

VTSYIQI VTSYIQI20251103131585698775VTSYIQI

VTSYIQI Lab ABBE Refractometer Instruction Manual

Brand: VTSYIQI | Model: VTSYIQI20251103131585698775VTSYIQI

1. INTRODUCTION AND OVERVIEW

The VTSYIQI Lab ABBE Refractometer is designed for precise measurement of the refractive index (nD) and average dispersion (nF-nC) of transparent or translucent liquid and solid substances. It also measures the mass fraction (Brix) of cane sugar solutions.

This instrument is widely utilized in various fields including sugar, beverage, petroleum, food, chemical industries, as well as research institutes and educational departments. Its design emphasizes visual aim, optical index-plate reading, and ease of use for reliable results.

The refractometer features a digital thermometer for accurate temperature readings, which is crucial for precise measurements as refractive index is temperature-dependent.

2. PRODUCT COMPONENTS AND SETUP

Before operation, ensure all components are present and the instrument is set up correctly on a stable, level surface.

2.1 What's in the Box

- Abbe Refractometer (1 set)
- Special-purpose thermometer (with protecting jacket) (1 set)
- Screwdriver (1 piece)
- Standard sample (K9) (1 piece)
- Naphthalene bromide (1 bottle)
- Plastic cover hood for the instrument (1 piece)
- Operating instructions (1 copy)

2.2 Initial Setup

1. Unpack the refractometer and accessories carefully.
2. Place the refractometer on a stable, vibration-free surface.
3. Attach the digital thermometer to the designated port on the side of the refractometer. Ensure it is securely fitted.
4. Familiarize yourself with the adjustment knobs: the main adjustment knob for refractive index and the dispersion correction knob.



Figure 1: Front view of the Abbe Refractometer with the digital thermometer attached. The thermometer displays the current temperature, essential for accurate measurements.



Figure 2: The Abbe Refractometer shown with its standard accessories, including the digital thermometer, screwdriver, standard sample, and naphthalene bromide.

3. OPERATING INSTRUCTIONS

Follow these steps for accurate measurement using the Abbe Refractometer.

3.1 Sample Preparation and Application

1. Ensure the prism surfaces are clean and dry. Use a soft, lint-free cloth and a suitable cleaning solution if necessary.
2. Open the prism assembly by lifting the upper prism.
3. Apply a small amount of the sample liquid (1-2 drops) onto the surface of the lower prism. For solid samples, ensure good optical contact with a contact liquid like naphthalene bromide.
4. Gently close the upper prism, ensuring the sample spreads evenly without air bubbles.

