

Metal and Mining Parameters Utilizing TNTplus

Procedures for Analyzing CN^- , S^{2-} , SO_4 , Al, Cd, Cr, Cu, Pb, Ni, Fe, and Zn



Hach® offers a variety of colorimetric chemical reagents for testing metals and other mining by-products in mining effluent water. As the state of mining changes, Hach develops new reagents to accommodate regulations and economic trends. With TNTplus™ Vial Tests, mining operations can reduce errors, variation, and improve safety, while saving money on chemicals.

TNTplus Vial Tests for Mining

Cyanide Testing for Gold Cyanidation

As cyanide discharge requirements tighten in various states and countries, a need was created for greater National Pollutant Discharge Elimination System (NPDES) monitoring. The new TNT862 cyanide reagent set addresses this need with EPA compliant testing for cyanide discharge. This reagent set can be used in combination with MicroDist® distillation tubes for the determination of total cyanide. The MicroDist distillation tubes eliminates the need for bulky, expensive glassware.



Analytical Procedures:

Cyanide Method 10265

TNT862 (0.01-0.60 mg/L CN)

[TNT862 Procedure](#)

APPLICATION NOTE: TNTPLUS TESTS FOR MINING PARAMETERS

Tests for Metals Used in Batteries

Commodity prices are increasing across the mining industry, particularly for copper, lithium, nickel and chromium; this is largely due to the rising demand for batteries and electric vehicles globally. Hach has a full range of TNTplus Vial Tests to accommodate the growing market for battery-specific metals testing.

Analytical Procedures:

Aluminum Method 10215

TNT848 (0.02-0.50 mg/L Al)

[TNT848 Procedure](#)

Cadmium Method 10217

TNT852 (0.02-0.30 mg/L Cd)

[TNT852 Procedure](#)

Chromium Method 10218 (VI) & 10219 (Total)

TNT854 (0.03-1.00 mg/L Cr)

[TNT854 Procedure](#)

Copper Method 10238

TNT860 (0.1-8.0 mg/L Cu)

[TNT860 Procedure](#)

Lead Method 10216

TNT850 (0.1-2.0 mg/L Pb)

[TNT850 Procedure](#)

Nickel Method 10220

TNT856 (0.1-6.0 mg/L Ni)

[TNT856 Procedure](#)

Iron Method 10229

TNT858 (0.2-6.0 mg/L Fe)

[TNT858 Procedure](#)

Zinc Method 8009:

Zincon Rgt Set 2429300 (0.01-3.00 mg/L Zn)

[Zinc Procedure](#)

TNT890 Metals Prep Kit

TNT890 (Pb, Cd, Ni)

[TNT890 Procedure](#)



New Sulfide and Sulfate Compliance Permitting

Hach now offers new compliance testing for sulfide in acid mining drainage and sulfide rock mining. Hach also offers TNTplus reagents for sulfate for the new mining discharge permit level of 250 mg/L SO₄.

Analytical Procedures:

Sulfide Method 10294

TNT861 (0.1-2.0 mg/L S₂)

[TNT861 Procedure](#)

Sulfate Method 10227

TNT864 (40-150 mg/L SO₄)

[TNT864 Procedure](#)

TNT865 (150-900 mg/L SO₄)

[TNT865 Procedure](#)



TNTplus Vial Tests: Expert testing made simple

- **Reduce Errors** - A barcode label on each TNTplus Vial Chemistry is read by the DR6000™ UV-VIS Spectrophotometer or DR3900™ Benchtop Spectrophotometer to identify the appropriate method and take the measurement.
- **Reduce Variation** - With Truecal™, each vial includes its lot calibration data, reducing variation in results. This allows you to meet reporting standards and to perform proficiency testing with higher confidence.
- **Documented shelf life and COA** - Each vial has a barcode that details its batch number and expiration date. This information is passed on with the test result. An automatic warning is issued if the expiration date has passed.
- **No reagent blank necessary** - The high quality of TNTplus vials, tight reagent production controls, instrument calibration verification, and high instrument stability all combine to eliminate the need to run reagent blanks.
- **Safe and easy handling** - TNTplus vials use innovative Dosicaps™ that are easier to use than powder pillows or liquid reagents. There's no risk of spillage, no safety risk, and no risk of contamination with Dosicaps because the reagents are completely contained within the vial cap.



How TNTplus Works

1. Barcode Recognition

Simply drop the vial and get results immediately with automatic method detection.

2. Reference Detector

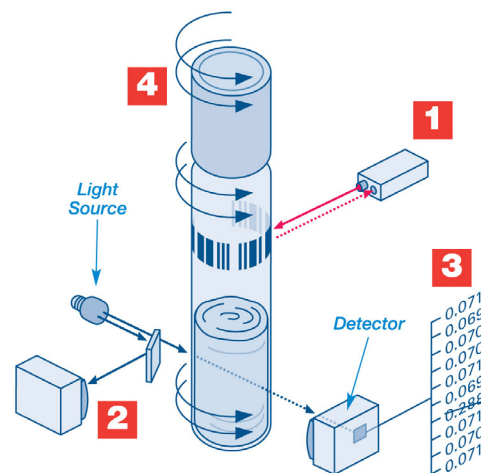
Monitors and compensates for optical fluctuations.

3. 10x Measurement and Outlier Elimination

Dirty, scratched, or flawed glassware, including fingerprints, is no longer an issue. The instrument averages 10 readings and rejects outliers.

4. Self-Contained Packaging. Reagents Inside Sealed Cap.

Reduces exposure to chemicals as there is no need to open powder pillows or clean glassware.



Contact Hach Technical Support for more information regarding these method procedures.

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