

25–1000 mg/L COD High Range TNTplus®—Method 10236 Mercury Free Formulation

Scope and application: For water and wastewater.



Test preparation

Reagent storage

Storage temperature: 15–25 °C (59–77 °F)

Protect against light.

Temperature

The temperature of the water sample and reagents must be between 15–25 °C (59–77 °F).

Before starting

Digestion is required.

Blanks for colorimetric determination

Replace the sample with deionized water in the test procedure to determine the reagent blank value. Subtract the reagent blank value from the sample results automatically with the reagent blank adjust option. Use the blank again for other measurements with the same lot of vials. For storage, keep the blanks in a dark location. Monitor the decomposition of the blanks by periodically measuring its concentration. Measure the reagent blank value when a new lot of reagent is used.

Some of the chemicals and apparatus used in this procedure may be **hazardous to the health and safety of the user** if inappropriately handled or accidentally misused.

Wear **appropriate eye protection and clothing** for adequate user protection. If contact occurs, flush the affected area with running water. Follow instructions carefully.

Close the hood or place a **safety shield** in front of the COD reactor to prevent injury if splattering occurs.

The reagent mixture is **light-sensitive**. Keep unused vials inside the original closed box.

Spilled reagent affects **test accuracy** and is hazardous to skin and other materials. Wash spills with running water.

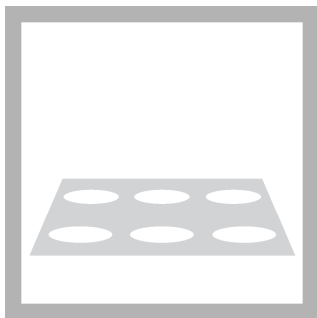
Review safety information and expiration date on the package.

Review the Safety Data Sheets (MSDS/SDS) for the chemicals that are used. Use the recommended personal protective equipment.

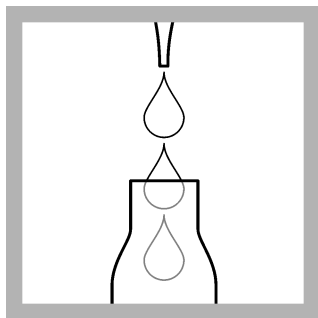
Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheets for disposal information for unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

This method is applicable on DR1900, DR2800, DR3800, DR3900, DR5000 and DR6000 only.

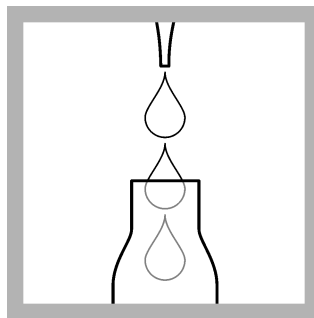
Procedure



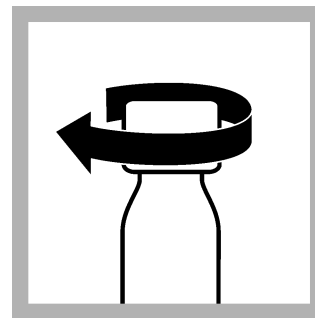
1. Turn on the reactor. Preheat to **150 °C (302 °F)**. Close the hood or place the safety shield in front of the reactor.



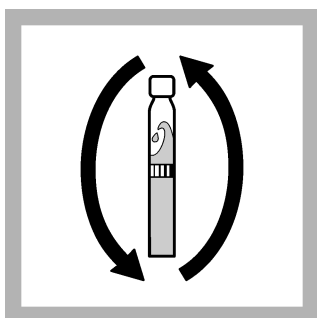
2. **Blank-vial:** Carefully pipet **2.0 mL** of **deionized water** (blank). (Only **1 blank** per batch)



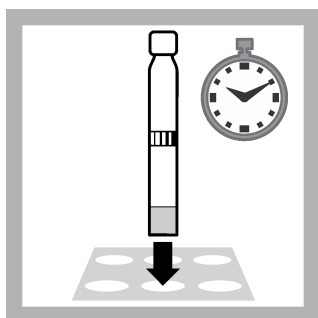
3. **Sample vial:** Carefully pipet **2.0 mL** of **sample**.



