



## On-line solution for monitoring of the salt concentration in crude oil

### Process

Excessive chloride (salt) left in the crude oil frequently results in higher corrosion rates in refining units and also has detrimental effects on catalysts used in these units. The operation of a desalting system can be very challenging due to changing process variable. To improve the process control, reduce costs and to use the desalter as efficiently as possible, accurate and reliable on-line Salt in Crude Oil data is needed.

### Solution

With more than 25 years of experience in process analyzers and systems in the oil and gas industry. Hobré Instruments understands the need for accurate and reliable data. Hobré Instruments has set a new standard in the quality of on-line analyzing of the salt concentration in crude oil. By combining two extensively proven concepts, the sample conditioning system and the HI2040 Salt in Crude analyzer, a high-quality Salt In Crude measurement based on the ASTM method D3230 is achieved.



### Key benefits

- Measurement of salt content from 0 – 400 PTB
- Fast analysis cycle of <10 minutes
- Repeatability of 2% or less
- Uptime of 99.5%
- Accuracy of 5%



### Scope

This test method covers the determination of the approximate chloride (salts) concentration in crude oil. The range of concentration covered is 0 -15 PTB / 0 - 400PTB as chloride concentration/volume of crude oil. The test method measures conductivity in the crude oil due to the presence of common chlorides, such as sodium, calcium, and magnesium. Other conductive materials may also be present in the crude oil.





## SPECIFICATIONS: SALT IN CRUDE ANALYSER HI2040

### Performance

Measurement Cycle Time	:	<10 minutes
Measurement Ranges	:	selectable, max 0 - 400PTB
Repeatability	:	+/- 2 % of measured value or better
Accuracy	:	+/- 5% of measurement value correlates to ASTM D 3230
Calibration	:	automatic

### Sample requirements

Sample Flow Rate	:	±100 ml/min at analyzer inlet
Sample Pressure	:	max 6 barg at inlet
Sample Temperature	:	min. 5 °C (41 °F) - max. 60 °C (140 °F)
Sample filtration	:	40 micron required, max load 0,1 gr/l
Water content	:	up to 0,2 % water is acceptable
Sample conditions	:	homogenous, single-phase

### Enclosure

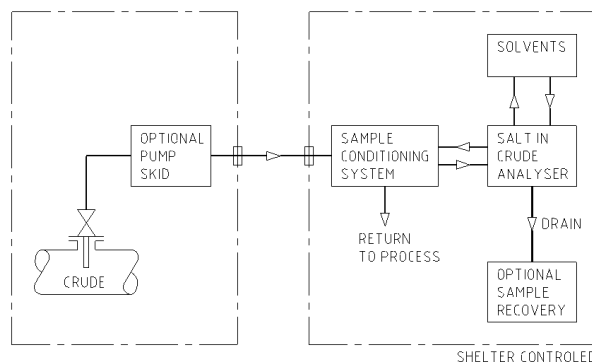
Dimensions	:	width 800 mm, height 870 mm, depth 510 mm
Weight	:	+/- 80 kg (analyzer)
Operating Temperature	:	min. 20 °C (68 °F) - max. 40 °C (104 °F)
Enclosure design	:	Zone 1 IICT4, ATEX certified; air purged enclosure, IP66
Power	:	230 VAC / 50 Hz

### Utility requirements

Electrical	:	230 VAC / 50 Hz, 1000 Watts
Instrument air	:	Clean, dry instrument air at 25 nlpm (prepurge flow 1,5 l/s), (P <sub>min</sub> 4 barg - P <sub>max</sub> 6 barg)
Cleaning solvents	:	Naphtha per ASTM D91
Measurement solvents	:	Alcohol 37/63 mixture of Absolute Methanol and n-Butanol (reagent grade); Xylene – Nitration grade (per ASTM D843)
Calibration liquids	:	Salt solution (water); salt free oil (viscosity 20Cst@40°)

### Connections

Analogue output	:	1x 0/4 – 20 mA
Digital output	:	1x I/O card digital output with relays contacts 24 V AC/DC 0,5 A including 4 isolated digital output relays
Digital input	:	1x I/O card digital input with 8 input contacts 24V including 4 isolated digital input relays
Serial output	:	optional



**Typical block diagram  
Salt In Crude Monitoring**

