

# Lovibond® Color Measurement



## Lovibond® Model Fx

### Laboratory spectrophotometer optimized for analysis of edible oils

- Sample temperature is recorded as part of the measurement result
- Integrated heater ensures temperature is consistent and uniform throughout the sample
- Sample chamber is removable for easy cleaning

When measuring edible oils, it is important that the sample be completely transparent for accurate color measurement. This can be challenging as many oils solidify at room temperature. If samples are not properly prepared prior to measurement, turbidity caused by the crystallization of the samples will lead to inconsistent readings.

Knowing the sample temperature at the time of analysis is a critical measurement parameter to ensure tests are conducted under similar conditions for accuracy and reproducibility.

The Model Fx solves many of the issues associated with comparing the color of edible oils from site-to-site across the supply chain due to inconsistent measurement conditions.



### Guaranteed Temperature Consistency

- Integrated sample heater
- Direct sample temperature reading
- Visual indication of heater status

### Optimized for Production Environment

- Chemical resistant, aluminum housing
- Reduced footprint
- Easy to clean sample chamber
- Sample cell placement guides
- Integrated operating help menus
- Fast, accurate readings



## Why Measure Color?

In the oil refining process, color provides a good indication of the degree of refinement and allows optimization of the refining process.

Reliable and repeatable test results are key to ensuring final product quality and also minimize production costs. Speed of analysis is vital for efficient process control. Simplicity of operation helps reduce errors and increase productivity.

With the international trade of edible oils, suppliers and buyers need a common language to communicate and determine product quality.

### Eliminate Communication Errors

Defining the color of a product and ensuring color accuracy every time is critical to long-term success and accurate communication within a supply chain. Clear and correct description of color standards and tolerances is critical when:

- Specifying materials when sourcing
- Communicating color within the supply chain
- Inspecting incoming materials
- Conducting continual production quality control
- Inspecting final / outgoing products
- Guaranteeing compliance with national and international standards

The Lovibond® Model Fx automatically reports key measurements to ensure that data is collected in a consistent manner and is reproducible by different users or across multiple sites. The following data is recorded with each measurement:

- Color Scale
- Path length of sample cell
- Temperature of sample
- Target Temperature
- Date & Time

### Why Lovibond®?

**Details Matter.** We look out for the little things that make a big difference in simplifying color measurement. From designing instruments that are well suited to production environments, to supplying standards to validate measurements.

**We've Got You Covered.** With experience in the edible oils industry dating back to the late 1800's, we have a long history of manufacturing products that are reliable and well suited to the needs of edible oil factories. Every instrument is designed to make testing easy, accurate and repeatable. Lovibond® instruments are specified in international standards – ISO15305 – AOCS Cc 13e-92 – AOCS Cc 13j-97 – BS684 – JIG758.

**Our Mission.** From the water we drink, the food we eat, to the everyday products we use, consumers deserve transparency. Lovibond® analytical products deliver accurate results so our customers can produce a safe product for their consumers.

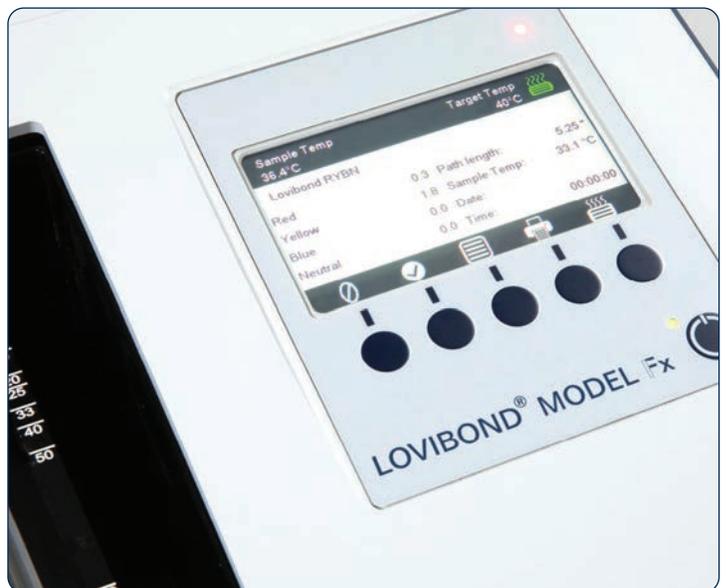


## Color Analysis Simplified

Visual methods of color measurement rely on the judgement and skill of the operator. The subjective nature of visual measurements can create discrepancies across the supply chain and visual comparison can be more time consuming and less precise than the fast, automatic readings delivered by the Lovibond® Model Fx.

Edible oils are unique in their fractionation and result 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 has a direct impact on color.

The Lovibond® Model Fx solves the temperature problems associated with consistently measuring the color of edible oils and addresses the need for quickly delivering accurate results. Misreading from crystallization can be eliminated with its ability to keep the oil at a constant temperature and report on the temperature of the sample.



### The Color Scales

The Lovibond® Model Fx is able to report results in the color scales that are the most important to the edible oil industry, ensuring access to the color data users need most.

