



Thermo Scientific iPRO 5000 Series
Total Nitrogen/Total Sulfur (TN/TS) Analyzer

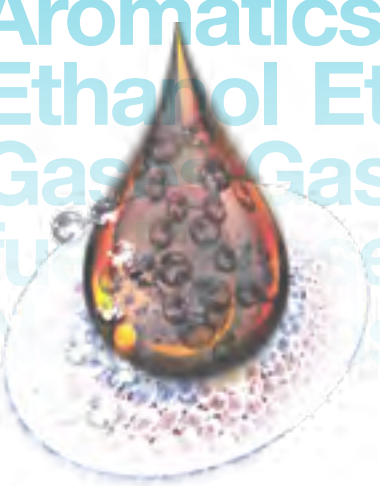
breakthrough versatility

with exceptional accuracy and precision

Petrochemicals • Refineries • Chemical Plants •
Commercial Testing Laboratories • Research and Development Centers

Thermo
SCIENTIFIC

Aromatics Bio-fuels Crude Oil Diesel Oil
 Ethanol Ethylene Fuel Additives Fuel Oil
 Gas Gas Oil Gasoline Heavy Gas Oil Jet
 Fuel Kerosene LPG Lubricating Oil Naphtha
 Natural Gas Oil Additives Olefins Propylene
 Residual Oil Vacuum Gas Oil Aromatics Bio



The **Thermo Scientific iPRO 5000 Series** Total Nitrogen/Total Sulfur (TN/TS) analyzer is the most accurate, precise and versatile solution for your petrochemical application challenges. The ultra-stable instrument enables refineries, commercial testing laboratories, R&D centers and chemical plants to analyze more precisely and accurately than ever before. Now you can analyze the most extensive range of sample concentrations and boiling points while maintaining full ASTM compliance.

Total Versatility

- Analyze widest range of sample type
- Easy to use
- Fully automated analysis

Exceptional Accuracy

- Optimize petrochemical production processes
- ASTM compliance assured
- End-product specification testing assured

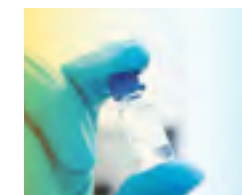
Ultimate Precision

- Fewer replicates required
- Even faster analysis
- Less frequent calibrations



A breakthrough in combustion analysis – analyze both light and heavy hydrocarbons without changing introduction modules!

To automatically analyze both heavy and light hydrocarbon samples, simply load the autosampler and press play. The fully automated, single introduction module means that there is no need to group your samples by boiling point. Your analysis time is now independent of sample boiling point.



Experience High Precision Analysis of Light Hydrocarbons

The analysis of light hydrocarbons at ultra-low concentrations now has an exceptional precision of 2% or better. Complete confidence in the results is ensured by the high accuracy, repeatability and reproducibility of the analysis.



Obtain the Fastest Analysis of Heavy Hydrocarbons

It is now possible to quantify nitrogen and sulfur concentrations in heavy hydrocarbons within 3 minutes. Compared to the standard boat method, this is a dramatic reduction in the time spent from analysis to viewing results which gives an immediate cost-saving and productivity advantage.



Analyze any liquid, LPG or gas sample using the Thermo Scientific jetPRO direct spray injector – no need to purchase two introduction modules!

The single injection module is included as standard in the iPRO 5000™ Series TN/TS analyzer and in addition to making the instrument the most versatile on the market, the jetPRO™ direct spray injector saves time, enhances quality and significantly reduces requirements for spare parts. New users require minimal training as the jetPRO™ direct spray injector is fully automated and therefore extremely easy to operate.



Increase your accuracy with pre-soot detection

The iPRO 5000 Series TN/TS analyzer contains proprietary pre-soot detection technology which ensures complete combustion that is soot-free.

The Thermo Scientific iPRO 5000 Series TN/TS analyzer is fully compliant with the following regulatory methods: **ASTM D4629, ASTM D6069, ASTM D7184, ASTM D7183, ASTM D5453, ASTM D6667, EN 20846, EN 15486 and UOP 936.**

The iPRO 5000 Series analyzer is available in three configurations:

- Thermo Scientific iPRO 5000 N Total Nitrogen Analyzer
- Thermo Scientific iPRO 5000 S Total Sulfur Analyzer
- Thermo Scientific iPRO 5000 NS Total Nitrogen and Total Sulfur Analyzer

Gases Gas Oil Gasoline Heavy Gas Oil Je
 fuel Kerosene LPG Lubricating Oil Naphtha
 Natural gas Oil Additives Olefins Propylene
 Residual Oil Vacuum Gas Oil Aromatics Bio

your solution for Oil Refineries and Chemical Plants

The iPRO 5000 Series TN/TS analyzer meets the application demands and challenges of oil refineries and chemical plants by providing total reliability, ASTM compliance and the most efficient use of bench space.

Refineries and chemical plants will experience significant reliability benefits from the maximized instrument up-time provided by the iPRO 5000 Series analyzer. The ultra compact design takes up minimal space on the bench while offering significant analytical advantages.

The iPRO 5000 Series analyzer is the ideal solution for Oil Refineries and Chemical Plants because it can analyze virtually any refinery sample from raw crude to end product while ensuring ASTM compliance and allowing optimization of refinery processes.

Typical applications include:

- Catalyst protection in refinery streams
- Infrastructure corrosion prevention
- Specification testing of refined products or by-products
- Desulfurization efficiency monitoring
- Custody transfer of raw or processed petrochemicals
- Quality testing of raw or processed petrochemicals
- On-line analyzer cross checking
- Waste chemical analysis



Reliable

Compact

ASTM Compliant

your solution for Commercial Testing Laboratories

The iPRO 5000 Series TN/TS analyzer solves many of the major challenges encountered by global commercial testing laboratories that have a critical need to maximize value and profitability without compromising ASTM compliance.

