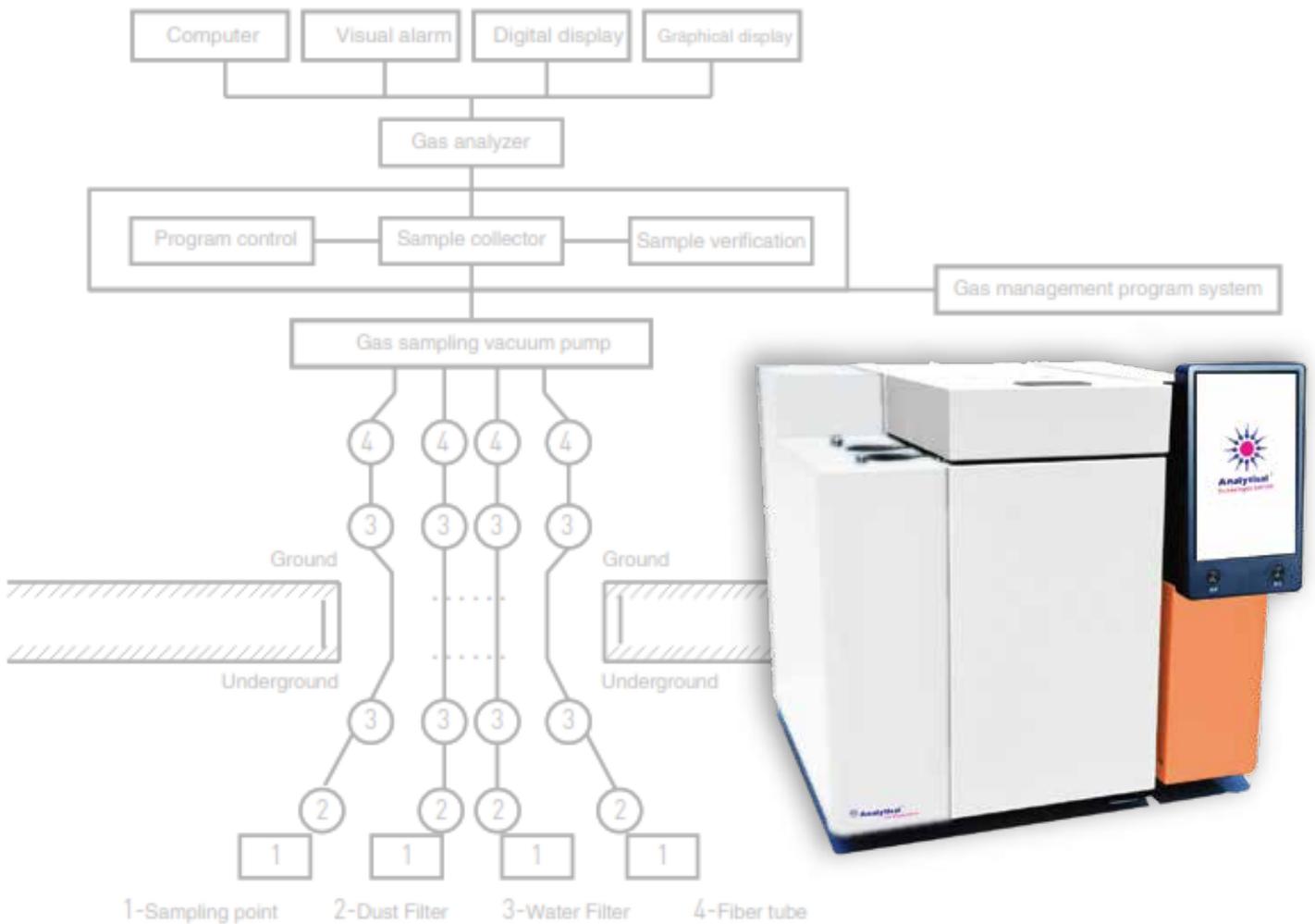


3000 Series

Underground Coal mining GC Setup



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

The GC-3000 Gas Chromatograph is a new generation of mining gas chromatographic products. Building upon the stability and reliability of the GC-4008 series, it features a fully Electronic Pneumatic Control (EPC) gas path, a 10-inch touch screen, and Ethernet communication. These enhancements provide the instrument with higher automation capabilities and more comprehensive human-machine interaction, further meeting customer demands for automation and real-time data network transmission. It is suitable for coal mine analysis laboratories, performing mine gas analysis, fire forecasting, gas explosion risk assessment, comprehensive analysis of fire gas components for mine rescue, and predicting/sealing removal indicator assessment for fire extinction levels.

