

Traceable Standards for ASTM Methods



ASTM Methods

ASTM D-3230 Salts in Crude Oil

Originally designed for D3230-99

Mixed Salt Solution

D-3230-89-1 100 mL
 D-3230-89-5 500 mL
 At stated conc. in Alcohol Solution (1-butanol:MeOH)(63:37) tr. H₂O 3 comps.

| | | | |
|--------------------|----------|-----------------|----------|
| Calcium chloride | 10 µg/mL | Sodium chloride | 70 µg/mL |
| Magnesium chloride | 20 µg/mL | | |

ASTM D-3231 Phosphorus in Gasoline

D3231 Meets EPA Guidelines for RFG Analysis

Originally designed for D3231-99

| Element | Quantity | Cat. No. |
|------------------|------------|-----------|
| Matrix | Conc. | |
| Phosphorus | 100 mL | ICP-41W-1 |
| H ₂ O | 1000 µg/mL | |
| Phosphorus | 500 mL | ICP-41W-5 |
| H ₂ O | 1000 µg/mL | |

ASTM D-3237 Lead in Gasoline by AA Spectroscopy

D3237 Meets EPA Guidelines for RFG Analysis

Originally designed for D3237-97

Lead Standard Calibration Curve

D-3237-CAL-SET 4 x 100 mL

Set includes the following Catalog Numbers:

| | Cat. No. | Unit |
|--|-----------|--------|
| Blank 1% Aliquot 336/MIBK | D-3237-01 | 100 mL |
| 0.02 g Pb / gal (5.3 mg Pb/ L) in 1% Aliquot 336 / MIBK | D-3237-02 | 100 mL |
| 0.05 g Pb / gal (13.2 mg Pb/ L) in 1% Aliquot 336 / MIBK | D-3237-03 | 100 mL |
| 0.10 g Pb / gal (26.4 mg Pb/ L) in 1% Aliquot 336 / MIBK | D-3237-04 | 100 mL |

ASTM D-4628 Barium, Calcium, Magnesium & Zinc in Unused Lubricating Oil

Originally designed for D4628-97

Lubricating Oil, Elements (Nominal Value) Wt.%

ASTM-P-0113-SET

17 x 100 mL

| Cat. No. | Ba (Wt.%) | Ca (Wt.%) | Mg (Wt.%) | P (Wt.%) | S (Wt.%) | Zn (Wt.%) |
|----------------|-----------|-----------|-----------|----------|----------|-----------|
| ASTM-P-0113-01 | 0.025 | 0.600 | 0.100 | 0.005 | 0.175 | 0.060 |
| ASTM-P-0113-02 | 0.000 | 0.500 | 0.150 | 0.200 | 0.050 | 0.080 |
| ASTM-P-0113-03 | 0.100 | 0.400 | 0.350 | 0.150 | 0.300 | 0.180 |
| ASTM-P-0113-04 | 0.175 | 0.260 | 0.225 | 0.250 | 0.150 | 0.120 |
| ASTM-P-0113-05 | 0.150 | 0.005 | 0.450 | 0.005 | 0.450 | 0.070 |
| ASTM-P-0113-06 | 0.000 | 0.400 | 0.500 | 0.025 | 0.350 | 0.100 |
| ASTM-P-0113-07 | 0.100 | 0.300 | 0.325 | 0.060 | 0.250 | 0.120 |
| ASTM-P-0113-08 | 0.200 | 0.200 | 0.250 | 0.100 | 0.450 | 0.100 |
| ASTM-P-0113-09 | 0.050 | 0.060 | 0.100 | 0.080 | 0.300 | 0.130 |
| ASTM-P-0113-10 | 0.075 | 0.060 | 0.400 | 0.050 | 0.200 | 0.050 |
| ASTM-P-0113-11 | 0.010 | 0.050 | 0.300 | 0.120 | 0.100 | 0.075 |
| ASTM-P-0113-12 | 0.000 | 0.025 | 0.200 | 0.150 | 0.200 | 0.130 |
| ASTM-P-0113-13 | 0.175 | 0.005 | 0.375 | 0.200 | 0.400 | 0.150 |
| ASTM-P-0113-14 | 0.005 | 0.170 | 0.175 | 0.250 | 0.550 | 0.110 |
| ASTM-P-0113-15 | 0.000 | 0.100 | 0.425 | 0.100 | 0.200 | 0.200 |
| ASTM-P-0113-16 | 0.005 | 0.010 | 0.275 | 0.010 | 0.600 | 0.250 |
| ASTM-P-0113-17 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

These products require a Hazardous Shipping Charge

Working Level Standards &
Continuing Calibration Check (CCC)



ASTM D-3605 (Reapproved '95) Trace Metals in Gas Turbine Fuels by AA & Flame Emission Spectroscopy