The iPRO 5000 Series analyzer meets these challenges by enabling an increase in productivity and profitability of up to 400% while ensuring ASTM compliance over an extensive range of sample types. In addition, due to the inherent simplicity of its design, the instrument requires minimal bench-space and is fully automated and therefore extremely easy to use.

The iPRO 5000 Series analyzer is the ideal solution for commercial testing laboratories that need ASTM compliant

results quickly and cost effectively over a wide range of applications, including:

- Cost per analysis testing to ASTM regulatory methods
- Testing of fuels to stringent legal specifications
- Workloads where the sample type can vary widely from hour to hour
- Labs requiring fully automated analyses of light and heavy hydrocarbons in one run
- Regulated laboratories requiring traceability
- Applications requiring customized reporting



ASTM Compliant

Cost Efficient

Easy to Use

your solution for R&D Centers

The iPRO 5000 Series TN/TS analyzer is extremely versatile and can analyze over a wide concentration range making it the ideal solution for research and development centers.

The iPRO 5000 Series easily analyzes virtually any liquid, LPG or gas sample and can achieve exceptionally low detection limits with high precision and consistent reproducibility.

The analyzer has been designed to ensure that the user has complete flexibility and control of the instrument. The user can conveniently access and export data from all instrument sensors and manipulate a wide range of instrument parameters. The iPRO 5000 Series analyzer is designed to be a key tool for the development of future petrochemical products.

The iPRO 5000 Series analyzer is the most versatile choice for high performance applications including:

- Development of new fuels & catalysts
- Biofuel development
- Feedstock development
- Lubricant development
- Optimization of refinery processes
- Used oil analysis
- Lubricant contamination monitoring

The iPRO 5000 Series analyzer is the ideal solution for research and development centers needing precise analysis, accurate results and high performance.

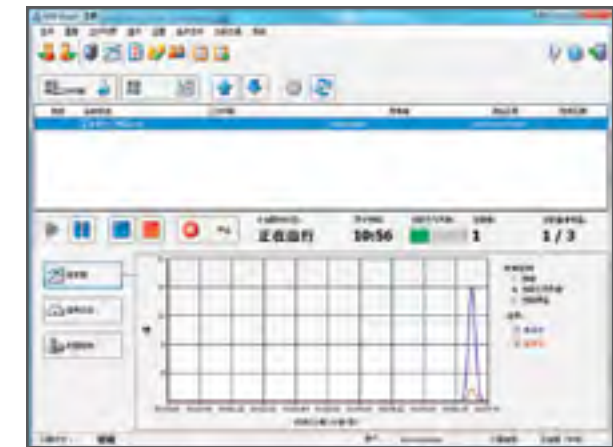


Versatility

Performance

Flexibility

Thermo Scientific iPRO 5000 Series Accessories and Software



Thermo Scientific NSX Visual Software: Simplifying workflows for total ASTM Method Compliance.

The software includes pre-loaded ASTM compliant methods which enable the user to simply select the required method and start the analysis. The software will even alert the user if method parameters are changed to a value which is outside the scope of the selected official ASTM Method.

- Extremely intuitive and easy to use
- Compatible with Windows® 7 and Windows® XP
- Features remote desktop with Laboratory Information Management System (LIMS) compatibility
- Multiple language versions, including Russian, Arabic and Chinese
- Ideal for regulated laboratories requiring multiple user levels

Thermo Scientific AS 3000 Direct Injection Autosampler

automated analysis of up to 105 2mL sample vials

enables a typical automated analysis time of 2-3 minutes

includes an 8 position tray which is fully interchangeable in the field

Thermo Scientific AI 3000 Direct Injection Autosampler

automated analysis of up to 8 2mL sample vials

enables a typical automated analysis time of 2-3 minutes

easily field upgraded to analyze a maximum of 105 samples

Thermo Scientific EGM-III Gas & LPG Sample Introduction Module

- Easily adapts to the iPRO 5000 Series for a fully integrated solution
- Enables the safe and repeatable analysis of gases and LPG
- Compatible with a wide range of gas handling vessels and apparatus up to a maximum pressure of 20 bar

Thermo Scientific Sulfinert EGM-III Gas & LPG Sample Introduction Module

- Allows the analysis of sulfur in gases or LPG below 1 ppm
- Provides ultra low detection limits and extreme sensitivity
- Essential for the analysis of sub ppm sulfur concentrations in gases and LPG up to a maximum pressure of 20 bar

Thermo Scientific Solutions for Petrochemical Elemental Analysis



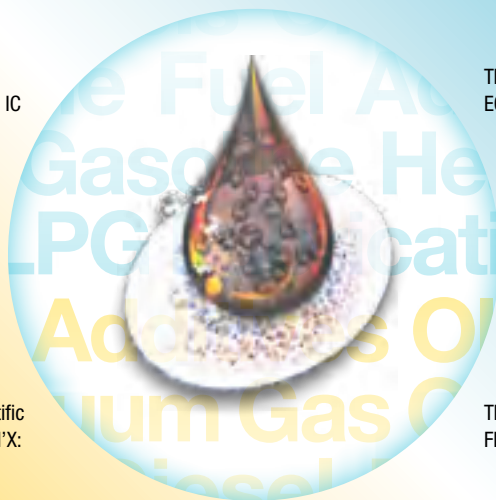
Thermo Scientific
Dionex ICS-2100: IC



Thermo Scientific
iPRO 5000 Series: TN/TS



Thermo Scientific
ECS 3000: TX



Thermo Scientific
ARL PERFORM'X:
WDXRF



Thermo Scientific
FLASH 2000: OEA



Thermo Scientific
iCAP 6000 Series: ICP-OES



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