

Lovibond® Colour Measurement

Tintometer® Group



**Innovation in
Colour Measurement**

Mini Catalogue

www.lovibond.com



Why Measure Colour

How would you describe the colour of the rose? Would you say it's canary yellow or lemon yellow? Everyone describes an object's colour differently. Perceptions and interpretations of colour and colour comparisons are highly subjective. As a result, objectively communicating a particular colour to someone without some type of physical standard is difficult.

Objectively communicating a particular colour to someone without some type of physical standard is difficult.

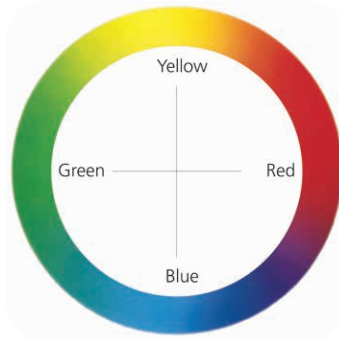
Colour is typically described using 3 elements: Hue, Chroma, Light
Hue is how we perceive an object's colour – red, orange, green, blue etc
Chroma describes the vividness or dullness of a colour – ie how close to grey or the pure hue
Lightness describes how dark or light a colour is - ie shade of black, grey or white...

The CIELAB and Lovibond® RYBN allow the specification of a colour in a colour space.

Flower



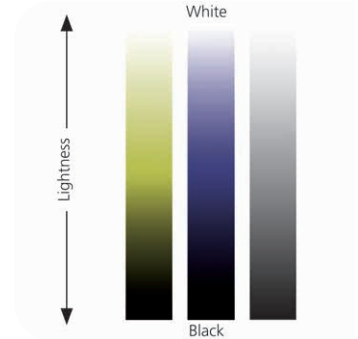
Hue



Chromaticity



Lightness



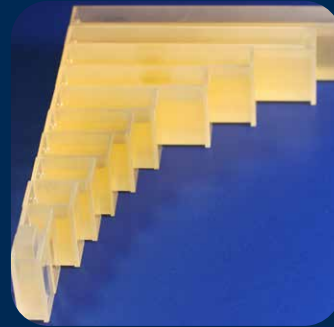
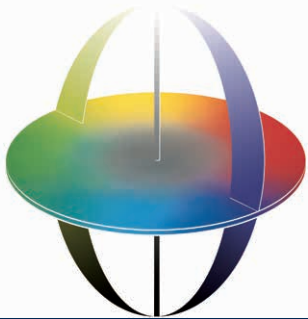
Scales and International Standards

Today, Colorimeters, Spectrophotometers and Spectrophotometric Colorimeters are the most commonly used instruments for measuring colour. They measure the proportion of reflected or transmitted light at many points on the visual spectrum: plotting the points graphically to form a spectral curve. When an object interacts with light, some of the wavelengths of light are absorbed and others are reflected or transmitted (in the case of a coloured but clear liquid).

Colour Scales: Grading techniques are widely used to assess product colour by comparison with a representative series of fixed colour standards. For many product types, a characteristic set of standards was agreed and adopted to aid colour control and the communication of colour specifications; the result is a selection of traditional colour grading scales that have been adopted as industry standards and are still in common use today.

In addition, the Lovibond® instruments also measure samples according to recognised international Colour Space such as CIE L*a*b*.

Instruments quantify colour by gathering and filtering the wavelengths of light transmitted through, or reflected from, an object.



Automatic instruments provide objective measurements.

EC3000 Series

- 3- field visual views with on-screen colour and numerical options
- Digital portable push-button technology
- Immediate reporting from lab or on-site

Model Fx

Benchtop spectrophotometer optimised for analysis of edible oils

- Guaranteed site-to-site comparability with accurate and precise spectrophotometry
- Avoid inconsistent readings with controlled sample temperature

- Ensure measurement consistency with easy to clean, removable sample chamber
- Save benchtop space in your QC laboratory with a smaller instrument footprint

PFXi Series

- RCMSi (Remote Calibration & Maintenance Service via internet)
- Buy just one scale now – add others as required in-field
- Extensive yet flexible choice of standard colour scales
- Optional heated sample chamber maintain high sample temperatures*
- Unique long path length sample chamber - up to 6" (153mm)*

