



# OPERATING INSTRUCTION

## REFRACTOMETER HONEY SUGAR | HONEY WATER

Item no. 15305210 | 15305215

We thank you for choosing a refractometer developed by Diesella. With this operating instruction, we would like to help you get started using the product and ensure you get the best user experience. Please keep this manual a safe place for later reference or use.

### INTENDED USE

The refractometer is a measuring instrument for determining the refractive index of transparent substances in the liquid or the solid state. It is used to observe the behavior of light as it passes from a prism with known properties to the substance being tested. Use of the refractometer for other purposes is contrary to its intended use and may be hazardous. The manufacturer shall not be liable for any damages caused by improper use.

**15305210:** This refractometer is designed to work with high sugar sugar related liquids, honey, jellies, jams and syrups to help monitor and control sugar concentrations in foods and beverages.

**15305215:** This refractometer has been specially designed to determine the moisture in honey. Honey is a hygroscopic liquid that has excellent water absorbing properties, which is why honey will change in moisture content according to the surrounding atmosphere. The moisture level in natural, raw honey usually varies from 14% to 18% (or more).

### PACKAGE CONTENTS

After unpacking and before using the device for the first time, check that all listed parts have been supplied. Replace damaged or faulty parts immediately and do not put them into operation.

- Refractometer
- Storage box
- Pipette
- Adjustment tool
- Cleaning cloth
- Calibration oil and stone
- Operating instruction

### INTRODUCTION

This user manual is for the refractometers item no. 15305210/15305215 (afterwards referred to as the appliance) and provides important information on the use, safety, connection and operation of the appliance. The user manual must always be kept near the appliance. It must be read and used by the persons who have the task of operating and repairing faults on the refractometer. Keep this user manual and leave it with the appliance if you pass it on to others.

### LIMITATION OF LIABILITY

All technical information, data and information on connection and operation are in accordance with the latest knowledge at the time of printing. No requirements can be made based on the information, pictures and descriptions in this guide.

The manufacturer accepts no liability for damage due to non-compliance with the instructions, use that does not fall within this scope, incorrect repairs, alterations made without permission and use of unauthorized spare parts.



### FIELD OF APPLICATION

This appliance is for indoor use only and can be used in working temperature from 10°C to 30°C.

All other uses are considered to be outside the scope. No claims can be made in connection with damage caused by the use of the appliance for purposes for which it is not intended. The owner bears the risk alone.

### UNPACKING

#### NOTE

- Check that all parts are within the package and that they do not have visible damage.
- If parts are missing or damaged due to defective packaging or transport, please contact the dealer where you purchased the device.
- Take the appliance and the user manual out of the box.
- Remove all packaging material.

**WARNING:** Packaging materials must not be used for children's play. There is a danger of suffocation!

### DISPOSAL OF THE PACKAGING

The packaging protects the lamp from transport damage. The packaging materials are selected based on criteria such as environmental compatibility and disposal technology and can therefore be recycled.

When handing over the packaging for recycling, many raw materials are saved and the amount of waste is reduced. Dispose of packaging materials that are no longer to be used in accordance with local regulations.



### BASIC SAFETY INSTRUCTIONS

Observe the following safety instructions for safe use of the appliance:

- Check the appliance for external, visible damage before use. Do not use the appliance if it is damaged. There is a risk of electric shock.
- Only have the appliance repaired by authorized specialist shops or customer service.
- Improper repairs can result in significant damage hazards to the user. Furthermore, *ALL* warranty claims are canceled.
- NEVER place the appliance in a window - there is a risk of fire!
- This appliance must not be used by persons (including children) limited physical, sensory or mental abilities or with lack of experience and/or lack of knowledge, unless a responsible person supervises them and gives them instructions for how to use the appliance.
- Children must be supervised to ensure that they do not play with the appliance.