Originally designed for D3605-91

D-3605-91 Trace Metals Standard

D-3605-91-1 1 x 100 mL
 At stated conc. in 1,2,3,4-Tetrahydronaphthalene 4 comps.

| | | | |
|-------------|-----------|--------------|-----------|
| Na (Sodium) | 250 µg/mL | Ca (Calcium) | 250 µg/mL |
| Pb (Lead) | 250 µg/mL | V (Vanadium) | 250 µg/mL |

ASTM D-3610 Total Cobalt in Alumina-Base Cobalt-Molybdenum Catalyst by Potentiometric Titration

Originally designed for D3610-88 (re-approved 1993)

Cobalt Oxide Standard

D-3610-93-1 1 x 100 mL

Cobalt oxide @ 1500 µg/mL in Water

ASTM D-3831 Manganese in Gasoline by AA Spectroscopy

Originally designed for D3831-98

Manganese Stock Solution

D-3831 1 x 100 mL

Manganese @ 1.0 g Mn / gal (264.2 mg Mn / L) in Methyl isobutyl ketone

ASTM D-4628 Barium, Calcium, Magnesium & Zinc

Analysis of Ba, Ca, Mg & Zn in Unused Lubricating Oil.

See page 46-52 for AccuStandard's comprehensive line of Certified Oil Dissolved Wear Metal Calibration Standards.



Traceable Standards for ASTM Methods

ASTM Methods

ASTM D-4629 Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection. IP Designation 379/88

Originally designed for D4629-96

Method D4629 is used to determine trace total nitrogen naturally found in liquid hydrocarbons boiling from 50 to 400°C with viscosities between 0.2 and 10 cSt. This method monitors feed stocks for nitrogen to prevent the poisoning of some process catalysts when trace nitrogenous materials are present.

Stock Nitrogen Solution for Low Boiling Solvents

| | | |
|----------------------|-----------------|----------|
| D-4629-91-LB-CON | | 1 x 1 mL |
| D-4629-91-LB-CON-PAK | SAVE 20% | 5 x 1 mL |

Nitrogen @ 1000 µg/mL in Isooctane
Pyridine @ 5.65 mg/mL in Isooctane

Technical Note

Nitrogen is introduced using Pyridine.

Nitrogen Calibration Set for Low Boiling Solvents

| D-4629-91-LB-CAL-SET | | | | set of 7 x 1 mL |
|----------------------|-----------------------------------|---------------|----------|-----------------|
| Cat. No. | Description | Concentration | Unit | |
| D-4629-91-LB-0.3X | Nitrogen @ 0.3 µg/mL in Isooctane | | 1 x 1 mL | |
| D-4629-91-LB-1X | Nitrogen @ 1 µg/mL in Isooctane | | 1 x 1 mL | |
| D-4629-91-LB-10X | Nitrogen @ 10 µg/mL in Isooctane | | 1 x 1 mL | |
| D-4629-91-LB-25X | Nitrogen @ 25 µg/mL in Isooctane | | 1 x 1 mL | |
| D-4629-91-LB-50X | Nitrogen @ 50 µg/mL in Isooctane | | 1 x 1 mL | |
| D-4629-91-LB-75X | Nitrogen @ 75 µg/mL in Isooctane | | 1 x 1 mL | |
| D-4629-91-LB-100X | Nitrogen @ 100 µg/mL in Isooctane | | 1 x 1 mL | |

Stock Nitrogen Solution for High Boiling Solvents

| | | |
|----------------------|-----------------|----------|
| D-4629-91-HB-CON | | 1 x 1 mL |
| D-4629-91-HB-CON-PAK | SAVE 20% | 5 x 1 mL |

Nitrogen @ 1000 µg/mL in Toluene : Acetone (9:1)
Carbazole @ 11.95 mg/mL in Toluene : Acetone (9:1)

Technical Note

Nitrogen is introduced using Carbazole.

Nitrogen Calibration Set for High Boiling Solvents

| D-4629-91-HB-CAL-SET | | | | set of 7 x 1 mL |
|----------------------|---------------------------------|---------------|----------|-----------------|
| Cat. No. | Description | Concentration | Unit | |
| D-4629-91-HB-0.3X | Nitrogen @ 0.3 µg/mL in Toluene | | 1 x 1 mL | |
| D-4629-91-HB-1X | Nitrogen @ 1 µg/mL in Toluene | | 1 x 1 mL | |
| D-4629-91-HB-10X | Nitrogen @ 10 µg/mL in Toluene | | 1 x 1 mL | |
| D-4629-91-HB-25X | Nitrogen @ 25 µg/mL in Toluene | | 1 x 1 mL | |
| D-4629-91-HB-50X | Nitrogen @ 50 µg/mL in Toluene | | 1 x 1 mL | |
| D-4629-91-HB-75X | Nitrogen @ 75 µg/mL in Toluene | | 1 x 1 mL | |
| D-4629-91-HB-100X | Nitrogen @ 100 µg/mL in Toluene | | 1 x 1 mL | |

