



TORONTECH

MONOCULAR ABBE REFRACTOMETER



Monocular Abbe Refractometer – ToronAR™ M

An Abbe Refractometer is a bench-style optical instrument used to measure the refractive index of transparent and semi-transparent liquids or solids. Monocular Abbe Refractometer – ToronAR™ M is designed for refractive index, average color dispersion, and sugar concentration checks, with a refractive-index range of 1.300 to 1.700 ND and sugar scale range of 0 to 95%.

This type of Refractometer is widely used in petroleum, pharmaceuticals, paint, food, daily chemicals, sugar processing, geology, teaching, and research. It can be paired with a constant-temperature bath or oven to measure refractive index over 0 to 70°C.

Monocular Abbe Refractometer – ToronAR™ M is a laboratory refractometer designed for measuring refractive index ND and average color dispersion NF–NC of transparent and semi-transparent samples. Unlike simple handheld refractometers that are built around one direct scale such as Brix or salinity, an Abbe refractometer is a more flexible bench instrument suited to laboratory-style refractive index work across different materials.

This instrument as a common lab tool across multiple industries. Its combination of wide refractive-index range, sugar scale, and compatibility with controlled-temperature measurement makes it suitable for both routine quality control and teaching or research use.

APPLICATIONS

Monocular Abbe Refractometer – ToronAR™ M Application

- Petroleum and oil testing: refractive index is often used as a quick physical-property check for oils and hydrocarbon liquids.

- Pharmaceutical and chemical product control: the pharmaceutical industry and daily-use chemical industry. In these settings, refractive index can support raw-material verification, incoming inspection, and formulation comparison where optical property shifts may indicate concentration or composition changes.
- Paint, coating, and building materials work: a bench Abbe Refractometer can help compare refractive behavior of liquid raw materials or semi-transparent materials used in formulation and development work.
- Food and sugar analysis: the instrument can measure sugar percent and gives a 0 to 95% glucose concentration range. That makes it suitable for food-processing and sugar-related checks where a wider-range bench refractometer is preferred over a handheld field tool.
- Geology, teaching, and research: geological survey, factory laboratories, teaching, and scientific research units. This makes the ToronAR™ M a practical fit for educational labs and general scientific refractive-index measurement work.



FEATURES

Monocular Abbe Refractometer - ToronAR™ M Key Features

- Bench-style Abbe Refractometer for measuring ND refractive index and NF-NC average color dispersion.
- Wide refractive index range of 1.300 to 1.700 ND.
- Sugar concentration range of 0 to 95% for glucose / soluble-solids style measurement.
- Can be matched with a constant-temperature oven or bath for refractive index measurements from 0 to 70°C.
- Suitable for transparent and semi-transparent liquids or solids.
- Positioned for use in oil, pharmaceutical, paint, food, daily chemical, sugar, geology, teaching, and research applications.
- Includes a complete accessory set with thermometer, gauge block, contact liquid, screwdriver, manual, and carry case.

THEORY & METHOD

Theory and Method

An Abbe Refractometer works by placing a sample between prisms, then observing the optical boundary through the viewing system to determine refractive index. This model measures ND refractive index and NF-NC average color dispersion, and can also be used for sugar percent measurement.

The 2WAJ platform can also be connected to a constant-temperature device for measurements from 0 to 70°C, which is useful when the refractive index must be checked under controlled thermal conditions. That makes the ToronAR™ M more

versatile than a simple handheld Refractometer intended only for room-temperature spot checks.

TECHNICAL SPECIFICATIONS

Monocular Abbe Refractometer - ToronAR™ M Technical Specification

Specification	Monocular Abbe Refractometer - ToronAR™ M
Product type	Monocular bench Abbe Refractometer
Refractive index measurement range	1.300 to 1.700 ND
Refractive index accuracy	±0.0002
Refractive index minimum division	0.0005
Average color dispersion measurement	NF-NC average color dispersion measurement supported
Glucose concentration measurement range	0 to 95%
Glucose concentration minimum division	0.5%
Controlled-temperature compatibility	Can be used with constant-temperature equipment for 0 to 70°C refractive-index measurement
Instrument weight	3 kg
Instrument dimensions	100 × 200 × 240 mm
Included accessories	1 refractometer, 1 thermometer, 1 gauge block, 1 bottle of contact liquid, 1 screwdriver, 1 instruction manual, 1 carry case



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