Color Scale	References	Range	Recommended Sample Cell
Lovibond® RYBN Color	ISO 15305, BS 684, AOCS Cc 13e-92, AOCS Cc 13j-97, MS 252: Part 16, IP17 Method A	0.1 – 70 Red, Yellow; 0.1 – 40 Blue; 0.1 – 3.0 Neutral	W600/B/1 " W600/B/5.25 "
Lovibond 10:1	Chinese GB/T 22460-2008 Standard for adopted from the ISO 15305-1998		W600/B/1 " W600/B/5.25 "
AOCS Tintometer® Color	AOCS Cc 13b-45 the Wesson Method, AOCS Cc 8d-55, AOCS Cc 13j-97	0.1 – 20 Red 1.0 – 70 Yellow	W600/B/1 " W600/B/5.25 "
Beta Carotene	BS684 Section 2.2	PPM	W600/B/10MM
Chlorophyll A	AOCS Cc 13d-55	PPM	Variable (used in calculation)

### What is Lovibond® 10:1 Color?

This new mode mimics the practice of basing the Y(yellow) value on the R(red) value, by multiplying by 10. For example, a R value of 2.1 always gives a Y value of 21. Lovibond 10:1 has been adopted by some customers to speed up the initial measurement process when using a visual instrument.

# Ordering Information

Description	Part Number
Lovibond Model Fx	169200

## What's in the Box?

- Lovibond® Model Fx instrument
- External power supply
- Set of 3 power leads (US, UK, EU)
- Quick Start Guide
- Manual (USB Stick)
- Certificate of Conformity
- Conformance Filter
- W600/B/1" Cell (Borosilicate, 1" path length)
- W600/B/5¼" Cell (Borosilicate, 5¼" path length)

## Borosilicate Glass Sample Cells

Part Number	Description
655960	CELL: W600/B/10MM PATH LENGTH EA
655990	CELL: W600/B/25MM PATH LENGTH EA
656010	CELL: W600/B/33MM PATH LENGTH EA
656020	CELL: W600/B/40MM PATH LENGTH EA
656030	CELL: W600/B/100MM PATH LENGTH EA
656044	CELL: W600/B/1/16" PATH LENGTH 10/PK
656054	CELL: W600/B/1/8" PATH LENGTH 10/PK
656064	CELL: W600/B/1/4" PATH LENGTH 10/PK
656074	CELL: W600/B/1/2" PATH LENGTH 10/PK
656080	CELL: W600/B/1" PATH LENGTH EA;
656090	CELL: W600/B/2" PATH LENGTH EA;
656104	CELL: W600/B/3" PATH LENGTH 5/PK
656114	CELL: W600/B/4" PATH LENGTH 5/PK
656124	CELL: W600/B/5" PATH LENGTH 5/PK
656130	CELL: W600/B/5.25" PATH LENGTH EA

## Liquid Standards

Part Number	Description
134240	LIQUID REFERENCE STANDARD: AOCS, 0.4R 2.0Y
134250	LIQUID REFERENCE STANDARD: AOCS, 1.6R 9.0Y
134260	LIQUID REFERENCE STANDARD: AOCS, 1.9R 12.0Y
134270	LIQUID REFERENCE STANDARD: AOCS, 2.5R 20.0Y
134280	LIQUID REFERENCE STANDARD: AOCS, 3.0R 28.0Y
134080	LIQUID REFERENCE STANDARD: LOVIBOND, 0.8R 2.0Y 0.1N
134090	LIQUID REFERENCE STANDARD: LOVIBOND, 1.4R 4.0Y 0.5N
134100	LIQUID REFERENCE STANDARD: LOVIBOND, 2.0R 7.0Y 0.5N
134110	LIQUID REFERENCE STANDARD: LOVIBOND, 2.1R 11.0Y 0.5N
134120	LIQUID REFERENCE STANDARD: LOVIBOND, 2.5R 14.0Y 0.7N
134130	LIQUID REFERENCE STANDARD: LOVIBOND, 3.1R 22.0Y 0.8N
134230	LIQUID REFERENCE STANDARD: LOVIBOND, 3.4R 30.0Y 0.9N

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Interesting in learning how you  
can simplify your color analysis?

Contact us today!  
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## Lovibond® Model Fx Specifications

Measurement Method	Spectrophotometer
Lamp	Tungsten Halogen
Wavelength Range	380 - 780 nm
Photometric Measuring Range	0 - 100%T
Wavelength Accuracy	0.2 nm
Spectral Bandwidth	<15nm
Photometric Linearity	± 0.01% T
Wavelength Selection	Automatic
Stray Light	< 0.01% T
Repeatability	< 0.5% T
Enclosure Material	Aluminum
Dimensions (LxWxH inches)	12 x 13 x 6
Weight	12.5 lbs
Environmental Operating Conditions	Humidity: Up To 90% non-condensing Temperature: +5°C to +40°C
Environmental Storage Conditions	Humidity: Up To 90% non-condensing Temperature: -20°C to +85°C
Power Requirements	110-240 V
Interfaces	USB, RS232
Certification	CE
Languages	English, French, German, Italian, Spanish, Portuguese, Russian, Japanese, Chinese