Low level Nitrogen Calibration Set

| ASTM-P-0070-SET | | | | 6 x 1 mL |
|-----------------|-----------------------------------|---------------|----------|----------|
| Cat. No. | Description | Concentration | Unit | |
| ASTM-P-0070-BL | Isooctane Blank | | 1 x 1 mL | |
| ASTM-P-0070-1X | Nitrogen @ 0.5 µg/g in Isooctane | | 1 x 1 mL | |
| ASTM-P-0070-2X | Nitrogen @ 1.0 µg/g in Isooctane | | 1 x 1 mL | |
| ASTM-P-0070-4X | Nitrogen @ 2.0 µg/g in Isooctane | | 1 x 1 mL | |
| ASTM-P-0070-10X | Nitrogen @ 5.0 µg/g in Isooctane | | 1 x 1 mL | |
| ASTM-P-0070-20X | Nitrogen @ 10.0 µg/g in Isooctane | | 1 x 1 mL | |

Technical Note

Nitrogen is introduced using Aniline.

Low level Nitrogen & Sulfur Calibration Set

| ASTM-P-0071-SET | | | | 4 x 1 mL |
|-----------------|--|---------------|----------|----------|
| Cat. No. | Description | Concentration | Unit | |
| ASTM-P-0071-BL | Benzene Blank | | 1 x 1 mL | |
| ASTM-P-0071-01 | Nitrogen @ 0.25 µg/g & Sulfur @ 0.25 µg/g in Benzene | | 1 x 1 mL | |
| ASTM-P-0071-02 | Nitrogen @ 0.50 µg/g & Sulfur @ 0.50 µg/g in Benzene | | 1 x 1 mL | |
| ASTM-P-0071-03 | Nitrogen @ 1.00 µg/g & Sulfur @ 1.00 µg/g in Benzene | | 1 x 1 mL | |

Technical Note

The Nitrogen is introduced using Aniline and the Sulfur is introduced using di-*n*-Butyl sulfide.

Ready-to-Inject Petrochemical Standards & Calibration Curves

- Reduce Costs
- Increase Time Spent for Sample Analysis
- Are Validated Against Independent Lots
- Include Internal Standards or Surrogates
- Follow ASTM Method Guidelines
- Allow Direct Transfer to Autosampler Vials



Traceable Standards for ASTM Methods



ASTM Methods



ASTM D-4927 Elemental Analysis of Lubricant and Additive Components - Ba, Ca, P, S and Zn by WD-XRF Spectroscopy

See pages 46 to 52 for AccuStandard's comprehensive line of Certified Oil Dissolved Wear Metal calibration standards designed for XRF Applications.

ASTM D-4929 Organic Chloride Content in Crude Oil - Test Method B Combustion and Microcoulometry

Originally designed for D4929-99

Working Level Chlorine Standard

| | | |
|---------------|-------------|----------|
| D-4929-94 | | 1 x 5 mL |
| D-4929-94-PAK | SAVE | 5 x 5 mL |

Chlorine @ 10 µg/mL in Isooctane

Stock Chlorine Standard

| | | |
|--------------------|-------------|----------|
| D-4929-94-100X | | 1 x 5 mL |
| D-4929-94-100X-PAK | SAVE | 5 x 5 mL |

Chlorine @ 1000 µg/mL in Isooctane

ASTM D-4951 Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry

Originally designed for D4951-96

20 Wear Metal Multi-Element Standard containing no metallic sulfonates

| Conc.(µg/g) | Cat. No. |
|-------------------------|-----------------|
| 10 | WM-20-NMS-1X-1 |
| 30 | WM-20-NMS-3X-1 |
| 50 | WM-20-NMS-5X-1 |
| 100 | WM-20-NMS-10X-1 |
| 300 | WM-20-NMS-30X-1 |
| 500 | WM-20-NMS-50X-1 |
| 900 | WM-20-NMS-90X-1 |
| WM-20-NMS-1-SET | |
| set of above 7 x 100 mL | |

Each Wear Metal Standard contains the below list of 20 elements in hydrocarbon oil at the stated concentration

- | | |
|----------------|-----------------|
| Al (Aluminum) | Mo (Molybdenum) |
| B (Boron) | Na (Sodium) |
| Ba (Barium) | Ni (Nickel) |
| Ca (Calcium) | P (Phosphorus) |
| Cd (Cadmium) | Pb (Lead) |
| Cr (Chromium) | Si (Silicon) |
| Cu (Copper) | Sn (Tin) |
| Fe (Iron) | Ti (Titanium) |
| Mg (Magnesium) | V (Vanadium) |
| Mn (Manganese) | Zn (Zinc) |

