

Polarizer Demonstrator Accessory

OS-8172



Included Equipment
Diffuser Screen
Sample Bottle with Lid (2)
Bottle Support
Thumbscrew (4)

Required Equipment	Model
Polarizer Demonstrator	OS-9477A

Recommended Items
Color Mixer Light Source (OS-8496)
Water
Sugar Solution (e.g., corn syrup)

Introduction

The OS-8172 Polarizer Demonstrator Accessory is designed to work with the OS-9477A Polarizer Demonstrator. The Accessory consists of a bottle support, two rectangular sample bottles with lids, a diffuser screen, and four thumbscrews for attaching the bottle support and diffuser screen to the OS-9477A Polarizer Demonstrator stands. The accessory can be used with the Polarizer Demonstrator to show the degree of rotation of polarized light when it passes through

an optically active material, such as a sugar solution. Optical activity - the ability to rotate plane-polarized light - is a property of many organic compounds known as chiral substances. In 1874, the Dutch chemist Jacobus Henricus van't Hoff proposed that the tetrahedral structure of the carbon atoms in these substances was responsible for the optical activity.

Assemble the Accessory

- Use two of the thumbscrews to mount the bottle support on one of the stands of the Polarizer Demonstrator. **NOTE:** The alignment tab on the bottom of the bottle support should be flush with the base of the stand.
- Place the diffuser screen on the second Polarizer Demonstrator stand with the vertical surface of the screen flush with the curved part of the stand. Use the other thumbscrews to fasten the diffuser screen to the stand.
- Place the circular polarizer screens into the two stands.



- **NOTE:** The bottle support can hold one or both sample bottles.

(Although the two stands are shown apart in the illustration, they can be placed next to each other so that the alignment tab on one stand fits into the notch on the other stand.)

Arrange the Light Source

Put the light source a short distance (10 to 20 cm) from the diffuser screen.

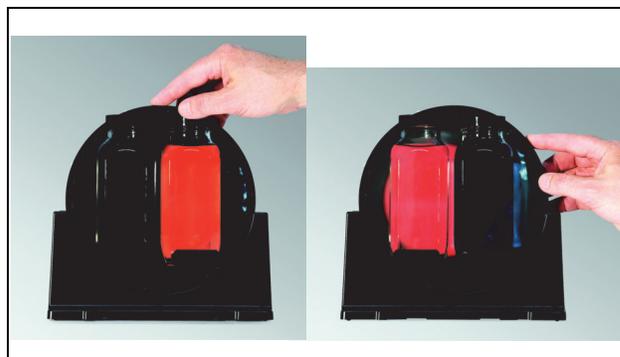
NOTE: The OS-8496 Color Mixer is a versatile light source for use with the Polarizer Demonstrator Accessory. It can produce red, green, and blue light, or any combination of the colors, and the intensity can be adjusted.

Place the Sample Bottle

- Fill a sample bottle with the solution to be viewed through the Polarizer Demonstrator Accessory.
- Arrange the bottle on the bottle support between the two circular polarizers.

Polarimetry Demonstration

To demonstrate the property of optical activity, fill one sample bottle with corn syrup and leave the other sample bottle empty. Put the bottles side-by-side on the bottle support. Shine the light source against the diffuser screen. Rotate the front polarizer until the view through the empty bottle is as dark as possible. Describe the appearance of the view through the other sample bottle. Note the approximate angle on the polarizer. Next, turn the front polarizer slowly until the view through the empty bottle is as clear as possible. Describe the appearance of the other sample bottle.



Technical Support

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