Characteristics:

- **Rapid Analysis:** Completes the analysis of 13 components in fire gas—CO、CO₂、H₂、O₂、N₂、CH₄、C₂H₄、C₂H₆、C₂H₂、C₃H₈、C₃H₆、iC₄H₁₀、nC₄H₁₀—within 10 to 15 minutes after a single sample injection.
- **10-inch Color Touch Screen:** Features an aesthetically pleasing, user-friendly interface for easy operation. Various parameters can be set directly via the touch screen.
- **Comprehensive Safety Protections:** Includes functions such as over-temperature protection, low-temperature alarm, open-circuit protection, and gas supply failure protection.
- **High-Precision Electronic Flow Controllers:** Employed to accurately display the flow rate in each gas stream, ensuring the accuracy of analytical results and excellent reproducibility.
- **Mobile APP Support:** Allows remote control and monitoring of the instrument using a smartphone or tablet.
- **Anti-Scalding Oven Function:** The oven motor automatically stops, and the oven heater ceases heating when the door is opened, resuming automatically when the door is closed.
- **Optional System Networking & Data Upload:** Data upload capability can be achieved by integrating the client platform's data communication protocol into the workstation, enabling data transmission in the format required by the customer.
- **Fully Automated Operation:** The instrument is automatically controlled by a computer. It can be configured with a tube bundle monitoring system for uninterrupted cyclic sampling and analysis. It enables unattended monitoring, automatically prints analysis reports, and simultaneously facilitates network data transmission.

Main Components:

Vacuum Pump: Draws gas from each monitoring and sampling point to the analytical instruments in the gas analysis center via the main header pipe connected through the gas sampling control unit.

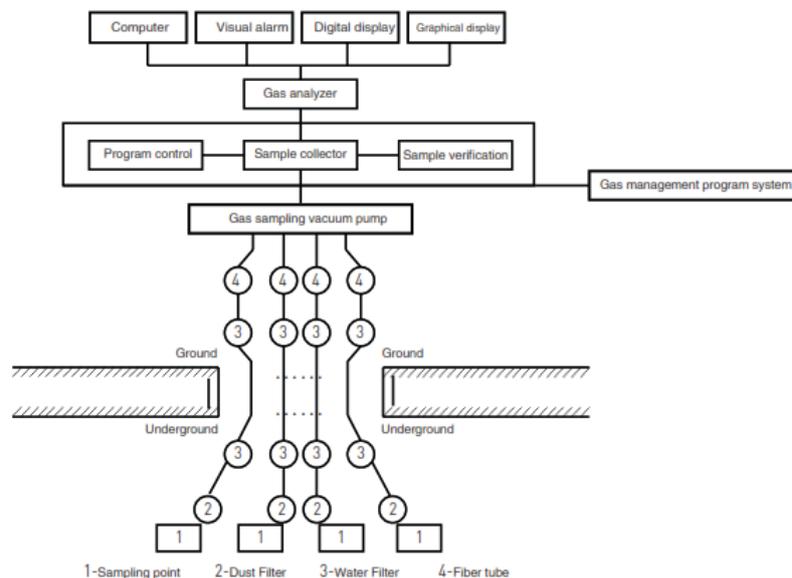
Gas Sampling Control Unit: Contains preset programs for automatic control, cyclic sampling, and point-by-point analysis.

Dedicated Gas Chromatograph : Measures the gas component concentrations at each monitoring point in real-time.

Dedicated Software for Judging Gas Explosion Risk (Fire Gas Explosion Triangle Prediction): Assesses the degree of gas explosion risk and provides alarms.

Working Process:

Gas is collected from multiple underground sampling points. After dust filtration, it is transported through individual pipes to a junction box. Following preliminary water filtration, it connects to the main bundle tube leading to the surface analysis room. Upon entering the sampling cabinet, it undergoes secondary water filtration. A small amount of "fresh" sample gas is automatically and cyclically introduced into the chromatograph for analysis. The remaining gas is expelled outdoors via the vacuum pipe system.



Application:

- **Early Prediction and Monitoring of Spontaneous Coal Combustion:** Continuously monitor the composition and concentration changes of marker gases during the coal spontaneous combustion process to prevent spontaneous fires and gas explosions.
- **Inert Gas Firefighting Operations:** Track and assess the inerting status within the operation zone during fire prevention and extinction using inert gas, thereby supporting the effectiveness of fire suppression measures.
- **Application Scope:** Suitable for monitoring goafs, high roof areas in roadways, and

sealed fire zones. It helps determine the development status of sealed fires and the extent of fire extinction, providing a basis for reopening sealed fire areas. It also monitors nitrogen injection into the goaf of fully mechanized top-coal caving faces, providing data to support the volume and quality of nitrogen injection.

