	Oils and Fats	AOCS-Tintometer®, CIE values, spectral data
PFXi-880/P	Fuels and Waxes	Saybolt, ASTM Color, CIE values, spectral data
PFXi-880/IP17	Fuels and Waxes	IP Units, Lovibond® RYBN, CIE values, spectral data
PFXi-880/S	Sugar Solutions, Syrups and Honey	ICUMSA Colour Index, Lovibond® RYBN, CIE values, spectral data
PFXi-880/CIE	Transparent Samples	Acid Wash Test (ASTM D848), CIE values, spectral data
PFXi-950	Chemicals, Oils and Fats	AOCS-Tintometer®, Gardner, Lovibond® RYBN, CIE values, spectral data
PFXi-950/P	Fuels and Waxes	Saybolt, ASTM Color, Pt-Co/Hazen/APHA, CIE values, spectral data
PFXi-995	Transparent Samples	AOCS-Tintometer®, Gardner, Kreis, Hunter Lab, Iodine colour, Pt-Co/Hazen/APHA, CIE values, spectral data, Lovibond®, FAC, Chlor A, beta Carotene
PFXi-995/P	Fuels and Waxes	Saybolt, IP Units, ASTM Color, Pt-Co/Hazen/APHA, CIE values, spectral data, Lovibond®, Gardner

Please note: All of these instruments are available with optional electronically controlled heated sample chambers.

Lovibond® PFXi-880/950/995 Series

Ordering Information

PFXi-880/950/995 Instruments		Order Code
PFXi-995	Lovibond® RYBN, AOCS-Tintometer, Gardner, Pt-Co, FAC, Chlorophyll A, beta Carotene, Iodine, Klett (blue filter KS-42), Kreis, CIE values, Spectral data	1379951
PFXi-995 (heated)	Lovibond® RYBN, AOCS-Tintometer, Gardner, Pt-Co, FAC, Chlorophyll A, beta Carotene, Iodine, Klett (blue filter KS-42), Kreis, CIE values, Spectral data	1379951H
PFXi-995/P	Saybolt, ASTM, Pt-Co, Gardner, Lovibond® RYBN, IP Units, CIE values, Spectral data	1379952
PFXi-995/P (heated)	Saybolt, ASTM, Pt-Co, Gardner, Lovibond® RYBN, IP Units, CIE values, Spectral data	1379952H
PFXi-950	Lovibond® RYBN, AOCS-Tintometer®, Gardner, CIE values, Spectral data	1379501
PFXi-950 (heated)	Lovibond® RYBN, AOCS-Tintometer®, Gardner, CIE values, Spectral data	1379501H
PFXi-950/P	Saybolt, ASTM, Pt-Co, CIE values, Spectral data	1379502
PFXi-950/P (heated)	Saybolt, ASTM, Pt-Co, CIE values, Spectral data	1379502H
PFXi-880/L	Lovibond® RYBN, CIE values, Spectral data	1378801
PFXi-880/L (heated)	Lovibond® RYBN, CIE values, Spectral data	1378801H
PFXi-880/AT	AOCS-Tintometer®, CIE values, Spectral data	1378802
PFXi-880/AT (heated)	AOCS-Tintometer®, CIE values, Spectral data	1378802H
PFXi-880/P	Saybolt, ASTM, CIE values, Spectral data	1378803
PFXi-880/P (heated)	Saybolt, ASTM, CIE values, Spectral data	1378803H
PFXi-880/IP17	IP Units, Lovibond® RYBN, CIE values, Spectral data	1378804
PFXi-880/IP17 (heated)	IP Units, Lovibond® RYBN, CIE values, Spectral data	1378804H
PFXi-880/S	ICUMSA (420 & 560 nm), Lovibond® RYBN, CIE values, Spectral data	1378805
PFXi-880/S (heated)	ICUMSA (420 & 560 nm), Lovibond® RYBN, CIE values, Spectral data	1378805H
PFXi-880/CIE	CIE values, Spectral data	1378806
PFXi-880/CIE (heated)	CIE values, Spectral data	1378806H

Accessories

Version	Glass Cells (optical glass for standard, borosilicate for heated instruments)
PFXi-995	1 x 10mm, 1 x 100mm, 1 x 1", 1 x 5 1/4"
PFXi-995/P	1 x 10mm, 1 x 33mm, 1 x 100mm, 1 x 1", 1 x 6"
PFXi-950	1 x 10mm, 1 x 1", 1 x 5 1/4"
PFXi-950/P	1 x 33mm, 1 x 100mm
PFXi-880/L	1 x 1", 1 x 5 1/4"
PFXi-880/P	1 x 33mm, 1 x 100mm
PFXi-880/AT	1 x 1", 1 x 5 1/4"
PFXi-880/IP17	1 x 1", 1 x 6"
PFXi-880/S	1 x 100mm
PFXi-880/CIE	1 x 10mm

* Whenever cells are subjected to thermal shock, only borosilicate glass cells should be used.

