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Clora^{2XP}

Chlorine Analyzer

Twice the Precision ■ Twice the Performance ■ Improved Sub-ppm Analysis



Chlorine Analysis in Liquid Hydrocarbons, Aqueous Solutions and Catalyst

The Clora 2XP Benchtop analyzer is designed for use with liquid hydrocarbons such as aromatics, distillates, heavy fuels and crude oils, as well as aqueous solutions. The enhanced precision of Clora 2XP is ideal for testing related to catalyst poisoning in reformers or for sites with fluid catalytic crackers and hydrocrackers monitoring very low levels of chlorine.

Application Areas:

- Total Chlorine analysis from aqueous solutions and aromatic products to heavy fuels, crudes and catalyst
- For refineries, petrochemical and additive plants, pipeline terminals and test laboratories

Features and Benefits:

- LOD: 0.07 ppm wt. in hydrocarbons
- Dynamic range: 0.07 ppm wt. up to 3000 ppm wt.
- Automatic sulfur correction
- Fits on any bench, in any lab: 37 cm (w) x 50 cm (d) x 34 cm (h)
- Plug-it-in and measure
- User-friendly with touch screen interface
- User programmable measurement time: 30-900 s
- Extremely low maintenance:
 - No conversion gasses
 - No columns
 - No heating elements
 - No quartz tubing
- Replaceable air-cooled x-ray tube
- No sample conversion or combustible gasses required
- Robust polyamide window for easy cleaning

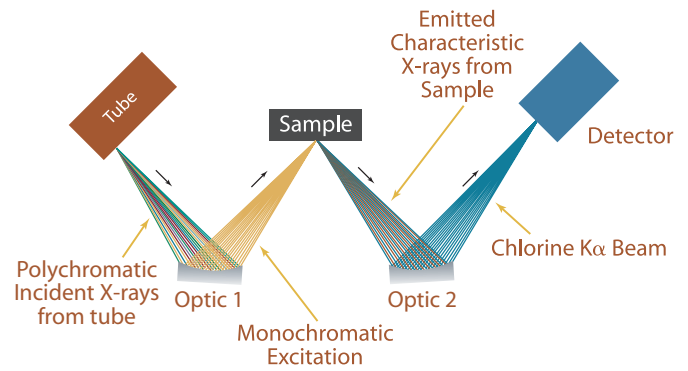
Options:

- LIMS data output compatible software
- Extended Range capability; 0.07 ppm up to 2%

MWD XRF

Dramatically lower levels of detection and faster response times

Monochromatic Wavelength Dispersive X-Ray Fluorescence (MWD XRF) utilizes state-of-the-art focusing and monochromating optics to increase excitation intensity and dramatically improve signal-to-background over high power traditional WD XRF instruments. This enables significantly improved detection limits and precision and a reduced sensitivity to matrix effects. A monochromatic and focused primary beam excites the sample and secondary characteristic fluorescence x-rays are emitted from the sample. A second monochromating optic selects the chlorine characteristic x-rays and directs these x-rays to the detector. MWD XRF is a direct measurement technique and does not require consumable gasses or sample conversion.



Clora 2XP Test Results

All values in ppm

Total Chlorine in Gasoline from the Pump (600s)	0.29	Total Chlorine in LMH Vacuum Gas Oil (300s)	1.41	Total Chlorine in 0.3 ppm Mineral Oil Standard (300s)	0.30
	0.31		1.42		0.33
	0.30		1.44		0.31
	0.33		1.36		0.31
	0.36		1.43		0.30
	0.40		1.35		0.27
	0.36		1.44		0.23
	0.32		1.47		0.34
	0.32		1.39		0.32
	0.31		1.46		0.34
Standard deviation	0.032	Standard deviation	0.040	Standard Deviation	0.035
Average	0.327	Average	1.417	Average	0.305

Precision

Typical repeatability (r) and reproducibility (R) values, at 95% confidence. Measurement time: 600 s xylene, 300 s crude oil and water.

Chlorine (ppm)	Xylene		Chlorine (ppm)	Crude Oil		Chlorine (ppm)	Water	
	r	R		r	R		r	R
0.2	0.10	0.19	5	0.4	0.8	0.5	1.0	
0.5	0.11	0.22	10	0.6	1.2	0.7	1.4	
1	0.14	0.27	50	1.2	2.4	1.6	3.2	
5	0.25	0.50						

Product Specifications

Test Method	ASTM D7536
Dimensions	37 cm (w) x 50 cm (d) x 34 cm (h)
Power	100-120 VAC, 47-63 HZ at 6.0 Amps/200-240 VAC, 47-63 HZ at 6.0 Amps
Other Utilities	None
Sample Cup Volume	10ml
Ambient Temperature Requirements	5-40° C (40-104° F)
Dynamic Range	0.07 ppm-2% (wt.)
Measurement	30-900 s
X-Ray Tube Setting	50 kv @ 1.5 mA max



better analysis counts

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