

## Sulfur Certified Reference Materials

Paragon Scientific can now manufacture premium level, dual accredited Certified Reference Materials (CRMs) for Sulfur analysis, certified in strict accordance to both **ISO/IEC 17025 and ISO/IEC 17034** as per our accreditation to the United Kingdom Accreditation Service (UKAS).



## Background

Petroleum, or crude oil, is a valuable commodity because it is the feedstock for a wide range of products from fuels to plastics. Sulfur and its organic compounds are impurities found in crude oil, petroleum products and feedstock. The sulfur levels in these products vary from the highest amounts in the crude oils to trace levels in road fuels.

Sulfur oxides formed during the combustion of gasolines or diesel fuels in internal combustion engines are damaging to the engine and to the environment. In the atmosphere, sulfur oxides convert to sulfuric acid by reaction with moisture, and harm vegetation, aquatic, animal and human life. Consequently, ultralow sulfur diesel (ULSD) fuel sold in North America must contain less than 15 ppm sulfur, as dictated by the US Environmental Protection Agency (EPA). In Europe, the sulfur content limit is even lower, at 10 ppm, as per the European Union's 'Euro V' Fuel Standard. Similar sulfur content limits are being adopted by other parts of the world to reduce air pollution and other environmental impacts.

Quantitative analysis of sulfur in crude oil, petroleum products and feedstock is extremely important to ensure compliance with regulatory bodies and legislation, failure to do so can result in costly fines. Analysis techniques for sulfur content measurement include wet chemistry, X-ray fluorescence, atomic spectroscopy and various thermal combustion methods with different detection limits. Regardless of the technique employed for measurement, robust analytical data is paramount, calibration and / or verification. The use of high quality CRMs certified to ISO 17025 and ISO 17034 is critical to ensuring confidence of the measurement results achieved.



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## Part of Paragon Scientific's ISO/IEC 17025 and ISO/IEC 17034 Accreditation

### Paragon Scientific's Sulfur Certified Reference Materials

Paragon Scientific's Sulfur CRMs are suitable for calibration, verification or for use in quality control procedures used for analysing sulfur content in petroleum products. Our opening range includes sulfur in light mineral oil, heavy mineral oil, synthetic diesel, and in kerosene (odourless), with sulfur content ranging from 0 (Blank) through to 5.0000 % (50000 ppm) for each material. More matrices are to be launched in the near future, including sulfur in isooctane and more.

Each Sulfur CRM provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physics Laboratory (NPL) or other recognised national standards laboratories. All sulfur content values are traceable to National Institute Standards and Technology (NIST), and each CRM provides low levels of uncertainty, ensuring maximum accuracy of data at hand.

Paragon Scientific's Sulfur CRMs are available in 100 mL volume glass containers with tamper-evident packaging, providing assurance of sample integrity. Paragon also offers set sulfur kits for each matrix and the appropriate test methods associated, providing easy and efficient procurement solutions for end-users.

### Key Benefits:

- Certified in strict accordance to ISO 17025 and ISO 17034 under our UKAS accreditation.
- Highest level of accreditation guarantee, providing the most credible certified data available worldwide.
- Suitable for but not limited to internationally recognised test methods and protocol: ASTM D2622, ASTM D3120, ASTM D4294, ASTM D5453, ASTM D7039, IP 336, IP 496, IP 497.
- Fully traceable to international standards and low levels of uncertainty achieves maximum accuracy of data.
- Supplied in 100 mL volume, tamper-evident glass packaging, providing assurance of sample integrity.
- Manufactured in the United Kingdom.
- 12 month shelf life.

## Sulfur Certified Reference Materials, Light Mineral Oil

Part Number	Description
<b>LMSU-BLK</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, Blank. 100 mL.
<b>LMSU-01</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.0005 % (5 ppm), 100 mL.
<b>LMSU-02</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.001 % (10 ppm), 100 mL.
<b>LMSU-03</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.0025 % (25 ppm), 100 mL.
<b>LMSU-04</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.005 % (50 ppm), 100 mL.
<b>LMSU-05</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.01 % (100 ppm), 100 mL.
<b>LMSU-06</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.025 % (250 ppm), 100 mL.
<b>LMSU-07</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.03 % (300 ppm), 100 mL.
<b>LMSU-08</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.05 % (500 ppm), 100 mL.
<b>LMSU-09</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.07 % (700 ppm), 100 mL.
<b>LMSU-10</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.075 % (750 ppm), 100 mL.
<b>LMSU-11</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.1 % (1000 ppm), 100 mL.
<b>LMSU-12</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.25 % (2500 ppm), 100 mL.
<b>LMSU-13</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.3 % (3000 ppm), 100 mL.
<b>LMSU-14</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 0.5 % (5000 ppm), 100 mL.
<b>LMSU-15</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 1.00 % (10000 ppm), 100 mL.
<b>LMSU-16</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 1.50 % (15000 ppm), 100 mL.
<b>LMSU-17</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 2.00 % (20000 ppm), 100 mL.
<b>LMSU-18</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 3.00 % (30000 ppm), 100 mL.
<b>LMSU-19</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 4.00 % (40000 ppm), 100 mL.
<b>LMSU-20</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in light mineral oil, 5.00 % (50000 ppm), 100 mL.