### DISPOSAL OF THE APPLIANCE

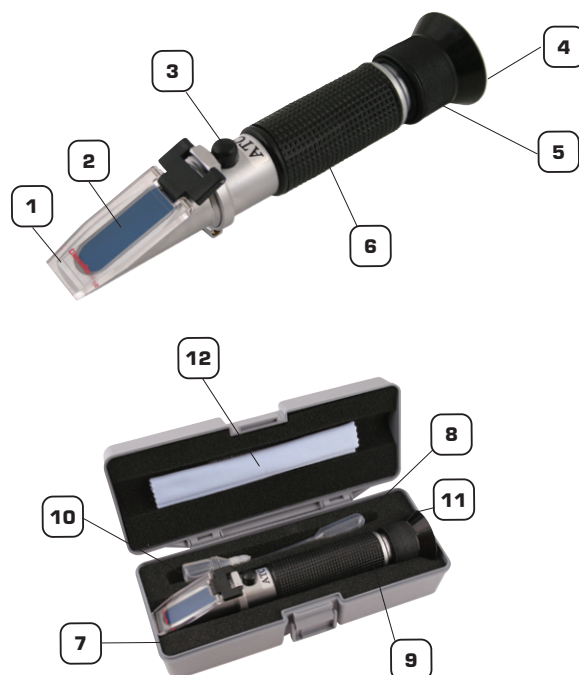
The packaging consists of environmentally friendly materials which can be disposed of via local recycling facilities. The device and storage box should be disposed of by the operator in accordance with applicable national or regional regulations at the place of use. Do not dispose of the appliance with normal household waste.

- Dispose of the appliance at an approved waste disposal company or at your municipal waste facility.
- Follow the current rules. Contact the waste disposal system if in doubt.



### DEVICE DESCRIPTION

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1. Prism cover                    | 7. Storage box                |
| 2. Prism surface                  | 8. Pipette                    |
| 3. Adjustment screw               | 9. Refractometer              |
| 4. Eyepiece with rubber eyeshade  | 10. Calibration oil and stone |
| 5. Diopter adjustment ring        | 11. Adjustment tool           |
| 6. Optical tubes with rubber grip | 12. Cleaning cloth            |



The product may differ slightly from the illustrations.



## CLEANING AND MAINTENANCE

Clean the refractometer using a soft, lint-free cloth moistened with either water or, if necessary, alcohol. Do not use any aggressive or abrasive cleaning agents. Never immerse the device in water or hold it under running water. Never handle the device with wet or damp hands. Never touch the measuring prism [2] with hard tools made from plastic, wood, rubber, metal, glass etc. Hard objects can quickly damage the relatively soft prism glass, resulting in measurement errors. The refractometer is maintenance-free. Cleaning should be carried out immediately before and after each use of the refractometer to maximize its life and optimize measurement results.

- Avoid exposing the refractometer to direct sunlight.
- Never bring the refractometer into contact with solvents.



## OPERATION AND FUNCTION

### Zero Point Calibration and measurement procedure

The refractometer can be used to determine the refractive index of transparent substances, liquid or solid ones quickly and accurately. To ensure correct measurement, the measuring device should be adjusted before measurements are carried out. Please make sure your hands are dry before handling the measuring device.

1. Start by removing the protective film (if present) from the prism surface [2] and check that the rubber eyecup [4] is fitted correctly.
2. Hold up the refractometer against a sufficiently bright light source and look through the eyepiece [5], holding the rubber eyeshade [4] closely against your eye/glasses.
3. Rotate the eyepiece [5] to adjust it for your eyesight, until you can see the scale sharply.
4. Open the prism cover [1].
5. Thoroughly clean the prism [2] and the underside of the prism cover [1] using a soft cloth or soft paper (with alcohol if necessary) and wipe dry.
6. Now apply a few drops of the calibration liquid [10] onto the prism surface [2].
7. Close the prism cover [1]. The amount of fluid should be sufficient to moisten most of the prism surface. There should not be any air bubbles between the measuring prism [2] and prism cover [1].
8. Wait about 30 seconds to allow the temperatures of the fluid and prism to equalize.
9. Look through the eyepiece [4] while pointing the prism surface [2] at a bright light source.
10. Through the eyepiece [4], you will see a bright and a blue field. The boundary line between them shows the measured value on the scale which is also visible through the eyepiece [4].
11. Use the supplied adjustment tool [11] to turn the adjustment screw [3] behind the prism surface [2] (under the rubber cap) and adjust the scale so that the measuring device is optimally set up by moving the boundary line upwards or downwards.
12. Repeat step 4 (cleaning).

