AMETEK®
PROCESS INSTRUMENTS

MEASURES: **Sulfur**

PRODUCT DATA SHEET

682T-HP Online Sulfur Analyzer

Sulfur analysis in highly viscous hydrocarbons

The 682T-HP is designed for analysis of sulfur in highly viscous hydrocarbons. This system is ideal for processes where sample pressures are high and in situations where fouling of flowcell windows with paraffin or similar substances can occur.

Fast and reliable

The 682T-HP analyzer is faster, more sensitive and more compact than previous systems. It provides continuous, reliable detection of sulfur at working process pressures. It can operate as a stand-alone analyzer or can be tied in to plantwide automation systems to provide real-time strategic measurements.

Integrated processor

Operation of the analyzer is regulated by an integrated processor that monitors instrument parameters such as process temperature, density, and system diagnostics. It also provides a suite of alarms and a standard platform for communicating to a plantwide DCS. The system has minimal, if any, sample conditioning and recovery requirements.

XRT analysis

The sample flows through a flowcell and is irradiated with a source of high-energy x-rays, which are absorbed by the sulfur atoms. A detector on the opposite side measures the x-rays that get through and that signal intensity is inversely proportional to the sulfur concentration.

KEY BENEFITS

- Fully integrated densitometer
- Automatic density compensation
- Touchscreen controls with password-protected screens
- Rapid update rates, as frequent as one per every five seconds
- Proprietary window in flowcell can withstand pressures in excess of 800psig/55bar
- Large flowcell diameter reduces interferences

APPLICATIONS

Online monitoring of sulfur in:

- Crude oil
- Marine bunker fuel
- Pipelines
- Terminals
- Blending operations to maximize sweet sulfur content

KEY MARKETS

- Refining
- Terminal operations
- Marine fuel

PERFORMANCE SPECIFICATIONS

Process conditions

Normal product	Crude oil, heavy hydrocarbons, bunker fuels
Sulfur concentration	0.02 to 6%
Pressure at flowcell	Up to 800 psi*
Flow rate at cell	Up to 200 L/min
Temperature	240°C (464°F)*
Density gauge	Required (supplied by AMETEK or the customer)
Ambient temperatures	Minimum -5°C (23°F), maximum 55°C (131°F)*

Enclosures

Standard	Stainless steel, NEMA 4X (IP65), NEMA 7 Ex d
Dimensions (W x H x D)	Enclosure: 914 x 762 x 304 mm (36 x 30 x 12 in.) minimum
Purge	Type X Purge for Zone 1, Groups IIC/IIB (ATEX Category 2). Type Z Purge for Zone 2, Groups IIC/IIB (ATEX Category 3) and Class I Division 2, Groups B, C, D. Contact factory for other available HazLoc ratings
Optional	Enclosure heating and cooling are available
Power	115 or 230 VAC ±10%, 50x60 Hertz, 80 W typical, 300 W max

Controller

Interface	
Class 1 Div 2	External touchscreen interface, power switch, valve control switch, remote/local control switch, capture enable
Class 1 Div 1	Internal touchscreen interface, power switch, valve control switch, auto start/stop switch, capture enable
Standard outputs	4-20 mA for sulfur and density, dry contact for common alarm, enclosure purge status, data valid, RS485 serial data
Optional outputs	Modbus via RS485 is standard, with Ethernet and Profibus available as standards
Standard inputs	Densitometer input, dry contact for analyzer stop/start, mode switching, for Cal Set selection

Measurement flowcell

Technique	X-ray transmission (XRT)
Analysis time	Nominally 100 seconds
Typical one sigma precision	±50 ppm @ 0.1 Wt% sulfur ±30 ppm @ 3.2 Wt% sulfur (consult AMETEK for application)
X-ray source	X-ray tube
X-ray detector	High-resolution gas filled proportional counter

* Contact an AMETEK representative for special requirements

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