The 3200/3200B Mine Spontaneous Fire Monitoring System is a complete set of equipment that uses a vacuum pump and a multi-core plastic bundle tube to extract gas samples from remote monitoring points. It employs a dedicated gas chromatograph for continuous analysis and real-time measurement of gas component concentrations at each monitoring point ("Chromatographic Analysis of Marker Gases for Spontaneous Combustion of Coal Seams and Measurement of Indicators"). The system can also trigger alarms when the concentration of marker gases during coal spontaneous combustion exceeds set limits. This system has obtained the "Safety Mark Certificate for Mining Products" from the government.

- It primarily consists of a Surface Gas Analysis Center and an Underground Bundle Tube Sampling System.
- Underground Sampling Pipeline System: Includes sampling tubes, bundle tube cables, and pipeline accessories (dust filters, water traps, distribution boxes).
- Surface Gas Analysis Center: Comprises a vacuum extraction pump, gas sampling control cabinet, dedicated gas chromatographs, data processing workstations, specialized software for judging the risk level of gas explosions, etc.

Technical Features and Specifications:

• Fully Automated Operation:

The instrument is automatically controlled by a microcomputer. One system serves multiple underground sampling points and performs multi-component gas analysis, enabling continuous cyclic sampling for 1-32 points. It allows for dual monitoring modes: unattended operation and manual settings. Three columns perform automatic sample injection and analysis simultaneously. Data can be transmitted via network.

• Safe and Reliable Surface Analysis and Negative Pressure Sampling System:

The analysis center and negative pressure power source are located on the surface. Underground sensors are non-electrochemical. Surface electrical equipment does not require stringent explosion-proof ratings. This system is particularly safe and reliable for sampling gas from goafs and sealed areas, and is easy to maintain.

• Integrated Gas Sampling Automatic Control Cabinet:

Integrates three major components: the gas sampling system, flow display and regulation device, and the surface secondary water filtration device. It features a compact size,

fewer pipe connections, and shorter pipelines, minimizing gas flow resistance. The connection from the underground bundle tube to the surface analytical instrument requires only one connection point, simplifying installation and eliminating the dense, spider-web-like tubing connections common in conventional laboratory setups.

- **Zero-Resistance Vacuum Pipeline Automatic Check Valve:**

Prevents water backflow in the event of a sudden power outage and avoids contamination of sample gas within the bundle tubes after temporary shutdown. This control device operates synchronously with the vacuum pump, automatically controlling the opening and closing of the vacuum pipeline. It effectively prevents backflow and sample gas contamination after shutdown, ensuring continuous and effective sample gas immediately upon restart after a short stop. It imposes no resistance or pressure loss on the vacuum system.

- **Flow Display and Regulation:**

Each bundle tube line is equipped with a flow display and adjustment device, providing a clear visual indication of the operational status of each line. It measures the flow velocity and rate in each bundle tube, accurately determining the lead time for the sample gas from each line being analyzed. Flow monitoring detects blockages in underground bundle tubes, allowing for prompt intervention and resolution.

- **Optimized Negative Pressure Pipeline System Ensures Pumping Efficiency:**

The optimized design of the vacuum pump inlet and exhaust port diameters is an effective means of ensuring pumping efficiency. Features like dual vacuum pump switching, automatic check valve function, and emergency bypass pipeline switching ensure instantaneous and reliable switching of the dual-pipeline system during emergencies.

- Capable of Sampling and Monitoring Over Long Distances
- Short Control Time per Sampling Line Analysis Cycle

3285 Mine Gas Multi-Point Parameter Chromatographic Automatic Analyzer:

The 3285 Mine Gas Multi-Point Parameter Chromatographic Automatic Analyzer is the third generation of mining gas analysis instrumentation. Building upon the excellent performance of the 3085 and 3085B products, it features further upgrades in gas path control, temperature control, parameter monitoring, and automation. The number of analytical components has been increased from the original 8 to the current 13, better satisfying the increasingly stringent demands of mine safety for the accuracy and precision of detection data, as well as the need for timely real-time data upload.

The 3285 analyzer, equipped with a multi channel tube bundle monitoring system, is suitable for the analysis and monitoring of gas components at various stages of the mine production process:

Analysis of gas components in underground coal mines, concentration analysis of coalbed methane components, and analysis of gas components involved in coal and gas outbursts. Early prediction and forecasting of spontaneous combustion in coal seams, continuous monitoring of marker gas components and concentration changes during the coal spontaneous combustion process, preventing spontaneous fires and gas explosions.