## MEASUREMENT PROCEDURE

It is important that the samples being measured are representative samples. For samples that evaporate easily, measurements should be carried out quickly. The samples should be at the same temperature as the measuring instrument in order to achieve an accurate result.

1. Make sure your hands are dry before handling the refractometer.
2. Open the prism cover [1] and use the supplied pipette [8] to apply a few drops of the sample liquid [8] onto the prism surface [2]. Close the prism cover [1]. Spread the liquid evenly by pressing down on the prism cover [1] and eliminate any air bubbles present.
3. Hold the device horizontally and wait about 30 seconds (for optimal temperature equalization between the sample and device).
4. View the measurement scale through the eyepiece [4]. Point the prism surface [2] of the refractometer at a bright light source while doing this.
5. Rotate the adjustment ring [5] on the eyepiece [4] to adjust the focus.
6. The boundary line will move on the measurement scale depending on the concentration. This bright/dark boundary line shows the result on the scale.
7. If the temperature deviates from +20 °C and a refractometer without ATC is used, correct the measured result using the corresponding value from the temperature correction table [13].
8. Carefully clean the supplied pipette [8] and the refractometer after carrying out the measurement.



## IMPORTANT!

After every measurement, use a lint-free, absorbent cloth to remove the fluids from the prism surface [2] and prism cover [1]. Then carefully clean the prism and prism cover using a cloth moistened with water or if necessary, alcohol, and dry both parts using a soft, dry and lint-free cloth. Avoid rubbing the prism [2].

## SERVICE

After reading this operating manual, if you have any questions about setting up or using the refractometer, or if any unexpected problem occurs, please contact your dealer.

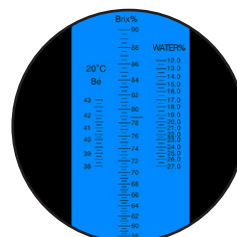
## WARRANTY!

The warranty shall be void in the event of:

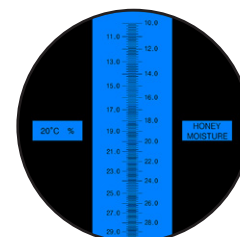
- Failure to observe the instructions in the operating manual
- Use for purposes other than those described
- Changes or opening of the appliance house
- Mechanic damage and/or damage in cause of media, fluids, natural wear

## ANALOGUE REFRACTOMETRE (HONEY)

Model	Measuring range	Scale resolution	Scale accuracy	Product dimension	Net. weight
15305210	58-90% Brix 12-27% Water	0.5% Brix 0.5% Bé 1% Water	±0.5% Brix ±0.5 Bé ±1% Water	145 × Ø40 mm	193 g
15305215	10-30% Moisture	0.1%	±0.1%	170 × Ø40 mm	207 g



ART. 15305210



ART. 15305215

## CALIBRATION PROCEDURE

### Honey refractometers need special calibration oil and stone.

This refractometer cannot be calibrated by using a standard configuration. All refractometers are pre-calibrated and therefore there's usually no need to calibrate it.

1. The dioptric oil can attack the cover plate (all plastic and rubber), please keep it away from the cover plate.  
  
With repeated contact, the dioptric oil can cause cracking and fogging of the cover plate. When you do the calibration, the calibration stone must be used and it will act as a cover plate during calibration.
2. Put one drop of dioptric oil on the long-sided surface of the calibration stone. Open the daylight plate, put the calibration stone (oily side down) on the surface of the prism and press it lightly with your hand to prevent it from sliding down.
3. Rotate and adjust the calibration screw to make the white and blue boundary fit with the following reference reading: Water 19.6% or 78.8% Brix.