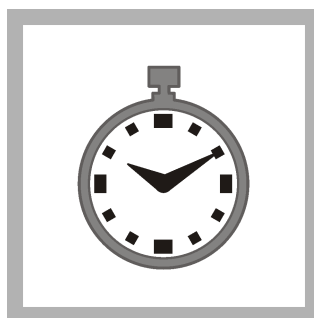
4. Close the vials.



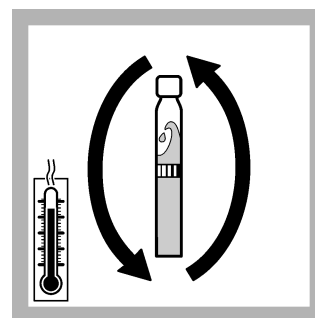
5. **Blank-vial and Sample-vial:** Invert to mix.



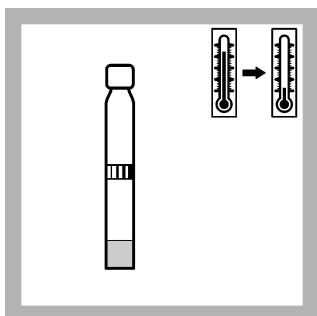
6. **Blank-vial and Sample-vial:** Heat in the reactor for **2 hours** at **150 °C (302 °F)**.



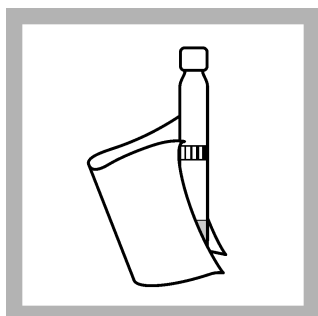
7. Wait **20 minutes**.



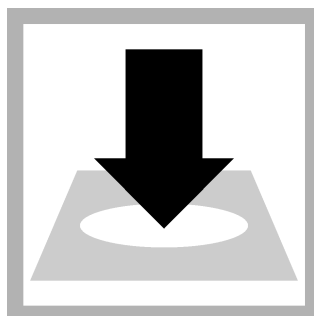
8. **Blank-vial and Sample-vial:** remove the **hot** vials. Carefully invert **twice**.



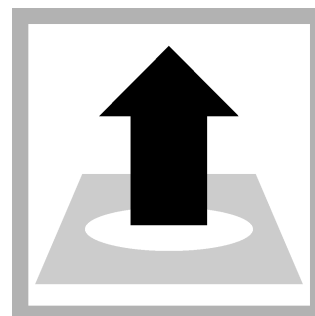
9. **Blank-vial and Sample-vial:** Allow to cool down to room temperature in a cooling rack.



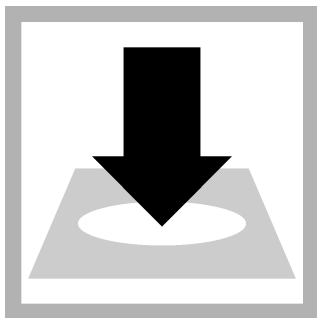
10. **Blank-vial and Sample-vial:** Thoroughly clean the outside of the vials.



11. Insert the **Blank-vial** into the cell holder. DR 1900: Go to LCK/TNTplus methods. Select the test—**control number 3**—push **READ 1**.



12. Remove the **Blank-vial** from the cell holder.



13. Insert the **Sample-vial** into the cell holder.
DR 1900: push **READ 2**.

Interferences

The level of interference is dependent on the COD and Chloride concentration.

	COD			
Chloride	200 mg/L	400 mg/L	600 mg/L	800 mg/L
100 mg/L	10%	2%	2%	1%
200 mg/L	15%	10%	2%	1%
400 mg/L	20%	10%	5%	2%
600 mg/L	30%	10%	5%	5%
800 mg/L	35%	15%	10%	5%
1000 mg/L	45%	20%	10%	5%

Summary of method

The mg/L COD results are defined as the mg of O₂ consumed per liter of sample under conditions of this procedure. In this procedure, the sample is heated for 2 hours with a strong oxidizing agent, potassium dichromate. Oxidizable organic compounds react, reducing the dichromate ion to green chromic ion.

TNT_{plus}[®]



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