During inert gas fire prevention and extinction operations, assessing the development situation of sealed fire zones and the degree of fire extinction, tracking the inertization status of the operational area, providing support for firefighting measures, and supplying scientific data for the unsealing of fire zones.

Performance Characteristics:

- **Fully Automated Operation:** The instrument is automatically controlled by a computer, enabling continuous cyclic sampling and analysis of multiple points. It supports dual monitoring modes: unattended operation and manual settings. It simultaneously automatically prints analysis reports and enables network data transmission.
- **Configured with Dual Ovens (High and Low Temperature) :** Completes the analysis of 13 fire gas components—CO、CO₂、H₂、O₂、N₂、CH₄、C₂H₄、C₂H₆、C₂H₂、C₃H₈、C₃H₆、iC₄H₁₀、nC₄H₁₀—within 10 to 15 minutes after a single sample injection.
- **Three Pre-column Devices:** Effectively prevent the three analytical columns from contamination, ensuring long-term, uninterrupted operation of the entire instrument.
- **10-inch Color Touch Screen:** Features an aesthetically pleasing, user-friendly, and easy-to-operate interface with a rational layout. Various parameters can be set via the touch screen or computer.
- **Remote Monitoring & Control via Mobile APP:** Allows remote control and monitoring of the instrument using a smartphone or tablet via a dedicated APP.
- **Chromatography Data System with Ethernet Control:** Controls the chromatograph via an Ethernet interface, enabling real-time instrument monitoring and control.
- **Comprehensive human-machine interaction is achieved through full parameter control and setting.**

Correlation Calculations & Flexible Reporting: Capable of flexibly generating comprehensive reports, displaying trend curves for component concentrations over stages, and performing explosion triangle calculations and judgments.



3295 Portable Mining Gas Chromatograph:

The 3295 Portable Mining Gas Chromatograph is a portable gas analyzer launched Instruments. This instrument complies with the "Mine Rescue Regulations" and is configured with three detectors, enabling the simultaneous analysis of eleven mine gas components. It meets the needs for full-component analysis of mine gases at the mine operation site or in the laboratory, monitoring the concentration changes of gas components during the coal spontaneous combustion process to prevent spontaneous fires and gas explosions. It can also detect trace concentrations of H₂S in mines. Based on the analysis and detection results, mine operation personnel can control mine ventilation to prevent poisoning incidents caused by excessive hydrogen sulfide levels.



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Based on the analysis and detection results, mine operation personnel can control mine ventilation to prevent poisoning incidents caused by excessive hydrogen sulfide levels.

Performance Characteristics:

- Equipped with an automatic ten-port valve injection system.
- Features a built-in automatic negative pressure sampling device.
- Large-screen touch LCD display with one-touch startup functionality.
- Requires only one type of carrier gas; no fuel gas or support gas needed. Includes a built-in carrier gas cylinder.
- During inert gas fire prevention and extinction operations, it assesses the development of sealed fire zones and the degree of fire extinction, tracks the inertization status of the operational area, provides support for firefighting measures, and supplies scientific data for the unsealing of fire zones.
- The data workstation directly reads the peak area data and concentration content of each component.
- Three-channel design: Channel A detects O_2 , N_2 , CH_4 , CO_2 , Channel B detects C_2H_4 , C_2H_6 , C_2H_2 , C_3H_8 , H_2S , Channel C detects H_2 , CO .
- Minimum Detectable Concentration: O_2 , N_2 , CH_4 , CO_2 not more than 0.1%; H_2 , CO not more than 5 ppm, C_2H_4 , C_2H_6 , C_2H_2 , C_3H_8 , H_2S , CO not more than 5 ppm.
- Quantitative Repeatability: $\leq 3\%$.
- Constant temperature column oven to ensure parameter stability.
- Weight: ≤ 10 kg.

3095(A) Portable Gas Analyzer for Coal Mines:

Feature:

- Convenient Operation: Requires only one type of carrier gas, with no need for fuel or support gases.
- Non-Destructive Testing: Allows for secondary analysis and re-testing of the sample gas.
- Simple Operation: After sample injection via the rotary ten-port valve, the instrument starts automatically, begins peak detection, and stops automatically once all components are analyzed. It directly generates a concentration report without any additional processing.
- Ample Storage & Data Management: The instrument's memory can store up to 2000

test results and the latest 56 sets of raw test data. Data can be backed up to a computer via the workstation. Raw data is available for re-analysis within the workstation, and result data is saved in text file format for easy customer extraction and reporting.

• **Integrated Data System Compatibility :** Coal Mine Gas Analysis Data Processing System (featuring a built-in explosion triangle analysis system), instrument data can be seamlessly transmitted to the workstation for more efficient data processing and analysis.