## Sulfur Certified Reference Materials – Set Kits for Sulfur in Light Mineral Oil

Part Number	Description	Method	Kit Size
<b>D2622-LMSUA</b>	Sulfur in light mineral oil, ASTM D2622, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D2622-LMSUB</b>	Sulfur in light mineral oil, ASTM D2622, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 4 = x4 100 mLs
<b>D2622-LMSUC</b>	Sulfur in light mineral oil, ASTM D2622, Calibration Set C: 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 5 = x5 100 mLs
<b>D4294-LMSUA</b>	Sulfur in light mineral oil, ASTM D4294, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D4294-LMSUB</b>	Sulfur in light mineral oil, ASTM D4294, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 4 = x4 100 mLs
<b>D4294-LMSUC</b>	Sulfur in light mineral oil, ASTM D4294, Calibration Set C: 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm) . 100 mL ea.	<b>ASTM D4294</b>	Set of 5 = x5 100 mLs
<b>D7039-LMSUA</b>	Sulfur in light mineral oil, ASTM D7039, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7039-LMSUB</b>	Sulfur in light mineral oil, ASTM D7039, Calibration Set B: Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 5 (+Blank) = x6 100 mLs
<b>D7220-LMSUA</b>	Sulfur in light mineral oil, ASTM D7220, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7220-LMSUB</b>	Sulfur in light mineral oil, ASTM D7220, Calibration Set B: 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 6 = x6 100 mLs

<b>IP336-LMSUA</b>	Sulfur in light mineral oil, IP 336, Calibration Set A: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 (+Blank) = x5 100 mLs
<b>IP336-LMSUB</b>	Sulfur in light mineral oil, IP 336, Calibration Set B: Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 3 (+Blank) = x4 100 mLs
<b>IP336-LMSUC</b>	Sulfur in light mineral oil, IP 336, Calibration Set C: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-LMSUD</b>	Sulfur in light mineral oil, IP 336, Calibration Set D: 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-LMSUE</b>	Sulfur in light mineral oil, IP 336, Calibration Set E: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 6 (+Blank) = x7 100 mLs
<b>IP336-LMSUF</b>	Sulfur in light mineral oil, IP 336, Calibration Set F: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 7 = x7 100 mLs
<b>IP496-LMSUA</b>	Sulfur in light mineral oil, IP 496, Calibration Set A: Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 496</b>	Set of 5 (+Blank) = x6 100 mLs
<b>IP497-LMSUA</b>	Sulfur in light mineral oil, IP 497, Calibration Set A: Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm). 100 mL ea.	<b>IP 497</b>	Set of 5 (+Blank) = x6 100 mLs

## Sulfur Certified Reference Materials, Heavy Mineral Oil

Part Number	Description
HMSU-BLK	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, Blank. 100 mL.
HMSU-01	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.0005 % (5 ppm), 100 mL.
HMSU-02	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.001 % (10 ppm), 100 mL.
HMSU-03	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.0025 % (25 ppm), 100 mL.
HMSU-04	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.005 % (50 ppm), 100 mL.
HMSU-05	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.01 % (100 ppm), 100 mL.
HMSU-06	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.025 % (250 ppm), 100 mL.
HMSU-07	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.03 % (300 ppm), 100 mL.
HMSU-08	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.05 % (500 ppm), 100 mL.
HMSU-09	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.07 % (700 ppm), 100 mL.
HMSU-10	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.075 % (750 ppm), 100 mL.
HMSU-11	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.1000 % (1000 ppm), 100 mL.
HMSU-12	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.25 % (2500 ppm), 100 mL.
HMSU-13	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.3 % (3000 ppm), 100 mL.
HMSU-14	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 0.5 % (5000 ppm), 100 mL.
HMSU-15	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 1.00 % (10000 ppm), 100 mL.
HMSU-16	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 1.50 % (15000 ppm), 100 mL.
HMSU-17	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 2.00 % (20000 ppm), 100 mL.
HMSU-18	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 3.00 % (30000 ppm), 100 mL.
HMSU-19	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 4.00 % (40000 ppm), 100 mL.
HMSU-20	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in heavy mineral oil, 5.00 % (50000 ppm), 100 mL.

