

108.3 - Sulfur, Mercury, and Chlorine in Fuels (liquid and solid forms)

These materials are intended for analysis of sulfur, mercury, and chlorine in fossil fuels. For further information see:

[SP 260-84, Sampling, Materials Handling, Processing, and Packaging of NBS Sulfur in Coal](#)

[SP 260-167 A Method for the Preparation of NIST Traceable Fossil Fuel Standards with Concentration Intermediate with SRM Values](#)

See other related links:

[Table 106.3 Mercury in Activated Carbon](#)

[Table 108.6 Fossil Fuel Trace Elements \(solid forms\)](#)

[Table 108.1 Alcohols and Ethers \[Oxygenates\] in Gasoline](#)

[Table 114.2 Lubricating Base Oils](#)

[Table 108.2 Metal Constituents in Fossil Fuels \(liquid forms\)](#)

Liquid forms (crude oil, gasoline, middle distillates, residual fuel oils, and Di-n-Butyl Sulfide)

| SRM | Description | Unit Size | Mercury | Sulfur | Water | Heat of Combustion* |
|-------------------------------------|---|------------|--------------|-------------|-----------|---------------------|
| Sulfur in Di-n-Butyl Sulfide | | | | | | |
| 2720 | Sulfur in Di-n-Butyl Sulfide | 5 x 4.5 mL | | 21.91 % | | |
| Crude oil | | | | | | |
| 2721 | Crude Oil (Light-Sour) | 5 x 10 mL | 0.0417 µg/kg | 1.5832 % | 134 mg/kg | |
| 2722 | Crude Oil (Heavy-Sweet) | 5 x 10 mL | 0.1292 µg/kg | 0.21037 % | 99 mg/kg | |
| 2778 | Mercury in Crude Oil | 5 x 10 mL | 39.98 µg/kg | | | |
| Gasoline | | | | | | |
| 2298 | Sulfur in Gasoline (High Octane) | 5 x 20 mL | | 4.7 mg/kg | | |
| 2299 | Sulfur in Gasoline (Reformulated) | 5 x 20 mL | | 13.6 mg/kg | | |
| Middle distillates | | | | | | |
| 1617b | Sulfur in Kerosine (High Level) | 100 mL | | 1250 mg/kg | | |
| 2723b | Sulfur in Diesel Fuel Oil | 100 mL | | 9.06 mg/kg | | |
| 2770 | Sulfur in Diesel Fuel Oil (Nominal Mass Fraction 10 mg/kg) | 10 x 10 mL | | 41.57 mg/kg | | |
| 2770 | Sulfur in Diesel Fuel Oil (Nominal Mass Fraction 40 mg/kg) | 10 x 10 mL | | 41.57 mg/kg | | |
| Residual fuel oil | | | | | | |
| 1619b | Sulfur in Residual Fuel Oil (Nominal Mass Fraction 0.7 %) | 100 mL | 3.46 | 0.6960 | | |
| 1622e | Sulfur in Residual Fuel Oil (Nominal Mass Fraction 2 %) | 100 mL | | 2.1468 | | |
| 1623d | Sulfur in Residual Fuel Oil (Nominal Mass Fraction 0.2 %) | 100 mL | | 0.2070 | | |
| 2717a | Sulfur in Residual Fuel Oil (Nominal Mass Fraction 3%) | 100 mL | | 2.9957 | | (42.29) MJ/kg |

Solid forms (coal)

| SRM | Description | Unit Size | Bromine | Chlorine | Furnace Ash | Heat of Combustion* | Magnesium | Manganese | Mercury | Sulfur |
|---------------------------|--|-----------------|------------|-------------|-------------|---------------------|-----------|-------------|-------------|----------|
| Bituminous Coal | | | | | | | | | | |
| 1632e | Trace Elements in Coal (Bituminous) | 50 g | | 963 mg/kg | (8.488) % | | 391 mg/kg | 18.4 mg/kg | 135.1 µg/kg | |
| 2683c | Bituminous Coal (Nominal Mass Fraction 2 % Sulfur) | 50 g | | 1127 mg/kg | (9.870) % | (30.24) MJ/kg | | | 90.0 µg/kg | 1.952 % |
| 2684c | Bituminous Coal (Nominal Mass Fraction 3 % Sulfur) | 50 g | | 975 mg/kg | (7.945) % | | 494 mg/kg | 20.51 mg/kg | 68.8 µg/kg | 3.027 % |
| 2685c | Bituminous Coal (Nominal Mass Fraction 5 % Sulfur) | 50 g | 4.94 mg/kg | 554.0 mg/kg | (15.95) % | | 814 mg/kg | 36.84 mg/kg | 149.4 µg/kg | 4.72 % |
| 2692c | Bituminous Coal (Nominal Mass Fraction 1 % Sulfur) | 50 g | | 1338 mg/kg | 7.499 % | | | | 179.0 µg/kg | 1.064 % |
| 2693 | Bituminous Coal (Nominal Mass Fraction 0.5 % Sulfur) | 50 g | | 369.6 mg/kg | 9.4 % | | | | 37.3 µg/kg | 0.4571 % |
| 8499 | Trace Elements in Coal (Bituminous) | 50 g | | 963 mg/kg | (8.488) % | | 391 mg/kg | 18.4 mg/kg | 135.1 µg/kg | |
| Subbituminous Coal | | | | | | | | | | |
| 1635a | Trace Elements in Coal (Subbituminous) | 50 g | | | (6.29) % | | | | 83.6 µg/kg | 0.2909 % |
| 2682c | Subbituminous Coal (Nominal Mass Fraction 0.5 % Sulfur) | 1 bottle x 50 g | | 20.1 mg/kg | | | | | 105.1 µg/kg | 0.4906 % |

Solid forms (coke)

| SRM | Description | Unit Size | Aluminum | Calcium | Carbon | Cobalt | Furnace Ash | Heat of Combustion* | Hydrogen | Iron | Nickel | Nitrogen | Silicon | Sodium | Sulfur | Vanadium | Volatile Matter |
|-----------------------|-------------------------|-----------|------------|-------------|---------|------------|-------------|---------------------|----------|-------------|--------------|----------|-------------|------------|----------|------------|-----------------|
| 2775 | Sulfur in Foundry Coke | 50 g | | | 91.34 % | | 5.77 % | | 0.41 % | | | 1.16 % | | | 0.5816 % | | 1.31 % |
| 2776 | Sulfur in Furnace Coke | 50 g | | | 89.15 % | | 8.06 % | | 0.26 % | | | 1.21 % | | | 0.825 % | | 0.98 % |
| 2718a | Green Petroleum Coke | 50 g | 15.4 mg/kg | 165.5 mg/kg | (90) % | 5.71 mg/kg | (1) % | (35) MJ/kg | 3.725 % | 287 mg/kg | 144.06 mg/kg | (1) % | (50) mg/kg | 83.0 mg/kg | 4.690 % | 310 mg/kg | |
| 2719 | Calcined Petroleum Coke | 50 g | 58.9 mg/kg | 57.7 mg/kg | 97.06 % | 18.6 mg/kg | (0.12) % | (32.90) MJ/kg | 0.16 % | 201.6 mg/kg | 204 mg/kg | 1.17 % | (138) mg/kg | 15.1 mg/kg | 0.8877 % | 58.6 mg/kg | (0.54) % |

- Certified values are normal font.

- Non-certified and reference values are italicized.

- Information values and values of potential interest are within parentheses

* See certificate for more information.