Recommended Internal Standard (IS)

| Element | Sulfur free Organometallic (IS) | | Sulfur free Organometallic (IS) | |
|---------|---------------------------------|-------|---------------------------------|-------|
| | 1000 µg/g | 50 mL | 5000 µg/g | 50 mL |
| Cobalt | WM-NMS-14 | | WM-NMS-14-5X | |

ASTM D-5056 Trace Metals in Petroleum Coke by Atomic Absorption

Originally designed for D5056-96

| Element @ 1000 µg/mL | Unit | Cat. No. | Element @ 1000 µg/mL | Unit | Cat. No. |
|----------------------|--------|----------|---------------------------|--------|----------|
| Matrix | | | Matrix | | |
| Aluminum | 100 mL | AA01N-1 | Silicon | 100 mL | AA52W-1 |
| HNO ₃ | 500 mL | AA01N-5 | H ₂ O tr. NaOH | 500 mL | AA52W-5 |
| Calcium | 100 mL | AA09N-1 | Sodium | 100 mL | AA54N-1 |
| HNO ₃ | 500 mL | AA09N-5 | HNO ₃ | 500 mL | AA54N-5 |
| Iron | 100 mL | AA27N-1 | Vanadium | 100 mL | AA67N-1 |
| HNO ₃ | 500 mL | AA27N-5 | HNO ₃ | 500 mL | AA67N-5 |
| Nickel | 100 mL | AA37N-1 | | | |
| HNO ₃ | 500 mL | AA37N-5 | | | |

These products require a Hazardous Shipping Charge



Traceable Standards for ASTM Methods

ASTM Methods

ASTM D-5059 Lead in Gasoline by X-Ray Spectroscopy IP Designation 228/79

D5059 Meets EPA Guidelines for RFG Analysis

Originally designed for D-5059-98

Part A - Lead in Gasoline Standards

D-5059-A-CAL-SET set of 7 x 4 oz

The Set contains the following 7 solutions in isoctane

| Cat. No. | Lead Concentration | | | Unit |
|-------------|--------------------|--------------|----------|------|
| | g Pb/US gal | g Pb/ UK gal | mg Pb/mL | |
| D-5059-A-01 | 0.0000 | 0.000 | 0.000 | 4 oz |
| D-5059-A-02 | 0.1000 | 0.120 | 0.026 | 4 oz |
| D-5059-A-03 | 1.0000 | 1.200 | 0.264 | 4 oz |
| D-5059-A-04 | 2.0000 | 2.400 | 0.528 | 4 oz |
| D-5059-A-05 | 3.0000 | 3.600 | 0.793 | 4 oz |
| D-5059-A-06 | 4.0000 | 4.800 | 1.057 | 4 oz |
| D-5059-A-07 | 5.0000 | 6.000 | 1.321 | 4 oz |

Part C - Lead in Gasoline Standards

D-5059-C-CAL-SET set of 7 x 4 oz

The Set contains the following 7 solutions in isoctane

| Cat. No. | Lead Concentration | | | Unit |
|-------------|--------------------|--------------|----------|------|
| | g Pb/US gal | g Pb/ UK gal | µg Pb/mL | |
| D-5059-C-01 | 0.0000 | 0.000 | 0.000 | 4 oz |
| D-5059-C-02 | 0.0010 | 0.001 | 0.264 | 4 oz |
| D-5059-C-03 | 0.0050 | 0.006 | 1.321 | 4 oz |
| D-5059-C-04 | 0.0100 | 0.012 | 2.642 | 4 oz |
| D-5059-C-05 | 0.0500 | 0.060 | 13.209 | 4 oz |
| D-5059-C-06 | 0.1000 | 0.120 | 26.417 | 4 oz |
| D-5059-C-07 | 0.3000 | 0.360 | 79.252 | 4 oz |

Internal Standard

D-5059-IS-4

1 x 4 oz

bottle

D-5059-IS-10ML-PAK

5 x 10 mL

ampules

Bismuth @ 0.793 mg/mL (3.00 g/US gal)
(3.60 g/UK gal) in Mineral oil

Technical Note

All D-5059 Certificates have the concentrations for the Standard listed in three convenient Lead Concentration units.

Technical Note

These standards are formulated to measure the lead content in gasoline for both high and low concentrations using bismuth as an internal standard. For long term stability and ease of use the internal standard is provided in two convenient packaging sizes. The bulk 100 mL (4 oz.) bottles are designed for laboratories analyzing many samples while the 10 mL ampules are for laboratories that have limited requests for the test method. For bulk quantities of the internal standard packaged in single-use ampules, contact our technical department for a quotation. Bulk volumes of 250 mL or more can be sealed into ampules (up to 20 mL size). Use of our ampulling services can provide substantial savings for the Laboratory.