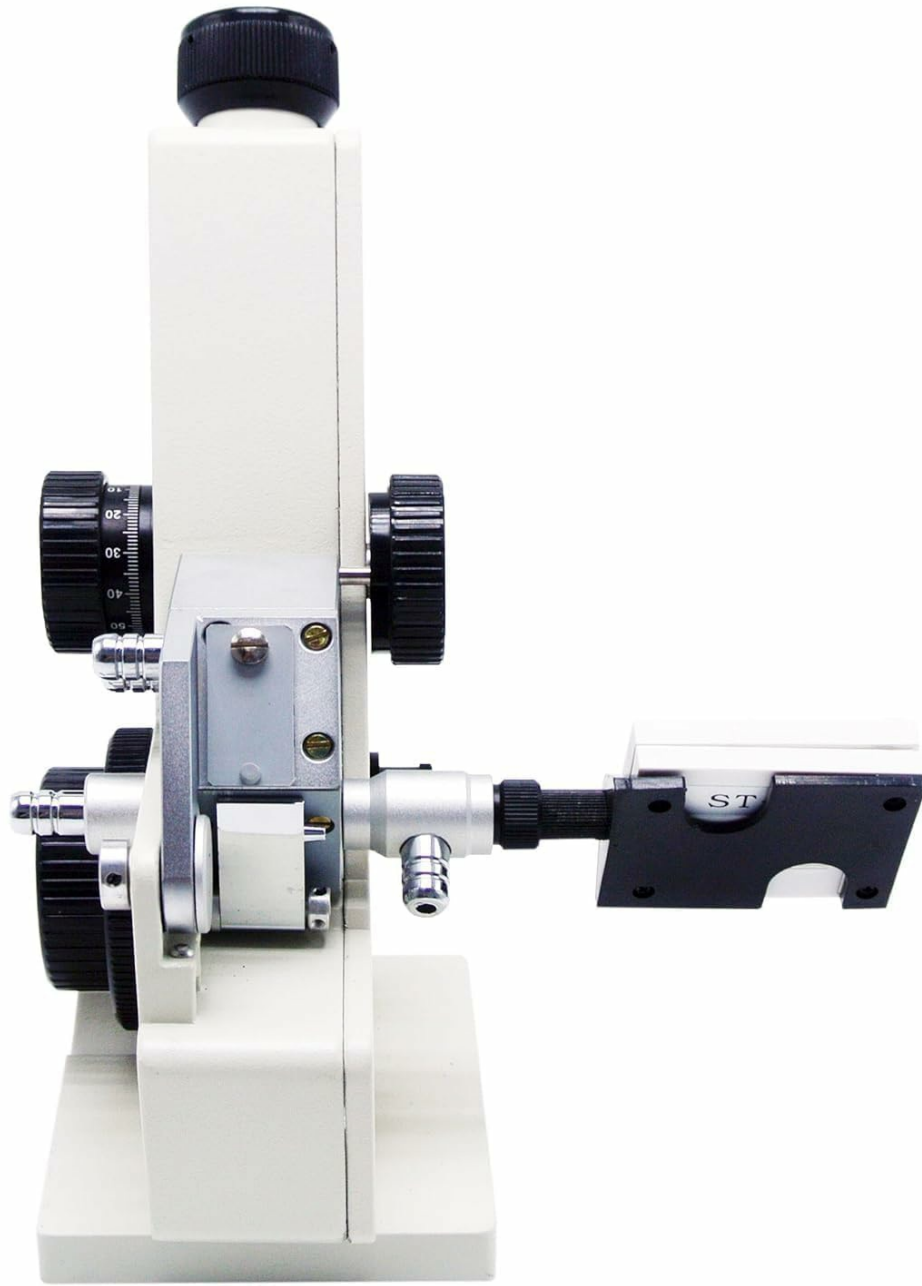


Figure 3: The refractometer with the prism assembly open, ready for sample application. Ensure the prism surfaces are clean before applying the sample.

3.2 Measurement Procedure

1. Look through the eyepiece. You should see a field of view divided into light and dark sections.
2. Adjust the main adjustment knob (often labeled 'Adjustment') until the boundary line between the light and dark fields is sharp and passes through the center of the crosshairs.
3. If the boundary line appears colored or fuzzy, use the dispersion correction knob (often labeled 'Dispersion Correction') to eliminate the color fringes and achieve a sharp, achromatic boundary.
4. Read the refractive index (n_D) or Brix value directly from the scale visible through the eyepiece.
5. Note the temperature displayed on the digital thermometer, as refractive index values are temperature-dependent.