Application Range:

The 3095(A) Portable Gas Analyzer for Coal Mines is primarily used for multi-component analysis of air composition in underground mines. It can be used for full-component analysis of mine gases at the mine operation site or in the laboratory, monitoring the concentration changes of gas components during the coal spontaneous combustion process to prevent spontaneous fires and gas explosions. When used for on-site analysis at mine operation sites, it employs direct on-site sampling; after sampling is completed, injection is performed simply by switching the six-port valve. The instrument has obtained the "Safety Approval Mark for Mining Products," with the approval number.

Technical Features and Specifications:

- The instrument features advanced technology, a rational design, and portability.
- Analyzes gas components including: oxygen, nitrogen, methane, ethylene, ethane, acetylene, carbon monoxide, carbon dioxide, and others.
- Utilizes high-precision gas thermal conductivity sensors based on silicon microtechnology, offering low power consumption, a wide temperature range, high sensitivity, low detection limits, and high detection accuracy.
- Lightweight, compact size, and novel design. Includes a built-in carrier gas cylinder and rechargeable lithium battery, suitable for emergency monitoring and on-site analysis.
- Low operational environment requirements; operates at room temperature without needing heating, only requires instrument stabilization.
- Rational instrument design with a ten-port valve for injection.
- Allows multi-component mine gas analysis from a single injection. Short analysis cycle; complete analysis takes no more than 18 minutes.
- Dual-channel design: Channel A detects O₂ N₂ CH₄ CO, Channel B detects CO₂ C₂H₄ C₂H₆ C₂H₂ .

3195 Portable Gas Analyzer for Coal Mines:

Key Features:

- 4.3-inch color touch LCD display
- Lightweight, compact design with a built-in carrier gas cylinder and rechargeable lithium battery, ideal for emergency monitoring and on-site analysis
- Simple operation: after injection via the rotary ten-port valve, the instrument starts automatically for peak detection and stops upon completion, directly generating concentration reports without additional processing
- Three-channel design:
Channel A: O₂ 、 N₂ 、 CH₄;
Channel B: CO₂ 、 C₂H₄ 、 C₂H₆ 、 C₂H₂ ;
Channel C: CO
- Short analysis cycle ≤ 8 minutes for full analysis
- Wireless communication capability for underground data transmission
- USB connectivity to output peak height/area data and concentration values of components to the data workstation
- Storage for 2,048 test results and the latest 56 raw data sets, with backup/reexamination via workstation; results exported as text files for easy reporting
- Compatible with our 3195 Coal Mine Gas Analysis Data Processing System (with built-in explosion triangle analysis) for streamlined data transfer and analysis



3085B Mine Gas Multi-Parameter Chromatographic Automatic Analyzer



The 3085B Mine Gas Multi-Parameter Chromatographic Automatic Analyzer serves as the core analytical unit for the national "Eighth Five-Year Plan" key scientific project of the same name. This instrument applies gas chromatography technology to analyze various gas products generated during the temperature rise of coal seam spontaneous combustion, predicting the spontaneous ignition process. In practice, it uses CO, C₂H₄, and C₂H₆ as the primary indicators for predicting the coal seam spontaneous combustion stages (slow oxidation, accelerated oxidation, intense oxidation), with other alkane gas components as secondary indicators. The decrease in concentration of O₂, C₂H₂, C₂H₄, CO and CO components serves as an indicator for judging the extinction degree of sealed fire zones. It monitors the changing trend of coal seam spontaneous ignition, guiding mines to implement targeted fire prevention and extinguishing measures, achieving the goal of early prediction and forecasting of spontaneous combustion states and supporting decisions for unsealing fire zones.

In summary, the instrument enables:

- Early prediction and forecasting of coal seam spontaneous ignition.
- Continuous monitoring of marker gas components and concentration changes during the coal spontaneous combustion process, preventing spontaneous fires and gas explosions.
- Assessment of the development of sealed fire zones and their extinction degree, providing a scientific basis for unsealing.
- Tracking the inertization status in areas where inert gas is used for fire prevention and extinguishing, ensuring the effectiveness of firefighting measures.

Additionally, it can be applied in underground coal gasification systems for gas component analysis, coalbed methane composition and concentration analysis, calorific value indicators, and analysis of gas components involved in coal and gas outbursts.