ASTM D-5184 (Reapproved 1995) Aluminum and Silicon in Fuel Oils by Ashing, Fusion, ICP-AES Spectrometry & AA Spectrometry

Originally designed for D5184-91

Tartaric Acid / Hydrochloric Acid Solution

D-5184-91-TA-5 1 x 500 mL

Tartaric acid @ 0.5% w/v in 4% HCl

Aluminum Standard Solution

D-5184-91-AL-1 1 x 100 mL

D-5184-91-AL-5 1 x 500 mL

Al @ 1000 µg/mL in 5 % HCl

Silicon Standard Solution

D-5184-91-SI-1 1 x 100 mL

D-5184-91-SI-5 1 x 500 mL

Silicon @ 1000 µg/mL in trace NaOH

These products require a Hazardous Shipping Charge

Technical Note

Contact us by phone/e-mail at techservice@accustandard.com and the our Technical Department for **Ready-to-Aspirate** working level calibration curves designed for your laboratories' specific calibration ranges.

ASTM D-5185 Additive Elements, Wear Metals, & Contaminants in Used Lubricating Oils by ICP-AES

Originally designed for D5185-97

21 Wear Metal Multi-Element Standard Containing No Metallic Sulfonates

| Conc.(µg/g) | Cat. No. |
|-------------|-----------------|
| 10 | WM-21-NMS-1X-1 |
| 30 | WM-21-NMS-3X-1 |
| 50 | WM-21-NMS-5X-1 |
| 100 | WM-21-NMS-10X-1 |
| 300 | WM-21-NMS-30X-1 |
| 500 | WM-21-NMS-50X-1 |

WM-21-NMS-1-SET

set of above 6 x 100 mL

Each Wear Metal Standard contains the below list of 21 elements in hydrocarbon oil at the stated concentration

| | |
|----------------|-----------------|
| Ag (Silver) | Mo (Molybdenum) |
| Al (Aluminum) | Na (Sodium) |
| B (Boron) | Ni (Nickel) |
| Ba (Barium) | P (Phosphorus) |
| Ca (Calcium) | Pb (Lead) |
| Cd (Cadmium) | Si (Silicon) |
| Cr (Chromium) | Sn (Tin) |
| Cu (Copper) | Ti (Titanium) |
| Fe (Iron) | V (Vanadium) |
| Mg (Magnesium) | Zn (Zinc) |
| Mn (Manganese) | |

Technical Note

This calibration curve has been formulated with starting materials containing no metal sulfonates. So a sulfur calibration curve can easily be developed using a high concentration sulfur standard.

Recommended Internal Standard (IS)

| Element | Sulfur free Organometallic (IS) @ 1000 µg/g | | Sulfur free Organometallic (IS) @ 5000 µg/g | |
|---------|--|-------|--|-------|
| | Cat. No. | 50 mL | Cat. No. | 50 mL |
| Cobalt | WM-NMS-14 | | WM-NMS-14-5X | |

Traceable Standards for ASTM Methods



ASTM Methods

ASTM D-5453 Total Sulfur in Light Hydrocarbons, Motor Fuels and Oils by Ultraviolet Fluorescence

D5059 Meets EPA Guidelines for RFG Analysis

Originally designed for D5453-00

D5453 Meets EPA Guidelines for RFG Analysis

Low Level Sulfur Set

D-5453-LL-SET 5 x 2 mL
The set contains the following 5 standards in Isooctane

| Cat. No. | Description | Unit |
|--------------|---------------------|------|
| D-5453-LL-BL | Sulfur Blank | 2 mL |
| D-5453-LL-01 | Sulfur @ 0.5 ng/μL | 2 mL |
| D-5453-LL-02 | Sulfur @ 2.5 ng/μL | 2 mL |
| D-5453-LL-03 | Sulfur @ 5.0 ng/μL | 2 mL |
| D-5453-LL-04 | Sulfur @ 10.0 ng/μL | 2 mL |

Mid Level Sulfur Set

D-5453-ML-SET 6 x 2 mL
The set contains the following 5 standards in Isooctane

| Cat. No. | Description | Unit |
|--------------|--------------------|------|
| D-5453-ML-BL | Sulfur Blank | 2 mL |
| D-5453-ML-01 | Sulfur @ 5.0 ng/μL | 2 mL |
| D-5453-ML-02 | Sulfur @ 25 ng/μL | 2 mL |
| D-5453-ML-03 | Sulfur @ 50 ng/μL | 2 mL |
| D-5453-ML-04 | Sulfur @ 100 ng/μL | 2 mL |
| D-5453-ML-05 | Sulfur @ 200 ng/μL | 2 mL |

