TNT821 Chemical Oxygen Demand

DOC312.53.94134

3–150 mg/L COD Low Range

TNTplus 821—Method 8000

Scope and application: For water and wastewater.

Test preparation

Reagent storage

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

Protect against light.

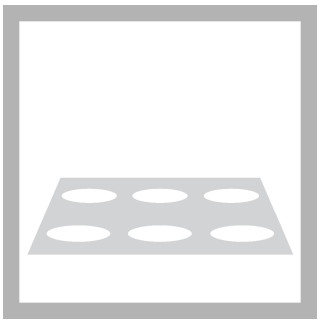
Temperature

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

Before starting

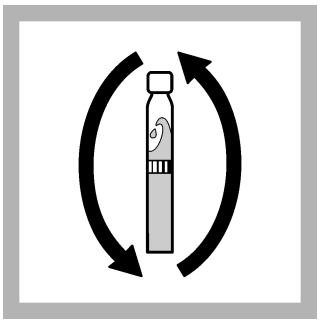
Digestion is required.
Blanks for colorimetric determination Replace the sample with deionized water in the test procedure to determine the reagent blank value. Subtract the reagent blank value from the sample results automatically with the reagent blank adjust option. Use the blank again for other measurements 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, DR4900, DR5000 and DR6000 only.

Procedure

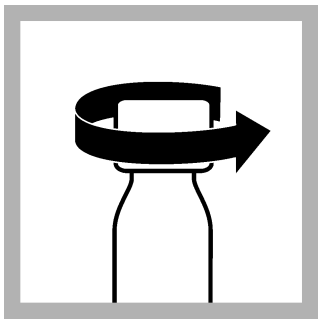


1. Turn on the reactor. Preheat to **150 °C (302 °F).**

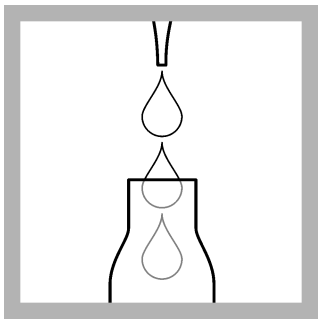
Close the hood or place the safety shield in front of the reactor.



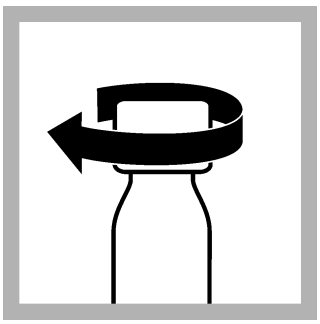
2. Invert a few times to bring the sediment into suspension.



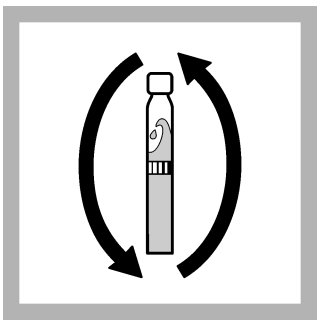
3. Open the vial.



4. Carefully pipet **2.0 mL** of **sample**.

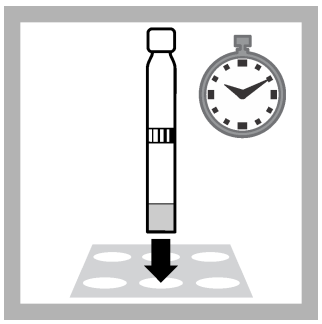


5. Close the vial.

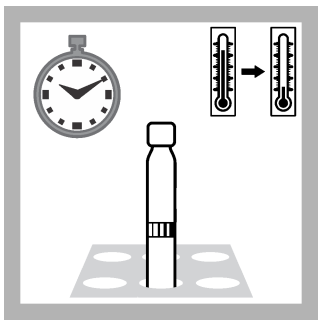


6. Hold the vial by the cap **over a sink**.
Invert **gently** 2–3 times to mix.

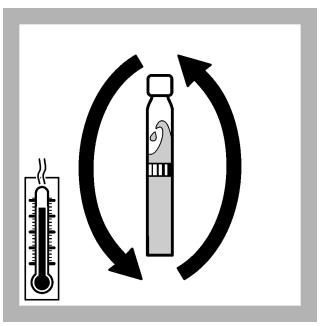
The vial will become **very hot** during mixing.



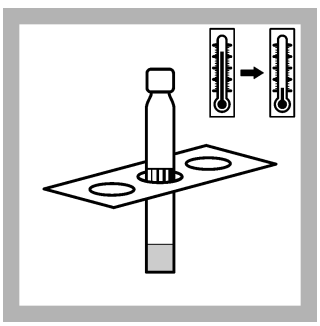
7. Place the vial into the **preheated** reactor.
Heat in the reactor for **2 hours**.



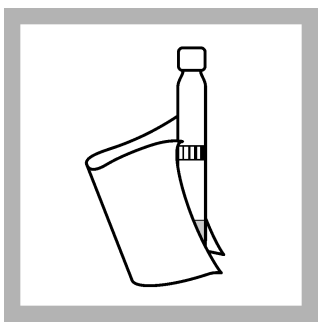
8. Wait about **20 minutes** for the vial to **cool** to **120 °C (248 °F)** or less.



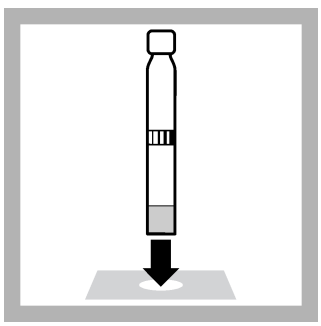
9. Invert the vial carefully several times while still **hot**.



10. Place the vial into a rack and **cool** down to room temperature.



11. Thoroughly clean the outside of the vial.



12. Insert the vial into the cell holder.
DR1900: Go to LCK/TNTplus methods.

Select the test, push **READ**.

Interferences

Chloride is the primary interference when determining COD concentration. Each COD vial contains mercuric sulfate that will eliminate chloride interference up to a maximum Cl^- concentration of 2000 mg/L.

Summary of method

The mg/L COD results are defined as the mg of O_2 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.

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