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## 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.

## **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 D5354, 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.

**For further information, please feel free to contact our team at [sales@paragon-sci.com](mailto:sales@paragon-sci.com) or contact your local representative.**