H_2S Analyzer

Rapid measurement of H_2S in liquid petroleum products

For Marine Fuel:

IP 570 'Determination of Hydrogen Sulphide in Fuel Oil - Rapid Liquid Phase Extraction Method'

Who should use the H_2S Analyser?

- Refineries and Fuel Blending Locations
- Tank Storage Terminals
- Marine Bunker Fuel Suppliers
- Product Transfer Inspection Companies
- Independent Analytical Laboratory Services

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IP 570 method '*Determination of Hydrogen Sulphide in Fuel Oil - Rapid Liquid Phase Extraction Method*'

IP 570 included within ISO DIS 8217 Marine Fuel specification


Marine Fuel


Refinery


Deisel Fuel


Crude Oil

- Heavy Residual Marine Fuels
- Distillate Marine Fuels
- Fuel Oils
- Road Transport Diesel Fuels
- Stationary Power Fuels
- Refinery Feedstocks
- Light Distillate Products
- Crude oils

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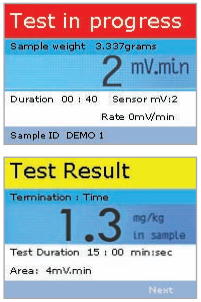
Rapid measurement of H_2S in liquid petroleum products

An advanced instrument for the rapid measurement of H_2S in liquid petroleum products, including residual marine fuels, fuel oils and refinery feedstock components

- IP 570 new approved test method for H_2S
- H_2S content of fuel blends, cargoes & products in the distribution system
- Wide measurement range (0-250 ppm H_2S)
- Fast measurement time of 15 minutes
- No wet chemistry involved
- Small lab bench footprint, fully portable operation
- Critical Measurement method for Product Safety



The H_2S Analyser has been developed with support from Lloyd's Register's 'Fuel Oil and Bunker Analysis Service' (FOBAS) and other major international oil companies and provides a very simple-to-use instrument.

H_2S is efficiently purged from the test sample by a combination of heat and agitation, and is measured by an advanced H_2S specific detector system.

The instrument offers a highly cost effective solution for H_2S measurement – no expensive chemicals are required and there is no need for analytical preparation by an expert chemist.

The H_2S Analyser provides an excellent analytical tool which supports improved product Quality Control and Safety helping to ensure products meet approved specifications.

The instrument also assists with product remediation treatment of feedstock components and off-spec products, offering very fast determination of H_2S and rapid repeat sample measurement capability.

The Analyser also has the capability to measure certain crude oil and other distillate products (in conjunction with technical guidance from SetaAnalytics).

Principle

A small volume of sample is dissolved in a specially formulated diluent and heated under precisely controlled conditions to release any entrained H_2S present in the sample.

Clean air is passed through the test vessel and purges any H_2S gases into the sensor chamber where gas levels are measured; airflow through the sensor is monitored by a mass flow meter. When H_2S concentrations have been fully driven off from the sample, the Analyser will calculate and report the total volume of H_2S released.

Operation

20ml volume of diluent is decanted into the test vessel, which is then inserted into a heater chamber. When the diluent has reached 60°C (approximately 5 minutes), 1ml of sample is added.

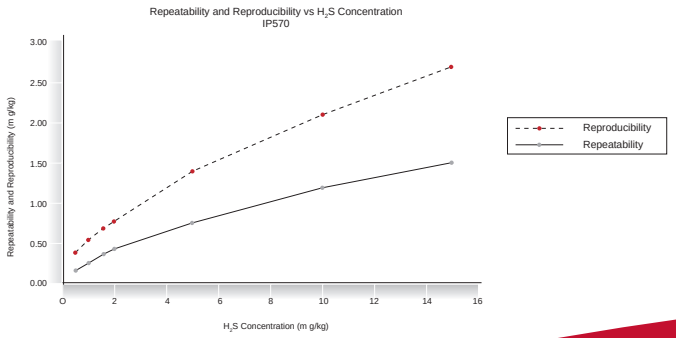
Sample identity, operator name, empty/charged syringe values are input via the control membrane panel and the test is initiated by pressing the START/STOP Button.

Automatic test result and error reports

Thereafter sample analysis is fully automatic and results are stored to memory at the end of each test. The Analyser software automatically detects malfunctions and alerts if sample/test analysis is void.

Download to PC

Results can be printed out or downloaded via the RS232 interface.



Specification

Measurement range:	0-250 mg/kg H_2S in the liquid phase (0-250 ppm H_2S)
Operating limits:	5 – 40°c maximum (80% RH)
Viscosity range:	Up to 3000 mm^2/s
Principle of measurement:	Advanced Electrochemical sensor
Test duration:	15 minutes
Sample size:	1ml, 2ml, 5ml (depending on H_2S concentration)
Diluent volume:	20ml
Voltage:	12V DC, supplied with universal A/C transformer
Power:	60W max
Computer interface:	RS232
Size (H x W x D)	210 x 300 x 410 mm
Weight:	8kg

H_2S – Some of the safety issues

Heightened concern regarding the risks posed by Hydrogen Sulphide (H_2S) in marine/other fuels and the need to include mandatory H_2S measurement in fuel specifications.

H_2S has acute short-term toxicity to humans, animals and aquatic life posing a serious and potentially lethal hazard.

H_2S has the potential to corrode pipelines, storage tanks and other ship components.

Some fuels may appear innocuous but can evolve and release dangerous levels of H_2S – safety checks are needed to determine the propensity of marine fuel to release entrained H_2S.

H_2S gas can accumulate as a result of storage time, elevated temperature, agitation, biotic/chemical decomposition and others factors to which the fuel may be exposed.

Significant concentrations of H_2S are known to accumulate in the headspaces of storage tanks and cargo holds.

Traditional wet chemical tests used for determining H_2S concentrations may 'unlock' H_2S within scavenged Marine Fuel and when measured may provide erroneous and unreliable test results.

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