Instrument specific information

The test can be performed on the following devices. In addition, the required cuvette and the absorption range of the photometer are indicated.

<table>
<thead>
<tr>
<th>Instrument Type</th>
<th>Cuvette</th>
<th>λ</th>
<th>Measuring Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD 100, MD 110, MD 600, MD 610, MD 640, XD 7000, XD 7500</td>
<td>ø 24 mm</td>
<td>430 nm</td>
<td>1 - 16 mg/l Benzotriazole or Tolyltriazole</td>
</tr>
</tbody>
</table>

Material

Required material (partly optional):

<table>
<thead>
<tr>
<th>Reagents</th>
<th>Packaging Unit</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>VARIO Triazole Rgt Powder Pack F25</td>
<td>Powder / 100 pc.</td>
<td>532200</td>
</tr>
<tr>
<td>Vario Rochelle Salt Solution (^{\text{h}})</td>
<td>30 ml</td>
<td>530640</td>
</tr>
</tbody>
</table>

The following accessories are required.

<table>
<thead>
<tr>
<th>Accessories</th>
<th>Packaging Unit</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV Pen Lamp, 254 nm</td>
<td>1 pc.</td>
<td>400740</td>
</tr>
</tbody>
</table>

Hazard Notes

While the UV lamp is in operation, UV safety goggles must be worn.

Application List

- Boiler Water

Sampling

1. Measure the water sample as soon as possible after sampling.
Preperation

1. To get accurate results the sample temperature must be between 20 °C and 25 °C.
2. Nitrites or borax-containing water must be adjusted between pH 4 and pH 6 before the analysis (with 1N Sulphuric acid).
3. If the sample contains more than 500 mg/l CaCO$_3$ hardness, 10 drops of Rochelle Salt Solution are to be added.

Notes

1. Triazole Reagent Powder Packs and UV maps available on request.
2. For handling of the UV lamp see manufacturer’s manual. Do not touch the surface of the UV lamp. Fingerprints will erode the glass. Wipe the UV lamp with a soft and clean cloth between measurements.
3. The test does not distinguish between Tolyltriazole and Benzotriazole.
Implementation of the provision Benzotriazole / Tolyltriazole with Vario Powder Packs

Select the method on the device
For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500

25 ml

Fill the digestion vial with 25 ml sample.

Add powder pack.

Close digestion vial.

Swirl around to dissolve the powder.

Keep the UV lamp in the sample. **Note: wear UV safety goggles!**

Press the ENTER button.

Wait for 5 minute(s) reaction time.

The UV lamp is switched off when the countdown is finished.
Remove the UV lamp from the sample. Close digestion vial. Invert several times to mix the contents.

Fill 24 mm vial with 10 ml deionised water. Close vial(s). Place sample vial in the sample chamber. • Pay attention to the positioning.

Zero

Press the ZERO button. Remove the vial from the sample chamber. Empty vial.

For devices that require no ZERO measurement, start here.
Fill 24 mm vial with **10 ml prepared sample**.

Place **sample vial** in the sample chamber. • Pay attention to the positioning.

Press the **TEST** (XD: **START**) button.

The result in mg/l Benzotriazole or Tolyltriazole appears on the display.
Analyses
The following table identifies the output values can be converted into other citation forms.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Cite form</th>
<th>Scale Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>mg/l</td>
<td>Benzotriazole</td>
<td>1</td>
</tr>
<tr>
<td>mg/l</td>
<td>Tolyltriazole</td>
<td>1.1177</td>
</tr>
</tbody>
</table>

Chemical Method
Catalyzed UV Digestion

Appendix

Calibration function for 3rd-party photometers
Conc. = a + b*Abs + c*Abs² + d*Abs³ + e*Abs⁴ + f*Abs⁵

<table>
<thead>
<tr>
<th>ø 24 mm</th>
<th>□ 10 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>-2.31524 • 10⁻¹</td>
</tr>
<tr>
<td>b</td>
<td>1.75481 • 10⁻¹</td>
</tr>
<tr>
<td>c</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td></td>
</tr>
</tbody>
</table>

Interferences

Persistant Interferences
• Should the photolysis be carried out for more or less than 5 minutes, this can lead to may show lower results.

Bibliography
Harp, D., Proceedings 45th International Water Conference, 299 (October 22-24, 1984)

 addeditionally required for samples with hardness values above 300 mg/l CaCO₃