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# EDXRF1923 - Organic Chlorides In Crude By ASTM D4929 Part C



## Scope

This application note demonstrates the analysis of organic chloride in crude as per ASTM D4929 Part C XRF using [NEX D E](#).

## Background

Chlorides in crude contribute to corrosion in the piping at refineries during cracking as well as mid-stream in pipelines. Organic chlorides do not naturally occur in crude, however inorganic chlorides in the form of salts as well as residual organic chlorides from various natural sources as well as adulteration can contaminate crude. Contracts at the pipelines may contain clauses limiting the amount of organic chloride allowed in the crude. At the refinery after desalting and desulfurization, crude needs to be analyzed for any residual organic chlorides possibly still entrained in the feedstock to avoid potential damage during the refining process.

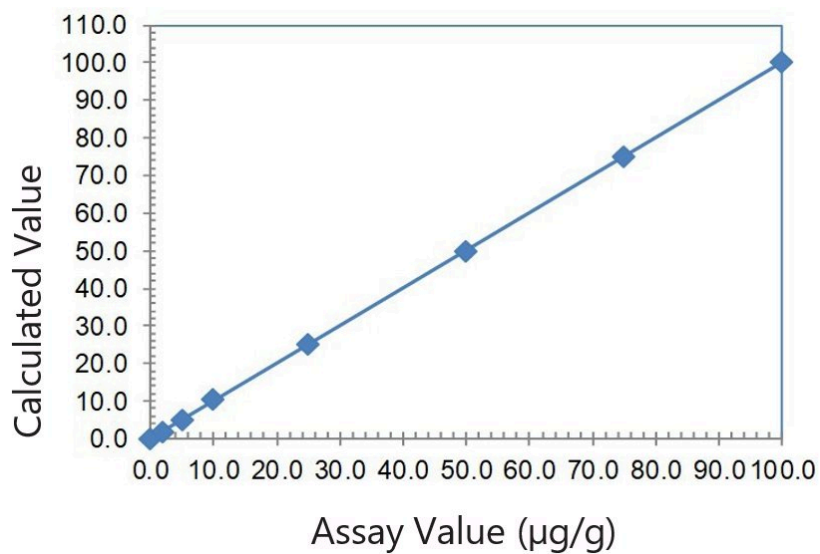
## Calibration

Empirical calibration was made using commercially available mineral oil standards. For optimum calibration, the standards contain both S and Cl, with S content ranging from 100 to 1000 µg/g. Alpha corrections are automatically employed to compensate for sulfur's effect on chlorine X-rays.

Element: Cl

Units: µg/g

Sample I.D.	Standard value	Calculated value
1	0.0	0.0
2	2.0	1.7
3	5.0	5.2
4	10.0	10.3
5	25.0	25.0
6	50.0	49.8
7	75.0	74.8
8	100.0	100.2



**Figure 1:** Correlation plot Cl

## Repeatability

To demonstrate recovery, precision and repeatability of the measurement, a few calibration standards were selected with results shown here.

Element: Cl					
Units: µg/g					
Sample I.D.	Standard value	Average value	Std. dev 1σ	Instrument r	D4929-19 Part C EDXRF r
2	2.0	2.21	0.39	1.1	1.4
3	5.0	4.86	0.42	1.2	2.1

4	10.0	9.91	0.39	1.1	2.9
8	100	101.2	1.71	4.7	4.9

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## Conclusion

NEX DE gives excellent performance for the measurement of organic chloride in crude as per ASTM D4929 Part C. NEX DE also complies with many other ASTM and ISO methods for critical measurements in the petroleum industry, making it an excellent choice as a multi-purpose analyzer in the petroleum industry.

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## Related products



### NEX DE Series

High-power 60 kV EDXRF systems delivering speed, precision, and small spot measurements