



CE

From the collaboration between Baggi and Lintech born SENSEVOLUTION SIC, the new device for monitoring and controlling the quantity of salt in hydrocarbons

ASTM D3230

Standard Test Method for Salts in Crude Oil (Electrometric Method).

This test method covers the determination of the approximate chloride (salts) concentration in crude oil. The range of concentration covered is 3.5 mg/kg to 500 mg/kg or 1.0 lb/1000 bbl to 150 lb/1000 bbl (PTB) as chloride concentration/volume of crude oil.

This 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.

Mixing system

The mixing system is composed by a motorized syringe fed by 6 tanks that are connected to a motorized 7 ways valve. The valve selects the tank from which the solvent is pulled and has a position for pushing to the cell through a calibrated pipe that contains the fresh sample of oil.

Results

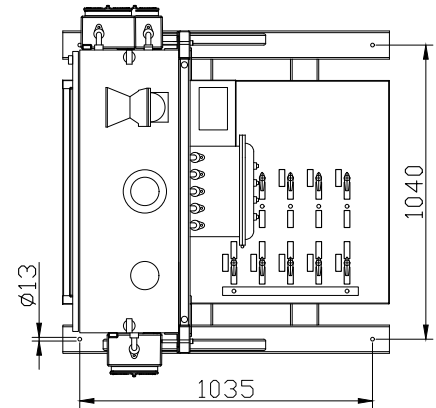
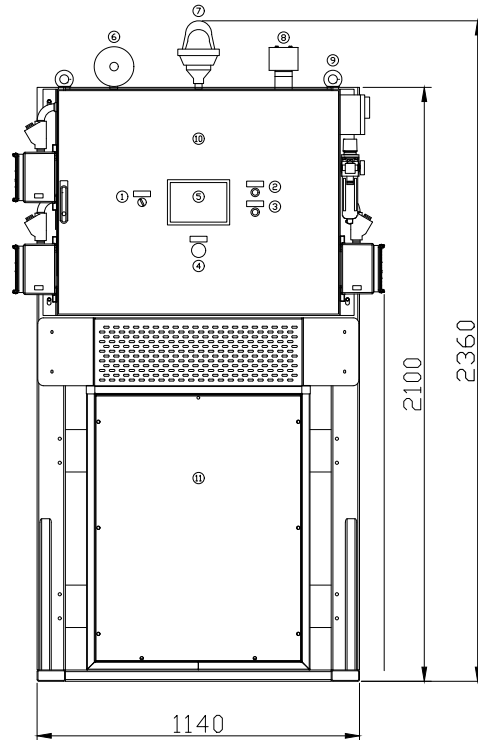
- The result is written as a 4..20mA linearized to 0 to 20PTB on 2 analog outputs (the second analog output marked as "ANALOG RESULT BACKUP" in electrical drawing is a duplicate of the first one has been foreseen in case of fault of the first channel).
- The result is also written in register 40001 of modbus as a fixed point value.
- From modbus it is possible to access also the last 100 analysis of the instrument.
- Instrument is equipped with redundant Modbus RTU interface.

Alarm

- If the result is greater than 10PTB (Pounds per Thousands of Barrels).
- The alarm trigger can be configured via HMI on analysis options page.

Sampling system

- An internal fast loop provided with adequate pressure reducer and mutex filter to feed the analyzer.
- A slow loop after the fast loop outlet provides the right quantity of sample needed by the system.
- Material: SS316L.
- Tubing 6 × 4 mm



Technical Specifications

• Measuring principle:	Electrometric	• Alarm signal:	High limit. Free configurable (desired set point 10PTB) equivalent to 29 mg/l.
• Detector:	Conductivity cell	• Solids:	max size 40 microns, amount less than 0,1 g/l.
• Solvents:	Solvent: Xylene Solvent Mixture: absolute Methanol/Butanol Cleaning Solution: Naphta	• Sample wetted parts materials in the instrument:	Standard manufacturer.
• Reagent containers:	3 × 12 litre for Methanol/Butanol, CRM and Blank 2 × 19 litre for rinse solution and Xylene carrier	• Ambient temperature:	5... 56 °C.
• Reagents consumption:	Approx. 1 litre /hr reagents + 1 litre/hr cleaning	• Sample inlet pressure:	2 bar max.
• Measuring range:	0..20 PTBequivalent to: 0...57 mg/l	• Sample discharge:	Gravity outlet, atmospheric to drain.
• Display:	7" with touch screen key board	• Instrument air:	4-6 bar, clean, oil free and dry, consumption: max 100m³/hr.
• Electronic part:	With supervisor PLCprogrammed	• Sample inlet temperature:	max 62°C.
• Detection limit:	\	• Area classification:	Zone 2, Group IIBT4, EEx (p).
• Accuracy:	5% of measurement, correlated to ASTM D3230	• Protection degree:	IP 65/NEMA 4.
• Power supply:	230 V, 50 Hz	• Cabinet:	For outdoor installation with front door and inspection front window, H ₂ S and HC inside the cabinet, maintenance request.
• Repeatability:	2%	• Cabinet material:	SS316L.
• Power consumption:	500 W	• Cabinet approx. dimensions:	TBD.
• Cycle time:	about 7 minutes + cleaning time.	• Sample connections:	Inlets and outlets ¼".
• Output:	1 × 4..20mA linear output 2 serial RS485 Modbus	• Electrical connections:	JBboxes EEx (d) on side wall.
• Signaling /warnings:	General fault, presence of H ₂ S and/or HC inside the cabinet, maintenance request.	• Provided to return sample: Material:	SS316L.
• Sample volume:	20 cc/hour.	• Provided with shutoff valve and a ¼" connection.	
• Sample flow:	approx. 100 cc/min during sampling.	• Engineered for the process conditions.	