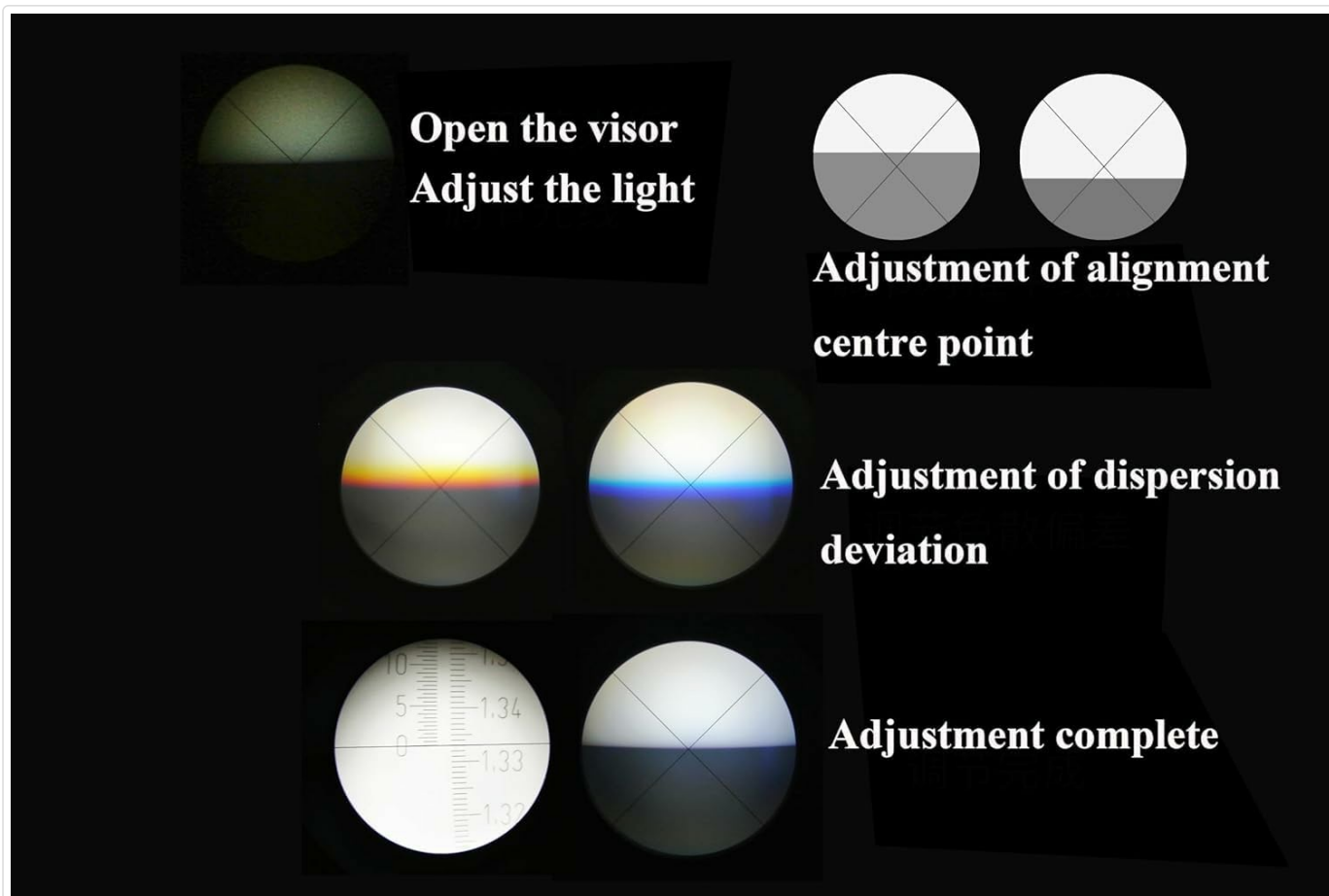


Figure 4: Visual guide for adjusting the eyepiece view. Steps include opening the visor, adjusting light, aligning the center point, correcting dispersion deviation, and the final adjustment for a clear reading.

3.3 Operation Video

For a visual guide on setting up and operating the refractometer, please watch the official operation video below.

Your browser does not support the video tag.

Video 1: Monocular Abbe Refractometer Operation Video. This video demonstrates the physical handling, thermometer attachment, and adjustment procedures for the refractometer.

4. MAINTENANCE

Proper maintenance ensures the longevity and accuracy of your refractometer.

- **Cleaning:** After each use, carefully clean the prism surfaces with a soft, lint-free cloth and a suitable solvent (e.g., distilled water, alcohol, or acetone, depending on the sample). Avoid abrasive materials that could scratch the prisms.
- **Storage:** Store the refractometer in its protective case or under the plastic cover hood in a dry, dust-free environment when not in use. Avoid extreme temperatures and humidity.
- **Calibration:** Periodically check the calibration using the provided standard sample (K9) and naphthalene bromide. Refer to the operating instructions for detailed calibration steps.

5. TROUBLESHOOTING

If you encounter issues during operation, consider the following common problems and solutions:

- **Unclear Boundary Line:**
 - Ensure prisms are clean and free of residue.

- Adjust the dispersion correction knob to remove color fringes.
- Verify sufficient sample volume and even spread on the prism.

- **Incorrect Readings:**

- Check the temperature reading and apply any necessary temperature corrections if not automatically compensated.
- Recalibrate the instrument using the standard sample.
- Ensure the sample is homogeneous and free of air bubbles.

- **Digital Thermometer Malfunction:**

- Check battery levels and replace if necessary.
- Ensure the thermometer is securely connected to the refractometer.

If problems persist, contact customer support for further assistance.

6. SPECIFICATIONS

Feature	Specification
Refractive Index (nD) Range	1.3000-1.7000
Accuracy (nD)	±0.0002 (Estimate Reading)
Dissolved Solids (Brix) Range	0-95%
Temperature Display	Digital thermometer
Observation Mode	Monocular
Weight (Gross)	3kg
Overall Dimensions	270mm × 180mm × 370mm
Outer Material	Metal
Special Feature	Low Battery Indicator (on thermometer)

7. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation provided with your purchase or contact the seller directly. If you require technical support or have questions regarding the operation or maintenance of your VTSYIQI Lab ABBE Refractometer, please reach out to VTSYIQI customer service or the authorized distributor from whom you purchased the product.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

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