# Elemental Analysis in Petroleum

**From hydrocarbons to plastics, Petra® SUPRA delivers total light element analysis with quick cycle times and no sample preparation. Petra SUPRA is a robust and rapid analysis solution for demanding laboratory and manufacturing environments.**

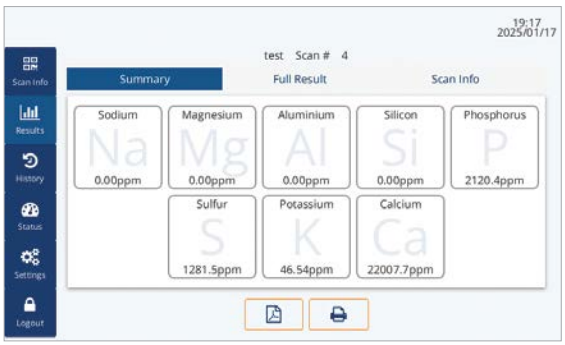
## APPLICATIONS

- Total light element analysis in a wide range of materials, including hydrocarbons, plastics, polymers, and other chemicals
- For use in refinery labs, pipeline terminals, inspection laboratories, and manufacturing QC labs

Petra SUPRA
Elemental Analyzer for Petroleum

## FEATURES AND BENEFITS

- LOD: at 300s** in hydrocarbons
  - S – 0.13 mg/kg (ppm)
  - Si – 0.6 mg/kg (ppm)
  - Al – 2.0 mg/kg (ppm)
  - P – 0.25 mg/kg (ppm)
  - K – 0.06 mg/kg (ppm)
  - Ca – 0.03 mg/kg (ppm)
  - Mg – 29 mg/kg (ppm)
  - Na – 160 mg/kg (ppm)
- Easy to use
  - Intuitive 7-inch touch screen
  - Just plug in and measure
  - Measurement time: 30-900 s
- Low maintenance: no gasses, heating elements, columns, or quartz tubing
- Small footprint
- LIMS integration for data management and transfer
- Custom sample presets to save data entry time and minimize data entry error on common samples
- Bar code reader autofills sample name to reduce data entry time
- Storage capacity for more than 10,000 measurement results
- Supports up to 30 calibration curves
- USB connectivity in front and back for connecting to printer, keyboard, mouse, and memory stick
- Supports USB and network printers
- Oxygen correction – semi-quantitative, automatically, or quantitative with matrix matching calibrations

## ADVANCED ANALYSIS WITH HDXRF

Petra is powered by High Definition X-ray Fluorescence (HDXRF®) technology, an elemental analysis technique offering significantly enhanced detection performance over traditional XRF technology. This technique applies state-of-the-art monochromating and focusing optics, enabling dramatically higher signal-to-background ratio compared to traditional polychromatic X-ray Fluorescence. **Figure 1** shows the basic configuration of HDXRF and its use of focused monochromatic excitation.

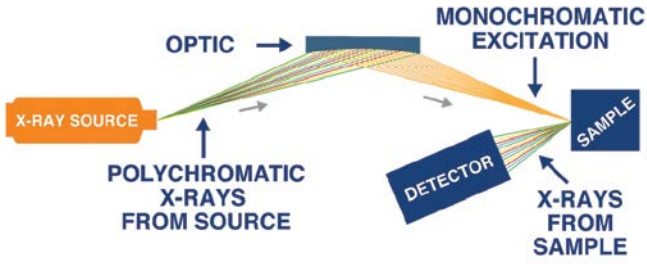



Figure 1: HDXRF Technology

| | Na | Mg | Al | Si | P | S | K | Ca |
|---|---|---|---|---|---|---|---|---|
| Avg | 533.8 | 53.1 | 5.08 | 4.74 | 5.35 | 5.05 | 5.22 | 4.82 |
| Stdev | 28.5 | 11.7 | 0.83 | 0.13 | 0.08 | 0.08 | 0.05 | 0.08 |
| %RSD | 5% | 22% | 16% | 3% | 1% | 2% | 1% | 2% |
| | *Mineral Oil Standards, 5 measurements, each 300s* | | | | | | | |

| | Al | Si | S |
|---|---|---|---|
| Avg | 10.62 | 9.28 | 916.18 |
| Stdev | 1.49 | 0.31 | 3.30 |
| %RSD | 14% | 3% | 0% |
| | *Marine Oil Standards, 5 measurements, each 300s* | | |

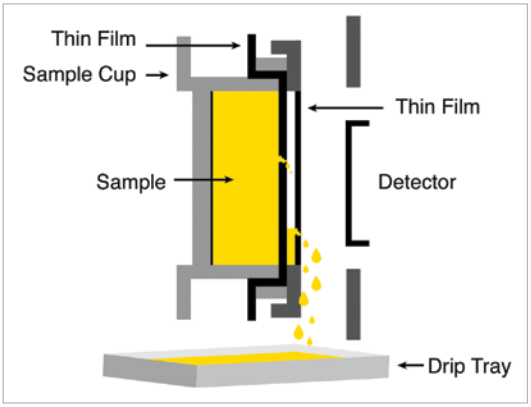
## ADVANCED SAMPLE INTRODUCTION

### Protect Valuable Components

Petroleum laboratories depend on reliable, robust analytical solutions for their fast-paced environment. Petra was designed to meet these needs with an innovative sample introduction system that directs accidental spills to a drip tray and away from valuable components.

### Petra Sample Chamber with Drip Tray

A sample is placed into the Petra sample chamber and when closed, it is turned on its side. This innovative design ensures that any accidental sample leaks are directed to a drip tray - to be easily removed and disposed.




## PRODUCT SPECIFICATIONS

| | |
|---|---|
| **Model** | Petra SUPRA |
| **Test Method** | ASTM D4294, ISO 8754 |
| **Dimensions** | 6 in (h) x 14.5 in (w) x 16.5 in (d)<br>15 cm (h) x 37 cm (w) x 42 cm (d) |
| **Ambient Temperature Requirements** | 5-40°C (40-104°F) |
| **Sample Cup Size** | 31 mm OD |
| **Sample Cup Volume** | 6 ml |

**All qualification herein are subject to user guide specifications. If you have further questions, reach out to our team of experts at **info@xos.com**.*

***Longer cycle time increases counts and lower LOD, but sample conditions over time must be considered. For further inquiries, please contact us at **info@xos.com**.*