## Sulfur Certified Reference Materials – Set Kits for Sulfur in Heavy Mineral Oil

Part Number	Description	Method	Kit Size
<b>D2622-HMSUA</b>	Sulfur in heavy mineral oil, ASTM D2622, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D2622-HMSUB</b>	Sulfur in heavy mineral oil, ASTM D2622, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 4 = x4 100 mLs
<b>D2622-HMSUC</b>	Sulfur in heavy mineral oil, ASTM D2622, Calibration Set C: 1.00% (10000ppm), 2.00% (20000ppm), 3.00% (30000ppm), 4.00% (40000ppm), 5.00% (50000ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 5 = x5 100 mLs
<b>D4294-HMSUA</b>	Sulfur in heavy mineral oil, ASTM D4294, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D4294-HMSUB</b>	Sulfur in heavy mineral oil, ASTM D4294, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 4 = x4 100 mLs
<b>D4294-HMSUC</b>	Sulfur in heavy mineral oil, ASTM D4294, Calibration Set C: 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 5 = x5 100 mLs
<b>D7039-HMSUA</b>	Sulfur in heavy mineral oil, ASTM D7039, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7039-HMSUB</b>	Sulfur in heavy mineral oil, ASTM D7039, Calibration Set B: Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 5 (+Blank) = x6 100 mLs
<b>D7220-HMSUA</b>	Sulfur in heavy mineral oil, ASTM D7220, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7220-HMSUB</b>	Sulfur in heavy mineral oil, ASTM D7220, Calibration Set B: 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 6 = x6 100 mLs

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<b>IP336-HMSUA</b>	Sulfur in heavy mineral oil, IP 336, Calibration Set A: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 (+Blank) = x5 100 mLs
<b>IP336-HMSUB</b>	Sulfur in heavy mineral oil, IP 336, Calibration Set B: Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 3 (+Blank) = x4 100 mLs
<b>IP336-HMSUC</b>	Sulfur in heavy mineral oil, IP 336, Calibration Set C: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-HMSUD</b>	Sulfur in heavy mineral oil, IP 336, Calibration Set D: 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-HMSUE</b>	Sulfur in heavy mineral oil, IP 336, Calibration Set E: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 6 (+Blank) = x7 100 mLs
<b>IP336-HMSUF</b>	Sulfur in heavy mineral oil, IP 336, Calibration Set F: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 7 = x7 100 mLs
<b>IP496-HMSUA</b>	Sulfur in heavy mineral oil, IP 496, Calibration Set A: Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 496</b>	Set of 5 (+Blank) = x6 100 mLs
<b>IP497-HMSUA</b>	Sulfur in heavy mineral oil, IP 497, Calibration Set A: Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300ppm), 0.05 % (500 ppm). 100 mL ea.	<b>IP 497</b>	Set of 5 (+Blank) = x6 100 mLs



## Sulfur Certified Reference Materials, Synthetic Diesel

Part Number	Description
<b>GOSU-BLK</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, Blank. 100 mL.
<b>GOSU-01</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0005 % (5 ppm), 100 mL.
<b>GOSU-02</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0010 % (10 ppm), 100 mL.
<b>GOSU-03</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0025 % (25 ppm), 100 mL.
<b>GOSU-04</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0050 % (50 ppm), 100 mL.
<b>GOSU-05</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0100 % (100 ppm), 100 mL.
<b>GOSU-06</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0250 % (250 ppm), 100 mL.
<b>GOSU-07</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0300 % (300 ppm), 100 mL.
<b>GOSU-08</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0500 % (500 ppm), 100 mL.
<b>GOSU-09</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0700 % (700 ppm), 100 mL.
<b>GOSU-10</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.0750 % (750 ppm), 100 mL.
<b>GOSU-11</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.1000 % (1000 ppm), 100 mL.
<b>GOSU-12</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.2500 % (2500 ppm), 100 mL.
<b>GOSU-13</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.3000 % (3000 ppm), 100 mL.
<b>GOSU-14</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 0.5000 % (5000 ppm), 100 mL.
<b>GOSU-15</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 1.0000 % (10000 ppm), 100 mL.
<b>GOSU-16</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 1.5000 % (15000 ppm), 100 mL.
<b>GOSU-17</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 2.0000 % (20000 ppm), 100 mL.
<b>GOSU-18</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 3.0000 % (30000 ppm), 100 mL.
<b>GOSU-19</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 4.0000 % (40000 ppm), 100 mL.
<b>GOSU-20</b>	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Synthetic Diesel, 5.0000 % (50000 ppm), 100 mL.

