



better analysis counts

# Next Generation of Elemental Analysis Using **Petra MAX Autosampler**

---



## Presentation Overview

- Petra MAX & HDXRF
- How does Petra work?
- On-screen features
- Data management
- Improved calibration
- Demonstration
- Additional resources



# Petra MAX Autosampler

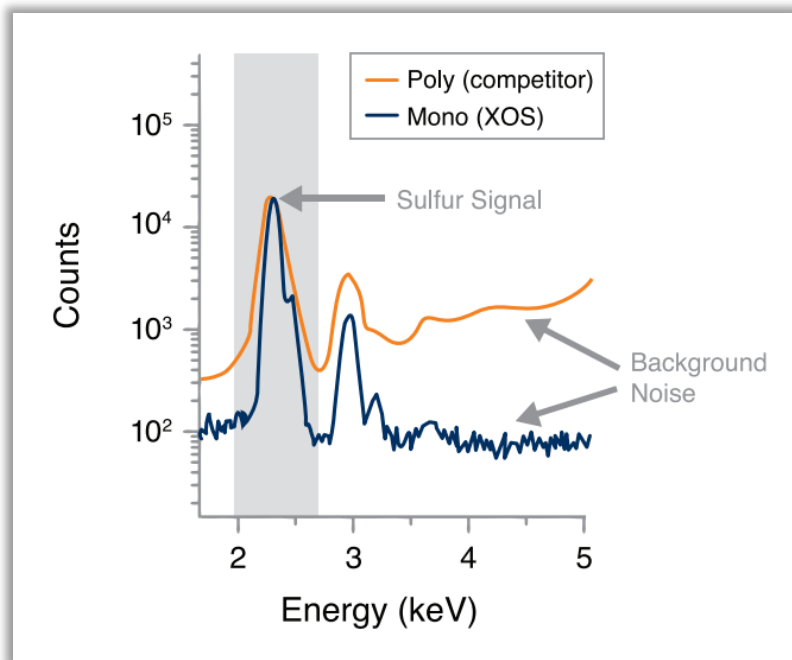


ASTM D4294  
ISO 8754  
IP 336

- Advanced software features
- 8-position continuous load autosampler with QR-scanning technology

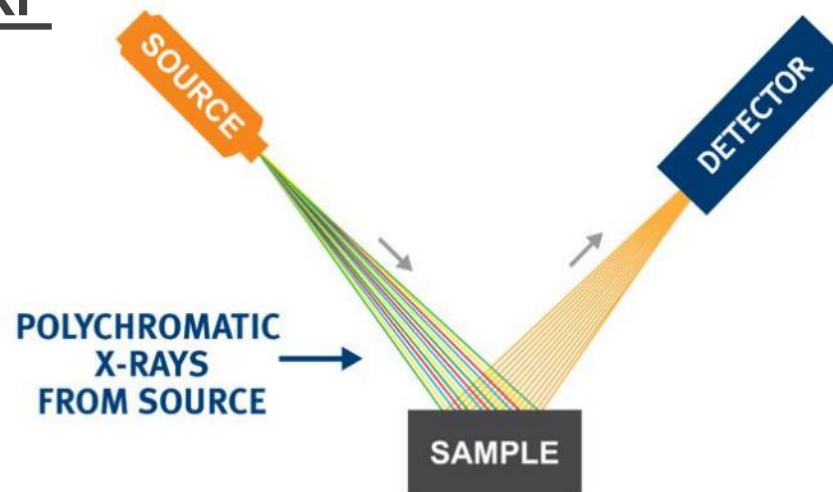
Dynamic Range	Sulfur 5.7 ppm – 10 wt%					
Limit of Detection (ppm @ 600 s)	Sulfur 5.7 ppm					
	P	Cl	K	Ca	V	Cr
	17	3	0.7	0.4	0.1	0.09
	Mn	Fe	Co	Ni	Cu	Zn
	0.07	0.07	0.07	0.04	0.1	0.1
Applications	Hydrocarbons, water, and catalysts					

