# Total Chlorine Analysis in Liquid Hydrocarbons

Clora® is a compact analyzer to measure total chlorine in liquid hydrocarbons such as aromatics, distillates, heavy fuels, crude oils, and aqueous solutions. Clora delivers unprecedented accuracy and precision for petroleum and petrochemical applications where ease-of-use, reliability and measurement speed are critical.

## Applications

- 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: 0.13 ppm for hydrocarbons
- LOD: 0.3 ppm for aqueous samples
- Dynamic Range: 0.13 ppm to 3000 ppm
- Fits on any lab bench
- Easy to use
  - Intuitive touch screen
  - Just plug-in and measure
  - Measurement time: 30-900 s
- Extremely low maintenance: no conversion gasses, heating elements, columns, or quartz tubing
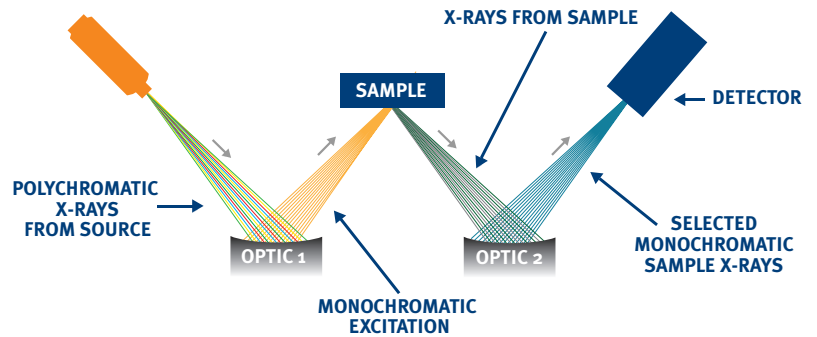
## Options

- LIMS data output compatible software
- Extended Range (XR): 0.13 ppm to 4 wt%
- Catalyst testing capability
- Accu-flow*
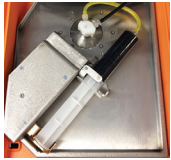- 8-cell Autosampler*
- Accucell Sample Basket Available

| 17 | 35.45 |
|---|---|

# Clora

**Chlorine** Analyzer



*Accu-flow and Autosampler options cannot be combined.

**ASTM D7536 and D4929**

## TRUSTED PRECISION

Monochromatic Wavelength Dispersive X-ray Fluorescence (MWDXRF®) utilizes state-of-the-art focusing and monochromating optics to increase excitation intensity and dramatically improve signal-to-background over high power traditional WDXRF 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. MWDXRF is a direct measurement technique and does not require consumable gasses or sample conversion.

X-RAYS FROM SAMPLE

SAMPLE

DETECTOR

POLYCHROMATIC X-RAYS FROM SOURCE

SELECTED MONOCHROMATIC SAMPLE X-RAYS

OPTIC 1

OPTIC 2

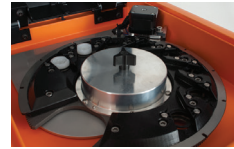MONOCHROMATIC EXCITATION

## NOW AVAILABLE WITH:

### ACCU-FLOW

ACCU-FLOW

Accu-flow allows the sample to flow continuously during measurement. This continuous flow eliminates the settling of chlorine, producing accurate and precise total chlorine results.

-OR-

### AUTOSAMPLER

- 8 sample cell capacity
- Increases productivity
- Uses Accucells for hassle-free sample prep

| Precision | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Typical repeatability (r) and reproducibility (R) values, at 95% confidence. Measurement time: 600 s xylene, 300 s crude oil and water. | | | | | | | | |
| Xylene | | | Crude Oil | | | Water | | |
| Chlorine (ppm) | r | R | Chlorine (ppm) | r | R | r | R | |
| 1 | 0.17 | 0.29 | 5 | 0.4 | 0.8 | 0.6 | 1.0 | |
| 5 | 0.31 | 0.53 | 10 | 0.8 | 1.4 | 1.0 | 1.5 | |
| 10 | 0.50 | 0.90 | 50 | 1.2 | 2.4 | 1.6 | 3.2 | |

## Product Specifications

| | |
|---|---|
| **Model** | Clora |
| **Test Method** | ASTM D7536 and D4929 |
| **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 |
| **Sample Cup Volume** | 10 ml |
| **Ambient Temperature Requirements** | 5-40° C (40-104° F) |
| **Dynamic Range** | Standard: 0.13 ppm to 3000 ppm<br>Extended Range (XR): 0.13 ppm to 4 wt% |
| **Measurement** | 30-900 s |
| **Calibration** | 8 calibration curves. Automatic and manual calibration functionality |