* PFXi-880/950/995 Series

EC2000 Series



Model Fx



PFXi Series



Automatic Reflectance Measurement

Handheld & Benchtop Reflectance Spectrophotometers

TR500 / TR520 / TRA500 / TRA520

- Compact, Lightweight and Easy to use Sphere Spectrophotometer
- Designed for Fast, Accurate and Precise Colour Measurement
- On Screen Target Display Allows Positioning to be Perfect Every Time
- OnShade Software Included for FREE – Perfect for Detailed Data Analysis

Product	Measurement Area	Code
TR500	8 mm Aperture	403040
TR500	4 mm Aperture	403041
TR500	3 mm Aperture	403042
TR520	4 mm & 8 mm Aperture	403035
TRA500	8 mm Aperture	403220
TRA520	4 mm & 8 mm Aperture	403225



Automatic Reflectance Measurement

Unique hand-held spectrophotometer with housing stand to protect sample from ambient light.

LC 100 / SV 100 Series

- Single, simple, reliable integrated tool
- Versatile communication of colour measurement
- Unique imaging technology: 45/0 optical geometry and image capture
- Up to 30 reference standards can be stored
- Up to 350 sample measurements can be stored
- Results can be saved and printed



Cells

- High quality optical cells
- Available in Optical Glass, Quartz or Borosilicate
- Precision technology
- Heat used - durable and strong
- Suitable for heated samples
- Bevelled edging - easy placement
- Optically matched to give similar absorbance and transmission readings
- Blemish free

Lovibond® cells are manufactured by a specially developed fusing process which makes them resistant to acids and chemical attack.

Accurate test results depend on high quality, clean cells. For instruments equipped with a heater unit and whenever cells are subjected to thermal shock, it is recommended that borosilicate cells be used.



Accessories and Reference Standards

- Manufactured to UKAS/ISO 17025 or ISO 9001 standards
- Ideal for routine calibration and verification of test data
- Ensures good inter-laboratory and inter-instrument correlation
- Full traceability to internationally recognised standards
- Classified as non-hazardous according to EU directives
- Each bottle supplied with full certification including MSDS

Protect your instrument and guarantee 'uptime' with the qualified, international Lovibond® Service Centres.



		Model Fx	PFXI-880 Series*	PFXI-950 Series*	PFXI-995 Series*	PFXI-195 Series*	EC 2000 Series	EC 3000 Series	Model F	Model F AF710	Comparator 2000	Comparator 3000
Acid Wash	1-14		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
ADMI	0-5000		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Alpha Amylase Activity											<input type="checkbox"/>	
AOCS Tintometer	0-20 Red, 0-70 Yellow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>		
ASBC Colour			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
ASTM Colour (D1500)	0.5-8 units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>			<input type="checkbox"/>	
beta Carotene	0-1000		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Chinese Pharmacopoeia (CP)	YG, Y, OY, OR, BR		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
Cholinesterase											<input type="checkbox"/>	
Chlorophyll A	0-100 ppm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>							
Dyed Aviation Gasoline											<input type="checkbox"/>	
EBC Colour	2-27 units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
European Pharmacopoeia (EP)	R, Y, B, BY, GY		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
FAC Colour	1-45 (odd numbers)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Gardner Colour	1-18 units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Haemoglobin											<input type="checkbox"/>	
Hess-Ives Colour Units			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Honey Colour (Pfund Equivalents)	0-115 mm		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
ICUMSA Colour, 420 nm, 560 nm, 710 nm			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
IFU											<input type="checkbox"/>	
Iodine Colour	1-1000 units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
IP Units	Water White (0.25) to Standard White (4.0)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Klett Colour (blue filter KS-42)	0-1000 units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Kreis Value	Depends on concentration & path		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			
Lovibond® RYBN	0-70 Red, Yellow; 0-40 Blue; 0-3.9 Neutral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>			
AF960 Lovibond® & AOCS	0-20 Red, 0-70 Yellow		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Maple Syrup											<input type="checkbox"/>	
Marked Oils											<input type="checkbox"/>	
Milk Quality (Resazurin & Phosphatase)											<input type="checkbox"/>	
Organic Impurity (ASTM C40)											<input type="checkbox"/>	
Pt-Co/Hazen/APHA	0-500 mg Pt/l		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>	
Rosin, US Naval Stores	XC - D + FF		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
Rubber Latex Film											<input type="checkbox"/>	
Saybolt Colour	-16 (darkest) to +30 (Lightest)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>				
Series 52 (Brown)	0-30 units		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
Shellac (paint research)											<input type="checkbox"/>	
US/Japanese Pharmacopoeia	A-T		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	
Spectral Data (420-710 nm)	0-100% 0-2.5		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
XYZ Tristimulus	Defined by Spectrum		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
xyY Chromaticity	Locus		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
CIE L*a*b*			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
CIE L*C*h			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
ΔE Colour Difference			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Hunter Lab			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Yellowness			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						

