TSHR 7000 series
TN-TS-TX analyzer

Enhanced Capabilities with Powerful Performance for Trace Level Nitrogen, Sulfur, Chlorine Analysis

Petrochemicals

Refineries

Analytical Services

Research Analysis

tsHR
INTERNATIONAL
TECHNICAL SUPPORT HEIJSTRATEN ROEST

The TSHR 7000 series TN/TS/TX Analyzer is the most enhanced, compact and easy to use Total Sulfur/Nitrogen/Chlorine Analyzer for reliable and accurate petrochemical application challenges.

The analyzer enables petrochemical, commercial testing laboratories, refineries and R&D centers to analyze liquid, Gas and LPG samples fully automatically, fast and precise. This combustion elemental analysis solution supported by Athena software makes the analysis of an extensive range of sample concentrations a routine and most powerful tool while meeting ASTM compliance.

The TSHR 7000 series TN/TS/TX analyzer is fully compliant with the following regulatory methods: ASTM D5453, D7183, D6667, D3120, D4629, D4929, D6069, D7184, EN 20846, EN 15486 and UOP 779

The TSHR 7000 model analyzer is available in the following four configurations:

- TSHR TX 7000 Total Chlorine Analyzer
- TSHR TN 7000 Total Nitrogen Analyzer
- TSHR TS 7000 Total Sulfutr Analyzer
- TSHR TN/TS 7000 Total Nitrogen/Sulfur Analyzer

Exceptional Accuracy	**Enhanced Capabilities**	**Easy-to-use**
Optimize Refinery production processes	Fast analysis times	Fully automated analysis
Final product specification testing assured	Fewer replicates required	Reduced operators time
ASTM Compliance	Cooled and Heated samples handling	Easy Access to key parts of analyzer

Refineries and Petrochemical Plants

The 7000 series TN/TS/TX analyzer meets a wide range of application characteristics and demanding challenges of oil refineries and petrochemical plants by providing a reliable, cost effective and ASTM compliance solution.

The fully automatic and maximum instrument up-time provided by the TSHR 7000 Series will support oil refineries and petrochemical plants to enhance their productivity and analyze trace level nitrogen, sulfur and chlorine samples. The compact design of the 7000 Series enables these customers to take up minimum space on the bench while offering powerful analytical benefits.

The TSHR 7000 Series TN/TS/TX analyzer is a most cost effective solution for refineries and Petrochemical Plants because it can analyze Liquids and Gas/LPG samples without extensive downtimes of the instrument due to hardware parts exchange. So it will deliver fast and ASTM compliance results to support the plant operations in a 24/7 environment.

Cost Effective
ASTM Compliance
Compact
Reliable results

Typical applications include:

- Desulfurization efficiency monitoring

- Catalyst protection in refinery processes

- Specification testing of refined products

- Quality testing of (petro)chemicals

Commercial Testing Laboratories

The TSHR 7000 Series Total Nitrogen, Sulfur, Chlorine Analyzer provides commercial testing laboratories with a powerful solution to meet their major challenges and needs, to maximize their sample throughput and profitability without compromising analytical and official methods requirements. The TSHR 7000 Series TN/TS/TX analyzer meets these requirements by enabling an increase in productivity and reduced costs of operation while ensuring ASTM compliance over an extensive range of sample types. The compact and easy-to-access design requires minimum lab bench space and features simplicity operation with enhanced performance.

The TN/TS/TX 7000 Series is the ideal solution for routine commercial testing laboratories that require results quickly and costs effectively over a wide range of applications, including:

Easy to Use
High Productivity
ASTM Compliance
Small bench space

- Testing of fuels to meet stringent regulations
- Workloads of samples that can vary from hour to hour
- Cost per analysis testing to ASTM regulatory methods
- Labs requiring fast and fully automated analysis

Research & Development Centers

The TSHR 7000 Series TN/TS/TX Analyzer is ideally designed for use in a Research and Development environment which requires high demands on versatility and extended concentration ranges with various sample types.

The 7000 model easily analyzes various liquids and gaseous samples down to low detection levels, up to high ppm/% level concentrations with high precision and consistent results.

The compact and easy-to-access design of the TSHR 7000 Series enables R&D customers to have full flexibility to control the analyzer and develop and implement new methods through Athena software.

This gives an excellent tool to Research and Development centers to support their work in develop and design solutions for their future refinery and petrochemical products.

The TSHR 7000 Series Total Nitrogen/Sulfur/Chlorine analyzer will support most versatile and high performance applications including:

- Development of alternative energy and biofuels
- Catalyst lifetime studies and development
- Lubricant oils contamination and risk analysis
- Petrochemical production process efficiency studies

**Dynamic concentration range**

Ease of Use

Versatility

Application Flexibility

Liquids Autosampler: HR 7000

The HR 7000 model autosampler is a fully fledged liquids sampler with unique capabilities to handle both high volatile and viscous samples, The HR 7000 is available in 5 different configurations with 15 and 121 sample positions, to support small and large laboratories and handle routine and challenging sample types. The sampler is controlled through Athena software and enable the user to prepare sample queues within standard configuration templates. The HR 7000 autosampler is also available with a temperature controlled sample tray and a vortex mixing tool to offer a complete solution for refinery and petrochemical application challenges.