Colour Scale Upgrades (include required cell)	Order Code
AOCS-Tintometer®	132000
Gardner	132010
FAC	132020
Pt-Co	132030
Iodine colour	132040
Klett (blue filter KS-42)	132050
ASTM	132060
Saybolt	132070
European Pharmacopoeia	132080
US Pharmacopoeia	132090
Lovibond® RYBN	132100
Acid Wash	132110
ICUMSA (420 & 560nm)	132120
Yellowness Index	132130
IP units	132140
Chlorophyll + beta Carotene	138900
AF960 scale extension	139090

for all other scales, please enquire

Spares & Optional Accessories

PFXi lamp 5V	138180
Replacement sample chamber (PFXi-880/950/995)	133840
Holder for 12.5mm wide cells	137530
Acid Wash tube base (PFXi-880/950/995)	137510
Acid Wash shaking tube	352220
Acid Wash tube	131840
PFXi IQ/OQ documentation	137680
PFXi flow through software	137690
Flow through cell 10mm (needs holder 658030)	658020
Flow through cell 50mm (needs holder 658030)	658010
Plastic disposable cells 10mm, pack of 100 (needs holder 658030)	132770
Plastic disposable cells 33mm, pack of 50 (needs holder 658030)	352091
Dark sample cell 1mm path length (10mm with 9mm spacer)	132820
PFXi Instruction CD including Windows® Software	137460
RCMSi Certified Calibration Pack- Full	134410
RCMSi Certified Calibration Pack- Conformance	134420
RCMSi Certified Calibration Pack - Starter	134430
Heater upgrade for PFXi	137880
PFXi Thermal Printer	137890
PFXi external power supply pack	131219

Conformance Filters (nominal values quoted)

AOCS-Tintometer Filter Set - (3 filters: 0.5R 1.0Y, 3.7R 13.0Y, 6.6R 50Y)	136900
ASTM Color Filter Set - (3 filters: 0.5, 3.5, 5.0)	139510
Beta carotene - (1 filter: 45 ppm at 10 mm path length)	139520
Chlorophyll A - (1 filter: 0.19 ppm at 10 mm path length)	139530
FAC Colour Filter Set - (5 filters: 7, 13, 15, 29, 39)	139700
Gardner Colour Filter Set - (4 filters: 2, 8, 12, 17)	139560
IP Units Filter Set - (4 filters: 0.75, 1.25, 2.0, 3.5)	137660
Klett (blue filter KS-42) Filter Set - (5 filters: 21, 66, 162, 318, 616)	139710
Lovibond® Red, Yellow, Neutral Filter Set - (5 filters) - Set 1	139630
Lovibond® Red, Yellow, Neutral Filter Set - (5 filters) - Set 2	139610
Lovibond® Red, Yellow, Neutral Filter Set - (10 filters) - Sets 1 & 2	139590
Lovibond® Red, Yellow, Blue Filter Set - (5 filters)	139620
Pt-Co/Hazen/APHA Filter Set - (5 filters: 5, 20, 50, 100, 300)	139570
Saybolt Colour Filter Set - (5 filters: -8, 0, +10, +18, +25)	139580
Single Filter (Certificated) - (specify instrument, scale and nominal value from above)	109970
User Specified Filter - (specify instrument, scale and value when ordering)	109980

Certified Reference Materials, 500 ml (nominal values quoted)

AOCS-Tintometer® Colour 0.4R 2.0Y (5 1/4")	134240
AOCS-Tintometer® Colour 1.6R 9.0Y (5 1/4")	134250
AOCS-Tintometer® Colour 1.9R 12.0Y (5 1/4")	134260
AOCS-Tintometer® Colour 2.5R 20.0Y (5 1/4")	134270
ASTM Color < 0.5 500 ml	134290
ASTM Color 1 500 ml	134000
ASTM Color 3 500 ml	134010
ASTM Color 5 500 ml	134020
ASTM Color 7 500 ml	134030
Gardner Colour 2	134200
Gardner Colour 5	134210
Gardner Colour 8	134220
Lovibond® RYBN Colour 0.8R 2.0Y 0.1N (5 1/4")	134080
Lovibond® RYBN Colour 1.4R 4.0Y 0.5N (5 1/4")	134090
Lovibond® RYBN Colour 2.0R 7.0Y 0.5N (5 1/4")	134100
Lovibond® RYBN Colour 2.1R 11.0Y 0.5N (5 1/4")	134110
Lovibond® RYBN Colour 2.5R 14.0Y 0.7N (5 1/4")	134120
Lovibond® RYBN Colour 3.1R 22.0Y 0.8N (5 1/4")	134130
Platinum Cobalt Colour 0 (no certificate)	133991
Platinum-Cobalt Colour 5	134140
Platinum-Cobalt Colour 10	134150
Platinum-Cobalt Colour 15	134160
Platinum-Cobalt Colour 30	134170
Platinum-Cobalt Colour 50	134180
Platinum-Cobalt Colour 100	134190
Platinum-Cobalt Colour 500	462803
Saybolt Colour -10 500 ml	134040
Saybolt Colour 0 500 ml	134050
Saybolt Colour +12 500 ml	134060
Saybolt Colour +25 500 ml	134070

The Tintometer Ltd
UNITED KINGDOM
Tel.: +44 (0)1980 664800
sales@tintometer.com

Tintometer - North America
USA
Tel.: +1 941-758-8671
www.lovibondcolour.com

Tintometer - South East Asia
MALAYSIA
Tel.: +603 3325 2286

Tintometer - China
CHINA
Tel.: +86 10 85251111 ext.330

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