## Sulfur Certified Reference Materials – Set Kits for Sulfur in Synthetic Diesel

Part Number	Description	Method	Kit Size
<b>D2622-GOSUA</b>	Sulfur in synthetic diesel, ASTM D2622, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D2622-GOSUB</b>	Sulfur in synthetic diesel, ASTM D2622, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 4 = x4 100 mLs
<b>D2622-GOSUC</b>	Sulfur in synthetic diesel, ASTM D2622, Calibration Set C: 1.00% (10000ppm), 2.00% (20000ppm), 3.00% (30000ppm), 4.00% (40000ppm), 5.00% (50000ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 5 = x5 100 mLs
<b>D4294-GOSUA</b>	Sulfur in synthetic diesel, ASTM D4294, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D4294-GOSUB</b>	Sulfur in synthetic diesel, ASTM D4294, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 4 = x4 100 mLs
<b>D4294-GOSUC</b>	Sulfur in synthetic diesel, ASTM D4294, Calibration Set C: 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 5 = x5 100 mLs
<b>D7039-GOSUA</b>	Sulfur in synthetic diesel, ASTM D7039, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7039-GOSUB</b>	Sulfur in synthetic diesel, ASTM D7039, Calibration Set B: Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 5 (+Blank) = x6 100 mLs
<b>D7220-GOSUA</b>	Sulfur in synthetic diesel, ASTM D7220, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7220-GOSUB</b>	Sulfur in synthetic diesel, ASTM D7220, Calibration Set B: 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 6 = x6 100 mLs

<b>IP336-GOSUA</b>	Sulfur in synthetic diesel, IP 336, Calibration Set A: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 (+Blank) = x5 100 mLs
<b>IP336-GOSUB</b>	Sulfur in synthetic diesel, IP 336, Calibration Set B: Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 3 (+Blank) = x4 100 mLs
<b>IP336-GOSUC</b>	Sulfur in synthetic diesel, IP 336, Calibration Set C: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-GOSUD</b>	Sulfur in synthetic diesel, IP 336, Calibration Set D: 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-GOSUE</b>	Sulfur in synthetic diesel, IP 336, Calibration Set E: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 6 (+Blank) = x7 100 mLs
<b>IP336-GOSUF</b>	Sulfur in synthetic diesel, IP 336, Calibration Set F: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 7 = x7 100 mLs
<b>IP496-GOSUA</b>	Sulfur in synthetic diesel, IP 496, Calibration Set A: Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 496</b>	Set of 5 (+Blank) = x6 100 mLs
<b>IP497-GOSUA</b>	Sulfur in synthetic diesel, IP 497, Calibration Set A: Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300ppm), 0.05 % (500 ppm). 100 mL ea.	<b>IP 497</b>	Set of 5 (+Blank) = x6 100 mLs

## Sulfur Certified Reference Materials, Kerosene (Odourless)

Part Number	Description
KRSU-BLK	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), Blank. 100 mL.
KRSU-01	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0005 % (5 ppm), 100 mL.
KRSU-02	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0010 % (10 ppm), 100 mL.
KRSU-03	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0025 % (25 ppm), 100 mL.
KRSU-04	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0050 % (50 ppm), 100 mL.
KRSU-05	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0100 % (100 ppm), 100 mL.
KRSU-06	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0250 % (250 ppm), 100 mL.
KRSU-07	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0300 % (300 ppm), 100 mL.
KRSU-08	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0500 % (500 ppm), 100 mL.
KRSU-09	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0700 % (700 ppm), 100 mL.
KRSU-10	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.0750 % (750 ppm), 100 mL.
KRSU-11	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.1000 % (1000 ppm), 100 mL.
KRSU-12	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.2500 % (2500 ppm), 100 mL.
KRSU-13	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.3000 % (3000 ppm), 100 mL.
KRSU-14	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 0.5000 % (5000 ppm), 100 mL.
KRSU-15	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 1.0000 % (10000 ppm), 100 mL.
KRSU-16	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 1.5000 % (15000 ppm), 100 mL.
KRSU-17	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 2.0000 % (20000 ppm), 100 mL.
KRSU-18	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 3.0000 % (30000 ppm), 100 mL.
KRSU-19	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 4.0000 % (40000 ppm), 100 mL.
KRSU-20	Sulfur Certified Reference Material, UKAS ISO 17025 & ISO 17034 Certified, Sulfur in Kerosene (Odourless), 5.0000 % (50000 ppm), 100 mL.

