

Measuring Salinity

Introduction

Welcome to the Measuring Salinity learning module. This section contains a short video that provides information on the following topics:

- How to calibrate a refractometer
- How to collect a water sample
- How to measure the salinity concentration of a water sample using a refractometer

After completing this module you should be able to perform the following:

- Identify a refractometer and its parts
- Calibrate a refractometer
- Collect a water sample
- Use a refractometer to measure the salinity concentration of a water sample

To begin the module, click the **Next** button at the bottom right of the screen.

Measuring Salinity

Identifying a refractometer and its parts

SCORE volunteers measure salinity using a refractometer, like the one shown on your screen. Before learning how to measure salinity, take a moment to identify the different parts of a refractometer.

Measuring Salinity

Procedures

It is important to note that before measuring salinity, refractometers must be calibrated for accuracy using distilled water. Distilled water contains no salts and is used to set the refractometer to a zero reading.

To begin calibration, carefully remove the refractometer from its protective casing. Hold the refractometer horizontally, and open the daylight plate to expose the main prism.

Using a plastic pipette, place two drops of distilled water on the prism.

Try it yourself!

Click on the daylight plate to open it.

Good job!

Now, click on the plastic pipette to place two drops of distilled water on the main prism.

Excellent!

Please click on the **Continue** button.

Close the daylight plate and press it lightly so that the water spreads across the entire surface of the prism without any air bubbles or dry spots. Allow the sample to remain on the prism for 30 seconds.

Aim the front end of the refractometer in the direction of a bright light and look through the eyepiece. You should see a circular field with graduations on either side. The upper portion should be blue and the lower portion white. If the field is not in focus, twist the eyepiece until the graduations are clearly distinguishable.

The boundary between the blue and white portions should fall on the zero mark of the graduations. If not, turn the calibration screw on top of the refractometer until the boundary between the colors reaches the zero mark.

Try it yourself!

Click on the arrows to twist the eyepiece until the graduations in the circular field are in focus. Click on the **Next** button when you are ready to move on.

Good!

Now, calibrate the refractometer by turning the calibration screw until the boundary between the blue and white portions of the circular field fall on the zero parts per thousand ($^{\circ}/_{00}$) graduation mark.

Excellent!

Please click on the **Continue** button.

After calibrating the refractometer, be sure to open the daylight plate and pat dry the main prism. This will prevent your sample from becoming diluted with distilled water.

Now it is time to measure the salinity concentration of a water sample. To begin, make sure that you are holding the refractometer horizontally, and open the daylight plate to expose the main prism.

Using a plastic pipette, collect a water sample and place two drops on the prism.

Close the daylight plate and press it lightly so that the sample spreads across the entire surface of the prism without any air bubbles or dry spots. Allow the sample to remain on the prism for 30 seconds.

Aim the front end of the refractometer in the direction of a bright light and look through the eyepiece. Determine the salinity indicated by the boundary between the blue and white portions in the refractometer field.

Try it yourself!

Determine salinity by reading the boundary between the blue and white portions in the refractometer field. Be sure to use the parts per thousand ($^{\circ}/_{00}$) salinity scale, which goes from 0 to 100. Enter and check your answer below.

Excellent!

Please click on the **Continue** button.

When finished, be sure to rinse the main prism with distilled water and pat dry before putting away.

Measuring Salinity Review

Congratulations! You have completed the Measuring Salinity learning module. In this section you learned about the following topics:

- How to calibrate a refractometer
- How to collect a water sample
- How to measure the salinity concentration of a water sample using a refractometer

You should now be able to perform the following:

- Identify a refractometer and its parts
- Calibrate a refractometer
- Collect a water sample
- Use a refractometer to measure the salinity concentration of a water sample

To choose another module, click the drop-down menu at the top of the screen.