Real World Sulfur in Various Gasoline & Fuels QC Samples

SBPT-LSGAS 2 x 15 mL
Approx .Range

| Parameter | Method | Approx .Range |
|-----------|-----------|---------------|
| Sulfur | D-5453-00 | 0 - 50 μg/g |

High Level Sulfur Set

D-5453-HL-SET 5 x 2 mL
The set contains the following 5 standards in Isooctane

| Cat. No. | Description | Unit |
|--------------|---------------------|------|
| D-5453-HL-BL | Sulfur Blank | 2 mL |
| D-5453-HL-01 | Sulfur @ 100 ng/μL | 2 mL |
| D-5453-HL-02 | Sulfur @ 250 ng/μL | 2 mL |
| D-5453-HL-03 | Sulfur @ 500 ng/μL | 2 mL |
| D-5453-HL-04 | Sulfur @ 1000 ng/μL | 2 mL |

ASTM D-5600 Trace Metals in Petroleum Coke by ICP-AES

Originally designed for D5600-98

Multi-Element Calibration Standard

D-5600-01-1 1 x 100 mL
500 μg/mL each in 2-5% HNO₃ tr. HF 12 comps.

| | |
|-----------|----------|
| Aluminum | Nickel |
| Barium | Silicon |
| Calcium | Sodium |
| Iron | Titanium |
| Magnesium | Vanadium |
| Manganese | Zinc |

Hydrochloric Acid Diluent

D-5600-BLH-5 1 x 500 mL
D-5600-BLH-L-VAP L (2 x 500 mL)

20% HCl in ASTM Type II water

Lithium Borate Diluent

D-5600-LIB-1 1 x 100 mL
D-5600-LIB-5 1 x 500 mL

2.0% Lithium Borate in 10% HCl

Technical Note

D-5600 Ready-to-Aspirate Standards

AccuStandard has formulated the following stock standards for ASTM Method D-5600. We have prepared numerous **Ready-to-Aspirate** ICP multi-element solutions. Should your company want to eliminate the preparation process for Inorganic standards contact our Technical Department for a quote on a **Ready-to-Aspirate** working level Inorganic standard.

These products require a Hazardous Shipping Charge

Tens of thousands of Standards Ready-to-Ship





Traceable Standards for ASTM Methods

ASTM Methods

ASTM D-5708 Nickel, Vanadium, & Iron in Crude Oils & Residual Fuels by ICP-AES

Originally designed for D5708-95a

Test Method A - ICP with an Organic Solvent Specimen Solution

Sulfur and Metals in Mineral Oil

| ASTM-P-0102-SET | | | | | | 100 mL |
|-----------------|----------------------|-------------------|---------------------|-----------------------|--|--------|
| Cat. No. | Sulfur Conc. (Wt. %) | Iron Conc. (µg/g) | Nickel Conc. (µg/g) | Vanadium Conc. (µg/g) | | 100 mL |
| ASTM-P-0102-01 | 0.00 | 0 | 0 | 0 | | |
| ASTM-P-0102-02 | 0.50 | 300 | 10 | 500 | | |
| ASTM-P-0102-03 | 1.00 | 500 | 100 | 25 | | |
| ASTM-P-0102-04 | - | 100 | 80 | 250 | | |
| ASTM-P-0102-05 | 2.00 | 200 | 40 | 100 | | |
| ASTM-P-0102-06 | 2.50 | 400 | 5 | 400 | | |
| ASTM-P-0102-07 | 3.00 | 0 | 60 | 300 | | |
| ASTM-P-0102-08 | 3.50 | 500 | 0 | 200 | | |
| ASTM-P-0102-09 | - | 100 | 100 | 0 | | |
| ASTM-P-0102-10 | 4.50 | 300 | 50 | 250 | | |
| ASTM-P-0102-11 | 5.00 | 200 | 20 | 500 | | |
| ASTM-P-0102-12 | 5.50 | 50 | 100 | 50 | | |

Stock Multi-Element in Mineral Oil

D-5708-A-10X 100 mL
 100 µg/g in 20 cSt mineral oil
 3 comps.
 Iron
 Nickel
 Vanadium

Sulfur and Metals in Residual Fuel Oil

| ASTM-P-0103-SET | | | | | | 100 mL |
|-----------------|----------------------|-------------------|---------------------|-----------------------|--|--------|
| Cat. No. | Sulfur Conc. (Wt. %) | Iron Conc. (µg/g) | Nickel Conc. (µg/g) | Vanadium Conc. (µg/g) | | 100 mL |
| ASTM-P-0103-01 | 0.00 | 0 | 0 | 0 | | |
| ASTM-P-0103-02 | 0.50 | 300 | 10 | 500 | | |
| ASTM-P-0103-03 | 1.00 | 500 | 100 | 25 | | |
| ASTM-P-0103-04 | - | 100 | 80 | 250 | | |
| ASTM-P-0103-05 | 2.00 | 200 | 40 | 100 | | |
| ASTM-P-0103-06 | 2.50 | 400 | 5 | 400 | | |
| ASTM-P-0103-07 | 3.00 | 0 | 60 | 300 | | |
| ASTM-P-0103-08 | 3.50 | 500 | 0 | 200 | | |
| ASTM-P-0103-09 | - | 100 | 100 | 0 | | |
| ASTM-P-0103-10 | 4.50 | 300 | 50 | 250 | | |
| ASTM-P-0103-11 | 5.00 | 200 | 20 | 500 | | |
| ASTM-P-0103-12 | 5.50 | 50 | 100 | 50 | | |