## Sulfur Certified Reference Materials – Set Kits for Sulfur in Kerosene (Odourless)

Part Number	Description	Method	Kit Size
<b>D2622-KRSUA</b>	Sulfur in Kerosene (Odourless), ASTM D2622, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D2622-KRSUB</b>	Sulfur in Kerosene (Odourless), ASTM D2622, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 4 = x4 100 mLs
<b>D2622-KRSUC</b>	Sulfur in Kerosene (Odourless), ASTM D2622, Calibration Set C: 1.00% (10000ppm), 2.00% (20000ppm), 3.00% (30000ppm), 4.00% (40000ppm), 5.00% (50000ppm). 100 mL ea.	<b>ASTM D2622</b>	Set of 5 = x5 100 mLs
<b>D4294-KRSUA</b>	Sulfur in Kerosene (Odourless), ASTM D4294, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 7 (+Blank) = x8 100 mLs
<b>D4294-KRSUB</b>	Sulfur in Kerosene (Odourless), ASTM D4294, Calibration Set B: 0.1 % (1000 ppm), 0.25 % (2500 ppm), 0.5 % (5000 ppm), 1.00 % (10000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 4 = x4 100 mLs
<b>D4294-KRSUC</b>	Sulfur in Kerosene (Odourless), ASTM D4294, Calibration Set C: 1.00 % (10000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>ASTM D4294</b>	Set of 5 = x5 100 mLs
<b>D7039-KRSUA</b>	Sulfur in Kerosene (Odourless), ASTM D7039, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.005 % (50 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7039-KRSUB</b>	Sulfur in Kerosene (Odourless), ASTM D7039, Calibration Set B: Blank, 0.0025 % (25 ppm), 0.01 % (100 ppm), 0.05 % (500 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm). 100 mL ea.	<b>ASTM D7039</b>	Set of 5 (+Blank) = x6 100 mLs
<b>D7220-KRSUA</b>	Sulfur in Kerosene (Odourless), ASTM D7220, Calibration Set A: Blank, 0.0005 % (5 ppm), 0.001 % (10 ppm), 0.0025 % (25 ppm), 0.005 % (50 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 4 (+Blank) = x5 100 mLs
<b>D7220-KRSUB</b>	Sulfur in Kerosene (Odourless), ASTM D7220, Calibration Set B: 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.05 % (500 ppm), 0.075 % (750 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>ASTM D7220</b>	Set of 6 = x6 100 mLs

<b>IP336-KRSUA</b>	Sulfur in Kerosene (Odourless), IP 336, Calibration Set A: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 (+Blank) = x5 100 mLs
<b>IP336-KRSUB</b>	Sulfur in Kerosene (Odourless), IP 336, Calibration Set B: Blank, 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 3 (+Blank) = x4 100 mLs
<b>IP336-KRSUC</b>	Sulfur in Kerosene (Odourless), IP 336, Calibration Set C: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-KRSUD</b>	Sulfur in Kerosene (Odourless), IP 336, Calibration Set D: 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 4 = x4 100 mLs
<b>IP336-KRSUE</b>	Sulfur in Kerosene (Odourless), IP 336, Calibration Set E: Blank, 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm), 0.3 % (3000 ppm), 0.5 % (5000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 6 (+Blank) = x7 100 mLs
<b>IP336-KRSUF</b>	Sulfur in Kerosene (Odourless), IP 336, Calibration Set F: 0.5 % (5000 ppm), 1.00 % (10000 ppm), 1.50 % (15000 ppm), 2.00 % (20000 ppm), 3.00 % (30000 ppm), 4.00 % (40000 ppm), 5.00 % (50000 ppm). 100 mL ea.	<b>IP 336</b>	Set of 7 = x7 100 mLs
<b>IP496-KRSUA</b>	Sulfur in Kerosene (Odourless), IP 496, Calibration Set A: Blank, 0.01 % (100 ppm), 0.03 % (300 ppm), 0.05 % (500 ppm), 0.07 % (700 ppm), 0.1 % (1000 ppm). 100 mL ea.	<b>IP 496</b>	Set of 5 (+Blank) = x6 100 mLs
<b>IP497-KRSUA</b>	Sulfur in Kerosene (Odourless), IP 497, Calibration Set A: Blank, 0.005 % (50 ppm), 0.01 % (100 ppm), 0.025 % (250 ppm), 0.03 % (300ppm), 0.05 % (500 ppm). 100 mL ea.	<b>IP 497</b>	Set of 5 (+Blank) = x6 100 mLs

## Why choose Paragon?

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