The 3085B, a national key scientific project, features independently controlled dual ovens, three parallel columns with simultaneous sample injection, dedicated chromatographic columns, and interchangeable detectors. It can connect to 1-32 underground gas sampling tube bundles. Through microcomputer control and a data processing workstation, it achieves automatic cyclic sampling, pre-cutting, detection, automatic alarm for exceeded

gas content limits, and report printing. It enables real-time monitoring and automatic analysis of gases during the coal oxidation and spontaneous combustion process, improving the accuracy of early fire prediction. It measures concentration changes of gas components in sealed fire zones to determine the extinction degree. The instrument Additionally, it can be applied in underground coal gasification systems for gas component analysis, coalbed methane composition and concentration analysis, calorific value indicators, and analysis of gas components involved in coal and gas outbursts. The 3085B, a national key scientific project, features independently controlled dual ovens, three parallel columns with simultaneous sample injection, dedicated chromatographic columns, and interchangeable detectors. It can connect to 1-32 underground gas sampling tube bundles. Through microcomputer control and a data processing workstation, it achieves automatic cyclic sampling, pre-cutting, detection, automatic alarm for exceeded gas content limits, and report printing. It enables real-time monitoring and automatic analysis of gases during the coal oxidation and spontaneous combustion process, improving the accuracy of early fire prediction. It measures concentration changes of gas components in sealed fire zones to determine the extinction degree. The instrument complies with the for Chromatographic Analysis and Index Optimization of Indicator Gases for Coal Spontaneous Combustion".

Technical Features and Specifications:

- **Fully Automated Operation:** Microcomputer-controlled, enabling uninterrupted cyclic sampling for 1-32 points (expandable to 32 points), with simultaneous automatic injection and analysis across three columns.
- **High Stability:** Features dual independently controlled ovens, three parallel columns, and a methane conversion furnace. Equipped with dual hydrogen flame ionization detectors (FID), a thermal conductivity detector (TCD), dual ovens, and three parallel columns – effectively integrating the capabilities of two gas chromatographs. The dual oven system ensures analysis of ten gas components (including carbon monoxide, alkenes, alkanes) at different temperatures in different ovens, guaranteeing component separation, significantly improving analysis speed and accuracy, and ensuring prediction reliability.
- **Safety & Long Service Life:** Three pre-column devices protect the three analytical columns from contamination, ensuring long-term, uninterrupted operation of the entire system. Includes a large-screen LCD display.
- **Complete Coal Mine Gas Analysis System:** Features a dual-oven, single-injection switching system for comprehensive gas component analysis.

3085 Mine Gas Multi-Parameter Chromatographic Analyzer:

This instrument is the research achievement of the sub-topic "Mine Fire Multi-Parameter Chromatographic Monitoring System" under the national "Eighth Five-Year Plan" key scientific project "Prevention and Control of Major Coal Mine Accidents." It was appraised by the former Ministry of Coal Industry's Department of Science, Technology and Education (Certificate No.: Coal Ministry Appraisal [1995] No. 204). As one of the high-tech products dedicated to coal mine safety monitoring, it has gained recognition from coal mine safety monitoring and management personnel at various levels through over a decade of practical application. It has become reliable equipment for judging and eliminating potential safety hazards using gas analysis in ventilation safety management and is now an indispensable component of the coal mine ventilation safety supervision and guarantee system.

Application Scope:

- Early prediction and forecasting of coal seam spontaneous combustion; continuous monitoring of marker gas components and concentration changes during the coal spontaneous combustion process; preventing spontaneous fires and gas explosions.
- Assessing the development status of sealed fire zones and the degree of fire extinction, providing scientific data for unsealing fire zones.
- Tracking and understanding the inertization status in operational areas during inert gas fire prevention and extinguishing operations, providing support for firefighting measures.
- Extended Applications: Can also be applied to gas component analysis underground coal gasification systems; analysis of coalbed methane component concentrations and calorific value indicators; and analysis of gas components involved in coal and gas outbursts.

Technical Features and Specifications:

- Fully Automated Operation: The instrument is automatically controlled by a computer, enabling uninterrupted cyclic sampling and analysis for 1-32 points. It supports dual monitoring modes (unattended operation and manual settings), automatically prints analysis reports, and can also transmit data via network.
- High Stability: Features dual ovens (high and low temperature) with independent temperature control, three parallel columns, and a methane conversion device.
- Safety & Long Service Life: Equipped with three pre-column devices that effectively prevent contamination of the three analytical columns, ensuring long-term, uninterrupted

operation of the entire system.

- Automatic/Manual Switching Function: Allows free selection between manual (gas bag sampling) and automatic sample injection.
- Fast Analysis Speed: Completes the analysis of fire gas components—including CO、O₂、N₂、CO₂、CH₄、C₂H₄、C₂H₆、C₂H₂、C₃H₈、C₄H₁₀—within 4-8 minutes after a single sample injection.
- Minimum Detectable Concentration: CO、C₂H₂、C₂H₆ ≤ 0.5ppm, CH₄、C₂H₄ ≤ 0.1ppm, CO₂ ≤ 2ppm, O₂、N₂ ≤ 0.1% .
- Detector Performance: Thermal Conductivity Detector (TCD) sensitivity S ≥ 8000 mV·mL/mg; Hydrogen Flame Ionization Detector (FID) detection limit M ≤ 1×10⁻¹¹ g/s .
- System Precision: ≤ 1% .