Test Method B - ICP after Acid Decomposition of Sample

Stock Multi-Element Aqueous Standard

D-5708-B-10X-1 100 mL
D-5708-B-10X-5 500 mL
 Each at 100 µg/mL in 2-5% HNO₃ 3 comps.

Iron
 Nickel
 Vanadium

Working Level Multi-Element Aqueous Standard

D-5708-B-5 500 mL
 Each at 10 µg/mL in 2-5% HNO₃ 3 comps.

Iron
 Nickel
 Vanadium

Nitric Acid Blank

CLP-BLN-5 500 mL
CLP-BLN-L-SET 1 L (2 x 500 mL)

5% HNO₃ in ASTM Type I Water

These products require a Hazardous Shipping Charge

Custom Standards

When you have a need for unique Analytical Standards, let the experts at AccuStandard assist in designing your formulation. Our technical group, with over 80 years of combined analytical experience, will review your request, suggest the most economical and stable formulation, and provide pricing all within 24 hours.

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Plus we typically ship within one week after order receipt.



Traceable Standards for ASTM Methods



ASTM Methods



ASTM D-5762 Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence

Originally designed for D5762-98

Stock Nitrogen Standard

D-5762-95-500X-PAK 5 x 1 mL

Nitrogen @ 500 µg/mL in Xylene (Acridine @ 6397 µg/mL)

Nitrogen Calibration Set

| D-5762-95-CAL-SET | | | 6 x 1 mL |
|-------------------|--------------------------------|--|----------|
| Cat. No. | Description | | Unit |
| D-5762-95-BL | Xylene Blank | | 1 x 1 mL |
| D-5762-95-1X | Nitrogen @ 1.0 µg/mL in Xylene | | 1 x 1 mL |
| D-5762-95-5X | Nitrogen @ 5.0 µg/mL in Xylene | | 1 x 1 mL |
| D-5762-95-10X | Nitrogen @ 10 µg/mL in Xylene | | 1 x 1 mL |
| D-5762-95-50X | Nitrogen @ 50 µg/mL in Xylene | | 1 x 1 mL |
| D-5762-95-100X | Nitrogen @ 100 µg/mL in Xylene | | 1 x 1 mL |

Technical Note

Nitrogen is introduced using Aniline.

Low level Nitrogen Calibration Set

| ASTM-P-0070-SET | | | 6 x 1 mL |
|-----------------|-----------------------------------|--|----------|
| Cat. No. | Description | | Unit |
| ASTM-P-0070-BL | Isooctane Blank | | 1 x 1 mL |
| ASTM-P-0070-1X | Nitrogen @ 0.5 µg/g in Isooctane | | 1 x 1 mL |
| ASTM-P-0070-2X | Nitrogen @ 1.0 µg/g in Isooctane | | 1 x 1 mL |
| ASTM-P-0070-4X | Nitrogen @ 2.0 µg/g in Isooctane | | 1 x 1 mL |
| ASTM-P-0070-10X | Nitrogen @ 5.0 µg/g in Isooctane | | 1 x 1 mL |
| ASTM-P-0070-20X | Nitrogen @ 10.0 µg/g in Isooctane | | 1 x 1 mL |

Technical Note

Nitrogen is introduced using Aniline.

Low level Nitrogen & Sulfur Calibration Set

| ASTM-P-0071-SET | | | 4 x 1 mL |
|-----------------|--|--|----------|
| Cat. No. | Description | | Unit |
| ASTM-P-0071-BL | Benzene Blank | | 1 x 1 mL |
| ASTM-P-0071-01 | Nitrogen @ 0.25 µg/g & Sulfur @ 0.25 µg/g in Benzene | | 1 x 1 mL |
| ASTM-P-0071-02 | Nitrogen @ 0.50 µg/g & Sulfur @ 0.50 µg/g in Benzene | | 1 x 1 mL |
| ASTM-P-0071-03 | Nitrogen @ 1.00 µg/g & Sulfur @ 1.00 µg/g in Benzene | | 1 x 1 mL |

Technical Note

The Nitrogen is introduced using Aniline and the Sulfur is introduced using *n*-Butyl sulfide.

