

## The better method for identifying eye irritation without animal testing

The Peira LLBO 180 is an instrument to **determine if chemical products and cosmetics cause eye irritation** without in vivo testing.

The **Peira LLBO 180 is the only instrument approved for OECD Test Guideline 437** to identify ocular corrosives and severe irritants.



## Features

**OECD Approval:** The Peira LLBO 180 is a validated device used the only instrument approved by the OECD for BCOP testing (OECD Test Guideline 437)

**Mandatory Compliance:** One of three opacimeters required by OECD Test Guideline 437

**Replacement for OP-KIT:** It replaces Alternative for the older OP-KIT and Duratec

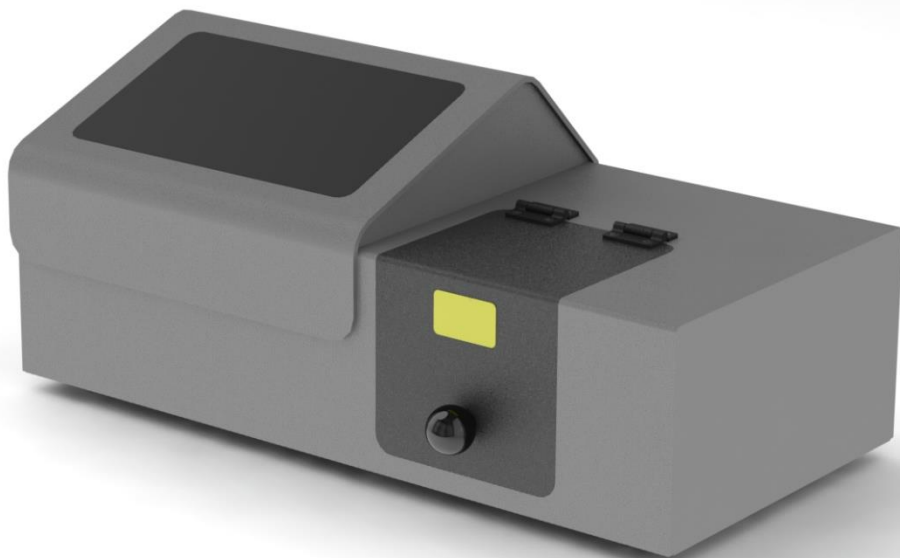
**Comprehensive Analysis:** Analyzes the entire corneal surface

**Updated Holders:** The internal chamber diameter of the support for LLBO holders is 18 mm, while for OP-KIT, it is 17 mm. Comes with 18 mm cornea holders, replacing the older 17 mm holders used in the OP-KIT.

**Advanced Equipment:** Equipped with a class 3R green laser and standard certified glass filters for calibration

The "Peira LLBO 180" is a **Laser Light-Based Opacimeter (LLBO)** that is used in the BCOP test method. The organisation for **Economic Co-operation and Development (OECD) Test Guideline 437** describes the **Bovine Corneal Opacity and Permeability (BCOP) Test Method** for Identifying Chemicals Inducing Serious Eye Damage and Chemicals Not Requiring Classification for Eye Irritation or Serious Eye Damage. The BCOP test method utilizes bovine corneas acquired from cattle slaughtered for commercial purposes thereby reducing and replacing the number of in vivo animal studies.

The LLBO can be used as an **alternative for the standard OP-KIT** in the BCOP. It offers the advantage of analysing the complete corneal surface and is therefore able to detect more efficiently opaque spots located around the periphery of the excised corneas. This device will allow not only a **more accurate definition of the eye irritating potential** of compounds, but also a **more precise ranking of moderate to mild and non-irritating compounds**. The value of Peira LLBO 180 has been confirmed during in-house and multi-laboratory evaluation studies performed by **VITO** and published in latest OECD Test Guideline 437 dated 4th of July 2023.



## Advantages

OECD Test Guideline 437  
Compliance: Fully complies with the OECD Test Guideline 437 guideline, confirming its reliability and effectiveness in ocular irritation testing

Stand-Alone Instrument: Operates independently

User-Friendly: Easy to use

Enhanced Detection: Better detection of opaque spots around the periphery of the corneas

Accurate Assessment: Provides a more accurate definition of the eye-irritating potential of compounds

Precise Ranking: Offers more precise ranking of moderate to mild and non-irritating compounds

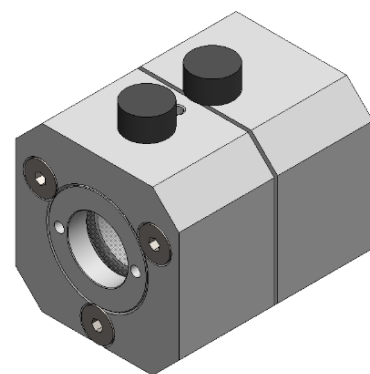
Regulatory Compliance: Ensures adherence to OECD Test Guideline 437 guidelines

Ethical Testing: Supports non-animal testing methods

## Cornea holders

The BCOP cornea holders are made of an inert material (polypropylene). The holders are comprised of two halves (an anterior and posterior chamber) and have two similar cylindrical internal chambers. Each chamber is designed to hold a volume of about 5 mL and terminates in a glass window, through which opacity measurements are recorded. Each of the inner chambers is 1.8 cm in diameter and 2.2 cm in depth.

The **corneas are placed endothelial side down** on the O-ring of the posterior chambers and the anterior chambers are placed on the epithelial side of the corneas. The chambers are maintained in place by three stainless steel screws located on the outer edges of the chamber. The end of each chamber houses a glass window, which can be removed for easy access to the cornea.



## Calibration via glass filters

A **standard certified glass filters and filter holders especially designed to ensure linear and accurate readings is included**. The device is verified by using an “Empty” calibration block and four neutral density glass filters (OD 0.3; 0.6; 0.8 & 1.0). After verification, the device is ready to measure opacity values of the (un)treated corneas.



## Laser

The Peira LLBO 180 uses a **helium-neon (HeNe) green laser** (class 3R) as light source **instead of visible light**. The operation wavelength is 532 nm producing a 3 mW coherent, random polarized monochromatic light beam (0.81 mm) in the green portion of the visible spectrum.

## Technical specifications

- Manufacturer : Komax Belgium NV
- Layout : BE10-00-1001-0000
- Model : Peira LLBO 180
- Operating voltage : 110 V – 230 V
- Power : 15 W
- Frequency : 50/60 Hz
- Year of construction : 2021

## Scope of delivery

- Peira LLBO 180 + case
- Standard calibration filterset (“Empty”, OM30, OM60, OM80, OM100)
- Glass placing tool
- Operation manual
- Power supply cable

## Accessories and spare parts

- Cornea holder  
article no. BE10-00-1001-8000
- Glass placing tool  
article no. BE10-00-1001-8020
- Spare parts
  - See-through glass:  
article no. BE10-00-1001-8004
  - Closing piece cornea holder  
article no. BE10-00-1001-8006