- Compatible with all TSHR 7000 series models
- Can accommodate 2 mL screw cap sample vials
- Intelligent Dilution Protocol capability
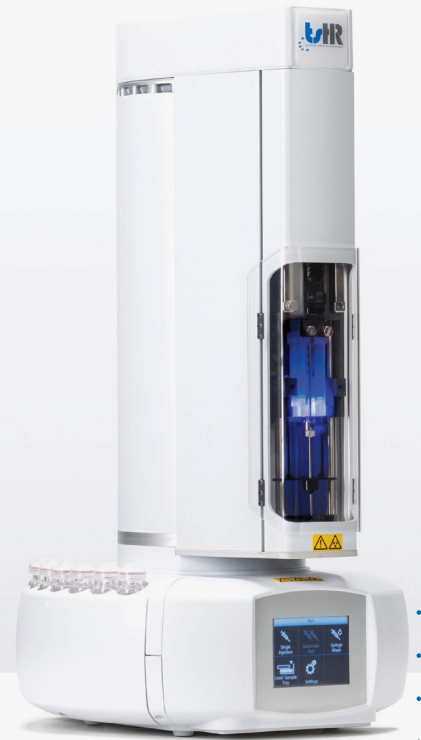
Gas & LPG sample introduction Module: GM 7000

The TSHR GM 7000 is an add-on module to the TSHR 7000 Total Nitrogen/Sulfur/Chlorine Analyzer in order to sample and introduce Gas and LPG samples into the analyzer. The module consists of a 10 mL sample loop for gas samples and a 100 uL loop for sampling LPG sample types. The GM 7000 is operated and controlled through Athena software so enable the customer to reduce the handling time and ensure ease-of-use operation.

- Easily adapt to the TSHR 7000 Series
- Enables for safe and repeatable analysis of gases and LPG
- Fully integrated Athena Software Solution
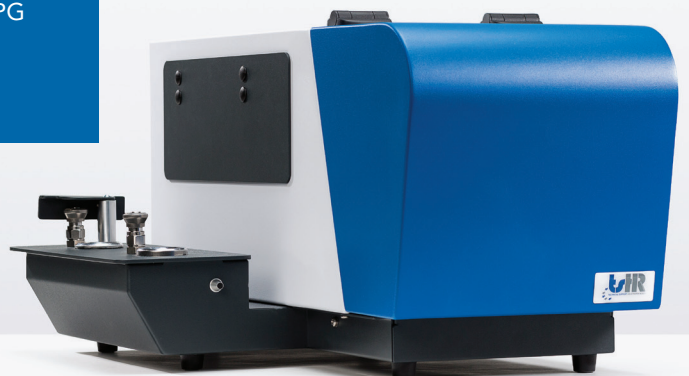
TSHR Athena Software

Ease-of-Use workflows for routine and R&D lab environments.

The Athena software package includes simple to use methods, sample workflows and analyzer control functionalities to keep your analyzer up at all time. The software will even adjust analyzer operation settings in stand-by and start-up modes to increase the productivity and help to achieve and report sulfur/nitrogen/chlorine analysis data in time.

Athena software also controls and operates the TSHR Liquid autosampler, HR 7000, and the TSHR Gas & LPG sample introduction module, GM 7000, as add-on modules to the TSHR TN/TS/TX analyzer models, which enhance customers convenience.

The Athena software includes the following key functionalities and benefits to the users:

- Real-time signal viewer and review of sample data
- Multiple calibration lines storage
- Online Temperature and Gasflow checks
- User interface control of system parameters
- Start-up/Standby options
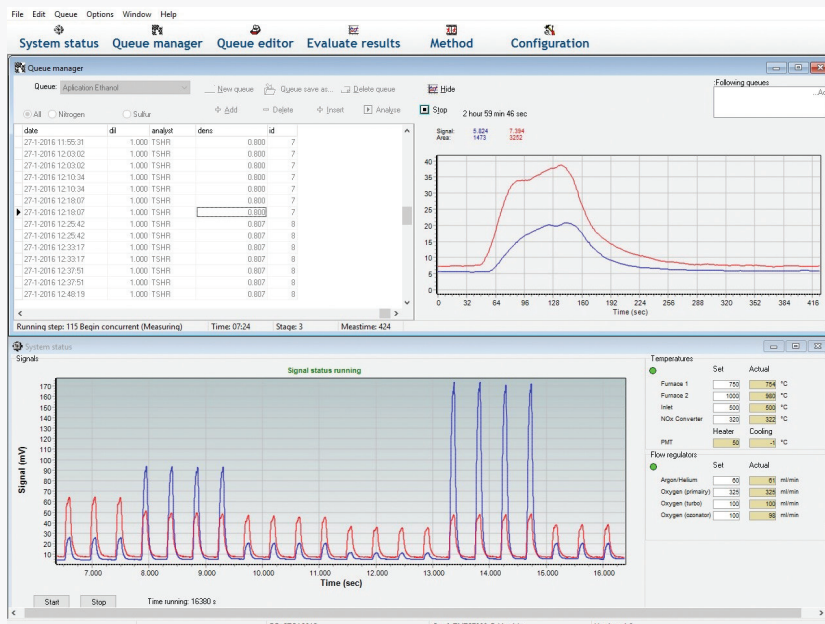
TSHR Solutions

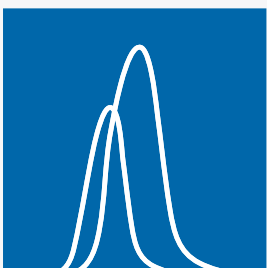# for Combustion

Elemental Analysis

TSHR Analyzer model

Analysis	1800	6000	7000
Total Sulfur		●	●
Total Nitrogen		●	●
Total Sulfur / Nitrogen		●	●
Total Chlorine	●	●	●
Total Sulfur (MCT)	●	●	●
Total Sulfur/Nitrogen/Chlorine*		●	
Accessories:			
HR 7000		●	●
GM 7000		●	●

* Not simultaneous

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