3400A Series (Models 08A/08B/08C/08D/08E) Special Gas Chromatograph for Coal Mines:



Application Scope:

Used in coal mine analysis laboratories for mine gas analysis, fire forecasting, gas explosion risk assessment, and comprehensive analysis of fire gas components. This includes predicting and forecasting fire conditions, determining extinction levels, and providing indicators for unsealing fire zones.

Technical Features and Specifications:

Flexible and Rational Design: Simultaneously equipped with a thermal conductivity detector (parallel/series configuration), dual hydrogen flame ionization detectors, a conversion furnace, four/three parallel channels, four/three sets of six-port valves (manual/automatic), five/four dedicated columns, and a 10-step programmed temperature control device.

- Eight Independent Temperature Control Zones: The main unit features eight temperature control points, allowing independent temperature regulation for the injector and each detector.
- Low Minimum Detectable Concentrations for Key Gas Components Indicating Spontaneous Combustion: $\text{CO} \leq 0.5 \text{ ppm}$, $\text{C}_2\text{H}_4 \leq 0.1 \text{ ppm}$, $\text{C}_2\text{H}_2 \leq 0.5 \text{ ppm}$, $\text{CO}_2 \leq 2.00 \text{ ppm}$, C_2H_6 , $\text{C}_3\text{H}_8 \leq 0.5 \text{ ppm}$, $\text{CH}_4 \leq 0.1 \text{ ppm}$.
- Large LCD Screen and Automatic Back-Door Mechanism.
- Detector Performance:
 - Thermal Conductivity Detector (TCD): Sensitivity $\geq 8000 \text{ mV} \cdot \text{mL/mg}$; Noise $\leq 0.1 \text{ mV}$.
 - Hydrogen Flame Ionization Detector (FID): Detection Limit $\leq 1 \times 10^{-11} \text{ g/sec}$ (n-hexadecane); Linear Range: 10^7 Drift $\leq 1 \times 10^{-13} \text{ A/30min}$, Noise $\leq 5 \times 10^{-14} \text{ A}$.
 - Column Oven Temperature Range: Room temperature $+5^\circ\text{C}$ to 400°C , with a precision of 0.1°C .
- Optional Detectors for Expanded Capabilities:
 - Electron Capture Detector (ECD) for measuring tracer gas SF_6 .
 - Flame Photometric Detector (FPD) for measuring H_2S , SO_2 , and other gases.
- Data Processing Workstation: WinXP operating platform, laser printer, high-precision dedicated interface board (four channels: A, B, C, D), and dedicated software package.
- Explosion Triangle Software: Evaluates the explosion risk level of the analyzed gas based on the results.
- Specific Model Applications:
 - GC-3000A (3008B/3008C): Suitable for the analysis of constant/concentrated CO_2 .
 - GC-3000A (3008D): Can analyze trace sulfides in mines.
 - GC-3000A (3008E): Can analyze trace NO_2 in mines.

CA-3900 Mine Disaster Relief Gas Analysis Vehicle & Mobile Command System

Based on a medium-duty coach, this system integrates proven, specialized coal mine analytical instruments – the GC-3400A or GC-3085(B) Mine Gas Multi-Parameter Chromatographic Automatic Analyzers – along with an optional digital wireless audio/video communication system. It is equipped with dedicated gas and power supplies, and the vehicle is specially modified to ensure the stable and reliable operation of the analytical instrumentation.

Application Scope:

Mobile Mine Rescue Base: Serves routine gas monitoring during normal operations. In the event of a disaster, it can rapidly deploy to the site for monitoring and real-time detection of gas concentration changes, providing scientific data for disaster relief command decision-making. It functions as an integrated monitoring, surveillance, and command system combining rescue communications and dynamic disaster area observation.

- **Critical Tool for Mine Safety:** An essential tool for coal mine ventilation laboratories and rescue teams in firefighting, fire prediction, and forecasting. (Complies with the standard "Chromatographic Analysis and Index Optimization of Indicator Gases for Coal Spontaneous Combustion").
- **Mobile Gas Analysis Lab:** Acts as a mobile gas analysis laboratory within the mining area, providing routine gas analysis services.