# HDXRF vs EDXRF

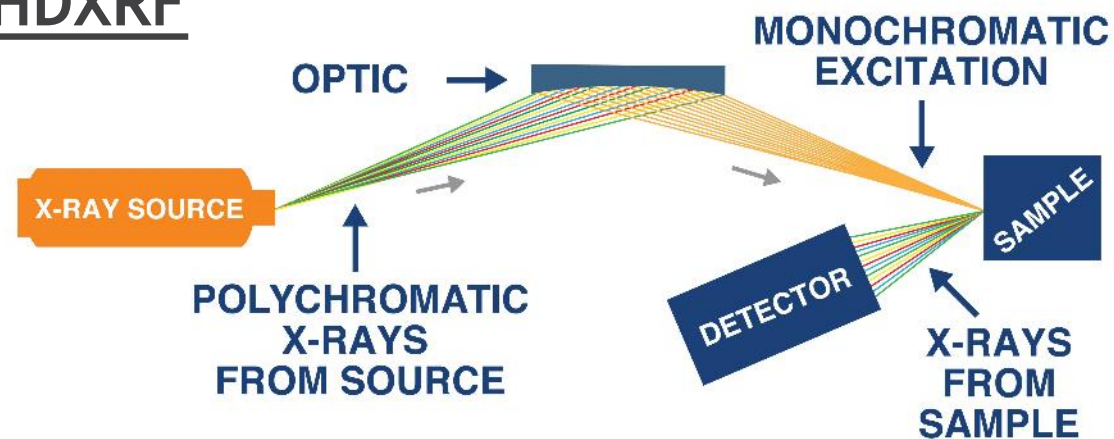


Monochromatic excitation reduces background scatter and increases sensitivity – improving performance over traditional XRF.

## EDXRF



## HDXRF



# How does it work?

## Place cup in Petra

1

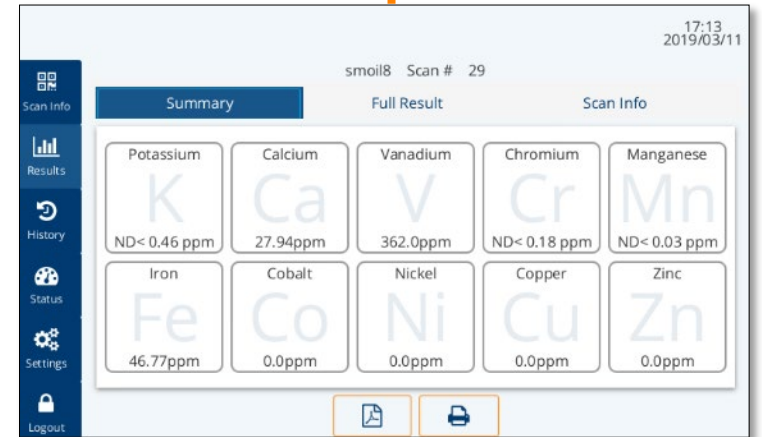


2



Place sample in cup

3



Get fast results

300s

# Measurement Modes

## QR-Mode

continuously load samples in any order

User: xos 14:42 2018/12/05

Sample Name: sample 1

QR Code: XOS0275000302

Description:

Preset Details  
Factory Default  
Cal Curve: Default\_Hydrocarb on\_No\_Standard\_M method  
Scan Time: 30 sec  
Matrix: Oil  
Repeats: 1

Factory Default ★ QC - Oil QC - water

Clear Save

## Non QR-Mode

load 8 samples at one time in correct order

User: xos 14:37 2018/12/05

Sample Name:

Description:

Preset Details  
Factory Default  
Cal Curve: Default\_Hydrocarb on\_No\_Standard\_M method  
Scan Time: 30 sec  
Matrix: Oil  
Repeats: 1