ASTM D-5863 Nickel, Vanadium, Iron, & Sodium in Crude Oils & Residual Fuels by Flame AA Spectrometry

Originally designed for D5863-00

Test Method A - Sample Decomposition with Acid for Total Ni, V and Fe Determination

Stock Multi-Element Aqueous Standard

D-5863-95A-10X-1 1 x 100 mL
2-5% HNO₃ 3 comps.

| | µg/mL | | µg/mL |
|--------|-------|----------|-------|
| Iron | 100 | Vanadium | 200 |
| Nickel | 200 | | |

Matrix Blank Nitric Acid Blank

CLP-BLN-5 500 mL
CLP-BLN-L-SET **SAVE** 1 L (2 x 500 mL)

5% HNO₃ in ASTM Type I Water

Individual High Concentration Elements in Aqueous Matrix

| Element | 1,000 µg/mL Conc. | | |
|----------|---|--------|-----------|
| | Matrix | Unit | Cat. No. |
| Iron | Fe in HNO ₃ | 500 mL | ICP-27N-5 |
| Nickel | Ni in HNO ₃ | 500 mL | ICP-37N-5 |
| Vanadium | V ₂ O ₅ in HNO ₃ | 500 mL | ICP-67N-5 |

Test Method B - Sample Dilution with Organic Solvent for the Determination of Ni, V and Na using Oil-Soluble Metals as Calibrants.

Stock Multi-Element Standard in Mineral Oil

D-5863-95B-10X 1 x 4 oz
At stated conc. in 20 cst Mineral Oil 3 comps.

| | µg/g | | µg/g |
|--------|------|----------|------|
| Sodium | 50 | Vanadium | 150 |
| Nickel | 200 | | |

Standards of Interest

See Wear Metal section for additional calibration standards designed for flame AA Applications.

These products require a Hazardous Shipping Charge

| | |
|-------------------------|-----------------------|
| AA01N-1:59 | D-5059-C-03:60 |
| AA01N-5:59 | D-5059-C-04:60 |
| AA09N-1:59 | D-5059-C-05:60 |
| AA09N-5:59 | D-5059-C-06:60 |
| AA27N-1:59 | D-5059-C-07:60 |
| AA27N-5:59 | D-5059-C-CAL-SET:60 |
| AA37N-1:59 | D-5059-IS-10ML-PAK:60 |
| AA37N-5:59 | D-5059-IS-4:60 |
| AA52W-1:59 | D-5184-91-AL-1:60 |
| AA52W-5:59 | D-5184-91-AL-5:60 |
| AA54N-1:59 | D-5184-91-SI-1:60 |
| AA54N-5:59 | D-5184-91-SI-5:60 |
| AA67N-1:59 | D-5184-91-TA-5:60 |
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| ASTM-P-0071-SET:58, 63 | D-5453-ML-SET:61 |
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| ASTM-P-0102-02:62 | D-5600-BLH-5:61 |
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| ASTM-P-0102-04:62 | D-5600-LIB-1:61 |
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| ASTM-P-0102-09:62 | D-5708-B-5:62 |
| ASTM-P-0102-10:62 | D-5762-95-500X-PAK:63 |
| ASTM-P-0102-11:62 | D-5762-95-CAL-SET:63 |
| ASTM-P-0102-12:62 | D-5863-95A-10X-1:63 |
| ASTM-P-0102-SET:62 | D-5863-95B-10X:63 |
| ASTM-P-0103-01:62 | ICP-27N-5:63 |
| ASTM-P-0103-02:62 | ICP-37N-5:63 |
| ASTM-P-0103-03:62 | ICP-41W-1:57 |
| ASTM-P-0103-04:62 | ICP-41W-5:57 |
| ASTM-P-0103-05:62 | ICP-67N-5:63 |
| ASTM-P-0103-06:62 | SBPT-LSGAS:61 |
| ASTM-P-0103-07:62 | WM-20-NMS-1-SET:59 |
| ASTM-P-0103-08:62 | WM-20-NMS-10X-1:59 |
| ASTM-P-0103-09:62 | WM-20-NMS-1X-1:59 |
| ASTM-P-0103-10:62 | WM-20-NMS-30X-1:59 |
| ASTM-P-0103-11:62 | WM-20-NMS-3X-1:59 |
| ASTM-P-0103-12:62 | WM-20-NMS-50X-1:59 |
| ASTM-P-0103-SET:62 | WM-20-NMS-5X-1:59 |
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| D-3237-03:57 | WM-21-NMS-5X-1:60 |
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| D-5059-A-05:60 | |
| D-5059-A-06:60 | |
| D-5059-A-07:60 | |
| D-5059-A-CAL-SET:60 | |
| D-5059-C-01:60 | |
| D-5059-C-02:60 | |