Technical Features and Specifications:

1. Digital wireless audio/video communication system.
2. Satellite Navigation (GPS).
3. Conventional portable emergency equipment:
 - Multi-gas detector (Methane, Carbon Monoxide, Oxygen, Hydrogen Sulfide)
 - Portable carbon monoxide detection and alarm instrument.
 - Portable methane detection and alarm instrument.
 - Portable hydrogen sulfide alarm instrument.
 - Oxygen detection and alarm instrument.
 - Explosion-proof portable microcomputer dust meter.
 - Snake-eye life detector.

SCC- 3175 Spontaneous Combustion Tendency Testing Instrument



SCC-4275 Spontaneous Combustion Tendency Testing Instrument (Automatic Model)



This instrument complies with the national standard Method for Identifying Coal Spontaneous Combustion Tendency by Chromatographic Oxygen Absorption," as stipulated in the Coal Mine Safety Regulations. It utilizes a dual gas flow chromatographic method to determine the low-temperature oxygen adsorption characteristics of coal, measuring the physical oxygen adsorption capacity per gram of dry coal under normal temperature (30°C) and pressure (101325 Pa). It classifies the spontaneous combustion tendency of coal into three categories: prone to spontaneous combustion, spontaneous combustion, and not prone to spontaneous combustion.

Application Fields:

Mining product inspection institutions , Scientific research institutes and provincial mining safety laboratories, Coal mine ventilation laboratories, Metrological verification departments ,Universities and higher education institutions.

SCC-3175 Instrument Features:

- Improved Design: Compact size with integrated gas and circuit components for a more rational layout and improved ergonomics.
- User-Friendly Interface: Large LCD screen controlled directly by the workstation, displaying set and actual temperatures (column oven, detector) clearly for intuitive operation.
- Accurate Flow Measurement: Electronic flow meter directly measures and displays flow values accurately and intuitively.

- **High Throughput:** Four-sample testing system processes four coal samples simultaneously, with samples arranged at a 45° angle for easier disassembly.
- **Automated Analysis:** Microcomputer-controlled with dedicated software for direct parameter input, calculation, and spontaneous combustion tendency classification.
- **Cooling System:** Equipped with a cooling system that activates automatically when a specific temperature is reached.

SCC-4275 Instrument Features (Automatic Model)

- **Full Automation:** Automates the entire operational process, including instrument constant determination, oxygen absorption measurement, and automatic judgment of coal spontaneous combustion grade.
- **Electronic Flow Control (EPC):** Utilizes high-precision Electronic Pneumatic Control for accurate gas flow regulation and remote setting/control.
- **Computer-Controlled Operation:** All instrument control and operations are performed via computer.
- **Advanced Cooling Technology:** Features a rear door and electronic cooling technology to ensure rapid cooldown and stable column oven temperature at 30°C.
- **One-Touch Operation:** Simplified startup and shutdown procedures requiring just a single click.
- **Intelligent Software:** Comprehensive software for parameter setting/display, sample testing, data storage, analysis, statistics, result printing, and historical data query.

HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

Validations :Validations :We have protocols for carrying out periodic Validations as per GLP/GMP/USFDA norms.

Instruments :Instruments :We offer instruments/Renting Services Modules like pumps,detector etc. on Rent.



About Analytical Technologies

Analytical Technologies is synonymous for offering technologies for doing analysis and is the Fastest Growing Global Brand having presence in at least 96 countries across the global. Analytical Technologies Limited is an ISO:9001 Certified Company engaged in Designing, Manufacturing, Marketing & providing Services for the Analytical, Chromatography, Spectroscopy, Bio Technology, Bio Medical, Clinical Diagnostics, Material Science & General Laboratory Instrumentation. Analytical Technologies, India has across the Country operations with at least 4 Regional Offices, 6 Branch Offices & Service Centers. Distributors & Channel partners worldwide.

Our Products & Technologies



LCMS



Automated Prep-Flash
Chromatography system



Maldi TOF



Optima Gas
Chromatograph



Flash
Chromatograph



DAC
Column



GCMS
3068



UHPLC



HPTLC



Ion Chromatograph



Production
HPLC



HPLC



Column



DLS



Water purification
system

▶▶▶ Regulatory compliances



▶▶▶ Corporate Social Responsibility

ANALYTICAL FOUNDATION is a Nonprofit Organization (NGO) for the purpose of:



Analytical Foundation

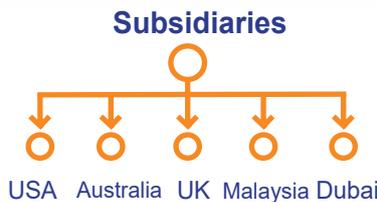
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2. Improving quality of life by offering **YOGA Training courses, Work shops / Seminars** etc.

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