* The scales listed are example scales applicable to the instrument series and do not represent standard configurations. Certain scales are available for specific applications. Please view the configuration list at www.lovibond.com. There is a remote upgrade facility for adding scales once in service.

		LC100 45°	TR500 3 mm Aperture	TR500 4 mm Aperture	TR500 8 mm Aperture	TR520 4 & 8 mm Aperture	TRA500 8mm Aperture	TRA520 4 & 8 mm Aperture	OnColor
ΔE Colour Difference		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIE L*C*h		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIE L*a*b*		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIE L*u*v*			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIE XYZ Tristimulus			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CIE xyY Chromaticity			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hunter Lab			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yellowness			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Whiteness			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Δecmc		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ΔE Colour Difference		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ΔE94		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ΔXYZ									<input type="checkbox"/>
ΔL*a*b*		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ΔL*C*h°		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ΔL*u*v*			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reflectance			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opacity			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metamerism Index			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Verbal Difference		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OnColor			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pass/Fail		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The Tables on this page are representative and include the most commonly requested colour scales, indexes and spaces. If the required information is not included, please contact the Lovibond® team to discuss precise requirements.

- The scale is provided as standard on at least one variant of this instrument.
- The scale is available as an optional upgrade in the field.

Tintometer GmbH

Lovibond® Water Testing
Schleefstraße 8-12
44287 Dortmund
Tel.: +49 (0)231/94510-0
Fax: +49 (0)231/94510-20
sales@lovibond.com
www.lovibond.com
Germany

The Tintometer Limited

Lovibond House
Sun Rise Way
Armesbury, SP4 7GR
Tel.: +44 (0)1980 664800
Fax: +44 (0)1980 625412
support@lovibond.uk
www.lovibond.com
UK

Tintometer Inc.

6456 Parkland Drive
Sarasota, FL 34243
Tel.: +1 941 756 6410
Fax: +1 941 727 9654
sales@lovibond.us
www.lovibond.com
USA

Tintometer Spain

Post box: 24047
08080 Barcelona
Tel.: +34 661 606 770
sales@tintometer.es
www.lovibond.com
Spain

Tintometer China

Room 1001, China Life Tower
16 Chaoyangmenwai Avenue,
Beijing, 100020
Tel.: +86 10 85251111 App. 330
Fax: +86 10 85251001
chinaoffice@tintometer.com
www.lovibond.com
China

Tintometer South East Asia

Unit B-3-12, BBT One Boulevard,
Lebuh Nilam 2, Bandar Bukit Tinggi,
Klang, 41200, Selangor D.E
Tel.: +60 (0)3 3325 2285/6
Fax: +60 (0)3 3325 2287
lovibond.asia@lovibond.com
www.lovibond.com
Malaysia

Tintometer Brazil

Caixa Postal: 271
CEP: 13201-970
Jundiaí – SP -
Tel.: +55 (11) 3230-6410
sales@lovibond.us
www.lovibond.com.br
Brazil

Tintometer India Pvt. Ltd.

Door No: 7-2-C-14, 2nd, 3rd & 4th Floor
Sanathnagar Industrial Estate,
Hyderabad: 500018, Telangana
Tel: +91 (0) 40 23883300
Toll Free: 1 800 599 3891/ 3892
indiaoffice@lovibond.in
www.lovibondwater.in
India

Technical changes without notice
Printed in Germany 05/22
No.: 938162

Lovibond® and Tintometer®
are Trademarks of the
Tintometer Group of Companies
Reg. No. 5394



The **Bluetooth®** word mark is a registered trademark owned by Bluetooth SIG, Inc. and any use by Lovibond® Tintometer GmbH is under license.
IOS® is a registered trademark of Cisco, Inc. and licensed to Apple,
Inc. Android™ is a trademark of Google, Inc.