Factory Default ★ QC - Oil QC - water

Clear Save

# On-screen Features

average results instantly on-screen

22:44  
2019/02/14

Cancel

Select	Scan #	Name	Scan Date	Sulfur (ppm)	QR Error
<input checked="" type="checkbox"/>	13	std_7 3of3	2019-02-14 22:39	16542	
<input checked="" type="checkbox"/>	13	std_7 2of3	2019-02-14 22:38	16416	
<input checked="" type="checkbox"/>	13	std_7 1of3	2019-02-14 22:37	16227	
<input type="checkbox"/>	12	std_6	2019-02-14 22:35	16408	
<input type="checkbox"/>	11	XOS0275000293 3of3	2019-02-14 20:45	85.44	
<input type="checkbox"/>	11	XOS0275000293 2of3	2019-02-14 20:44	ND< 61.29	
<input type="checkbox"/>	11	XOS0275000293 1of3	2019-02-14 20:42	101	
<input type="checkbox"/>	10	XOS0275000293	2019-02-14 20:31	93.21	
<input type="checkbox"/>	9	sample_4	2019-02-14 20:19	48783	

Average

Scan Info  
Results  
History  
Status  
Settings  
Logout

quick configuration sets saved as user favorites

Preset Select Manually

Factory Default ★ QC - Oil QC - water

customize results screen

22:56  
2019/02/14

std\_7 Scan # 13

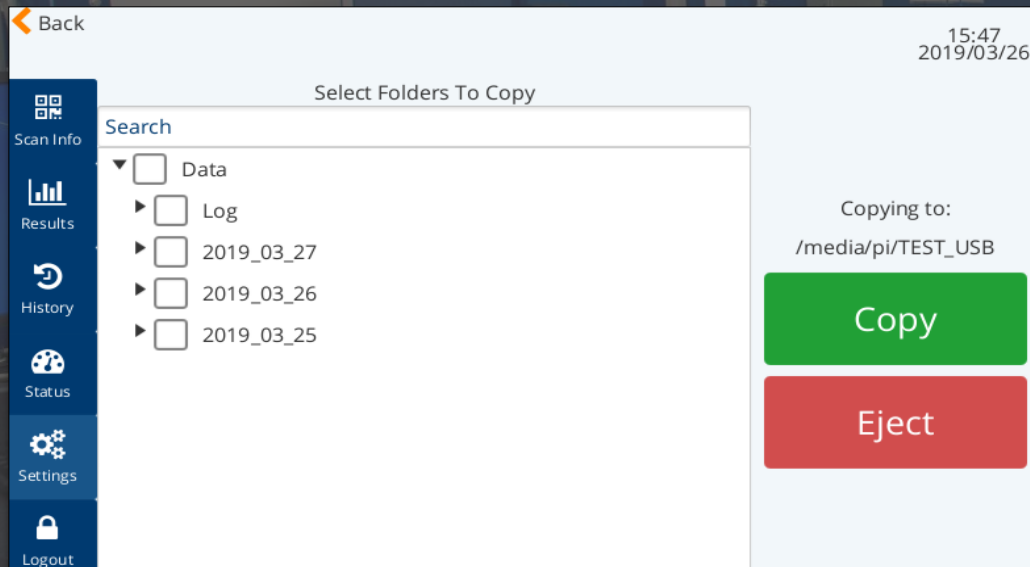
Summary Full Result Scan Info

Sample Name: std\_7  
Cal Curve: Default\_FP\_No\_Standard\_Method  
Scan Time: 30 sec  
Description:  
Scan Date: 2019-02-14 22:50  
Matrix: Oil

Average of: 2019\_02\_14/Scan13\_22.39\_std\_7\_3of3.hdx  
2019\_02\_14/Scan13\_22.37\_std\_7\_1of3.hdx

Scan Info  
Results  
History  
Status  
Settings  
Logout

# Data Management



- Auto-populated, LIMS compatible csv files
- Barcode entry for sample bottles
- Indexed, searchable data on-screen
- USB & network printer supported



---

## Petra Demonstration

**Let's see how it works.**

---

## Additional Resources

- Precision Comparison Between HDXRF vs ICP for Ni, Fe, and V
- S, Ni, V, and Fe Analysis of Crude Oil Using HDXRF
- Get Fast D4294 Sulfur Results without Centrifuging
- Simple Lubricant Additive Package Quality Control Using HDXRF
- HDXRF vs ICP for Ni and V in Crude Oil
- Sulfur in Jet Fuel by ASTM D4294

[xos.com/resource-petroleum](https://xos.com/resource-petroleum)