

Azomethine-H Method

Method 10274

0.05–2.50 mg/L B

TNTplus 877

Scope and application: For wastewater, seawater, drinking water, surface water and produced water.



Test preparation

Instrument-specific information

Table 1 shows all of the instruments that have the program for this test. The table also shows the adapter and light shield requirements for the applicable instruments that can use TNTplus vials.

To use the table, select an instrument, then read across to find the applicable information for this test.

Table 1 Instrument-specific information for TNTplus vials

Instrument	Adapters	Light shield
DR 6000, DR 5000	—	—
DR 3900	—	LZV849
DR 3800, DR 2800	—	LZV646
DR 1900	9609900 or 9609800 (A)	—

Before starting

DR 3900, DR 3800, DR 2800: Install the light shield in Cell Compartment #2 before this test is started.

Review the safety information and the expiration date on the package.

The recommended sample pH is 4–9.

The sample temperature must be 20 °C (68 °F) for accurate results.

The recommended temperature for reagent storage is 2–8 °C (35–46 °F).

DR 1900: Go to All Programs>LCK or TNTplus Methods>Options to select the TNTplus number for the test. Other instruments automatically select the method from the barcode on the vial.

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.

Items to collect

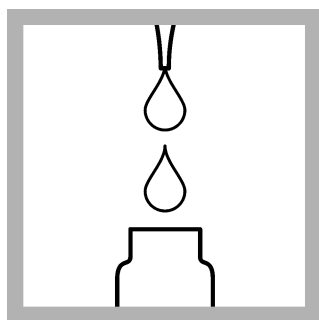
Description	Quantity
Boron TNTplus Reagent Set	1
Pipet, adjustable volume, 1.0–5.0 mL	1
Pipet, adjustable volume, 0.2–1.0 mL	1
Pipet tips	1

Refer to [Consumables and replacement items](#) on page 3 for order information.

Sample collection

Collect samples in clean polyethylene or polypropylene bottles.

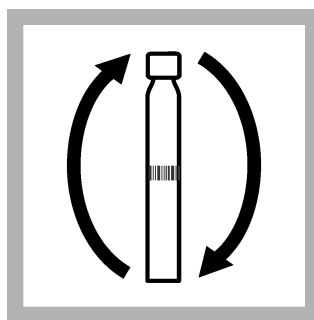
Test procedure



1. Use a pipet to add 1.0 mL of Solution A to the test vial.



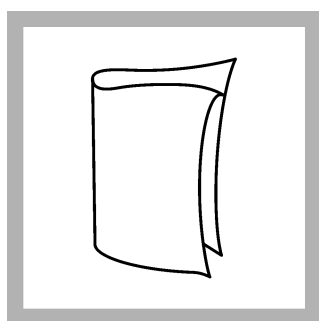
2. Use a pipet to add 2.5 mL of sample to the test vial.



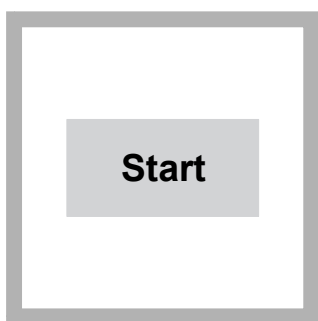
3. Tighten the cap on the vial and invert until completely mixed.



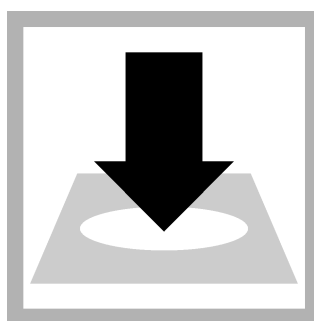
4. Start the reaction time of 40 minutes.



5. Clean the vial.



6. DR 1900 only: Select program 877. Refer to [Before starting](#) on page 1.



7. Insert the vial into the cell holder. DR 1900 only: Push **READ**. Results show in mg/L B.

Interferences

[Table 2](#) shows that the ions were individually examined to the given concentrations and do not cause interference. No cumulative effects or influences of other ions were found.

Table 2 Interfering substances

Interfering substance	Interference level
Mn ²⁺ , Zn ²⁺ , Ca ²⁺ , Mg ²⁺ , Na ⁺ , K ⁺ , PO ₄ ³⁻ , SO ₄ ²⁻ , NO ₃ ⁻	1000 mg/L
Cl ⁻ , NH ₄ ⁺	500 mg/L
Fe ²⁺ , Fe ³⁺	25 mg/L

Accuracy check

Standard solution method

Use the standard solution method to validate the test procedure, the reagents and the instrument.

Items to collect:

- 1000-mg/L boron standard solution
- 1000-mL volumetric flask, Class A
- 2.00-mL volumetric pipet, Class A and pipet filler safety bulb
- Deionized water

1. Prepare a 2-mg/L boron standard solution as follows:
 - a. Use a pipet to add 2.0 mL of a 1000-mg/L boron standard solution into the volumetric flask.
 - b. Dilute to the mark with deionized water. Mix well. Prepare this solution daily.
2. Use the test procedure to measure the concentration of the prepared standard solution.
3. Compare the expected result to the actual result.

Summary of Method

Borate ions react with azomethine-H to form a yellow dye, which is measured colorimetrically. The measurement wavelength is 414 nm.

Consumables and replacement items

Required reagents

Description	Quantity/Test	Unit	Item no.
Boron TNTplus Reagent Set	1	25/pkg	TNT877

Required apparatus

Description	Quantity/test	Unit	Item no.
Pipet, adjustable volume, 1.0–5.0 mL	1	each	BBP065
Pipet tips, for 1.0–5.0 mL pipet	1	75/pkg	BBP068
Pipet, adjustable volume, 0.2–1.0 mL	1	each	BBP078
Pipet tips, for 0.2–1.0 mL pipet	2	100/pkg	BBP079
Light shield, DR 3900	1	each	LZV849
Light shield, DR 3800, DR 2800, DR 2700	1	each	LZV646

Recommended standards

Description	Unit	Item no.
Boron Standard Solution, 1000 mg/L as B	100 mL	191442

Optional reagents and apparatus

Description	Unit	Item no.
Flask, volumetric, Class A, 1000 mL glass	each	1457453
Pipet, volumetric, Class A, 2 mL	each	1451536
Pipet filler, safety bulb	each	1465100
Water, deionized	100 mL	27242



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