

# SimDis Analyzer

Simulated Distillation

**jas** Analyzer



# JAS SimDis

Simulierte Destillation Analyzer



## JAS GCD86-12 Gasoline and Naphtha Chromatography Distillation range analyser

The distillation range is an important parameter for process control and product quality. Traditionally, ASTM D86 physical distillation has been used to obtain gasoline.

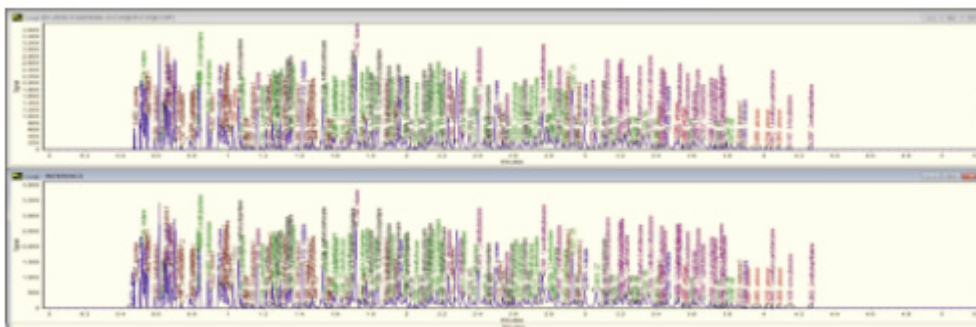
The distillation range of the fraction

- JAS GCD86-12 Gasoline, Naphtha Chromatography Range Analyzer uses a custom DHA (detailed hydrocarbon analysis) method for testing.
- The distillation range of naphtha and gasoline samples in groups 0, 1 and 2 of ASTM D86 was analyzed in 6-8 minutes.
- JAS GCD86-12 Gasoline and Naphtha Chromatography Range Analyzers are based on the latest fast DHA (Fast Detailed Hydrocarbon Analysis) and fugacity.
- The Fugacity-film mode technique uses flash chromatography to derive distillation range information from detailed hydrocarbon analysis results.
- JAS GCD86-12 Gasoline and Naphtha Chromatography Range Analyzer software reports vapor pressure and octane in addition to the results of the distillation range.
- Value (RON) result. Sample PIONA data, C/H ratio, density, average molecular weight, bromine number, etc. are provided for process control reference.

The JAS GCD86-12 Gasoline and Naphtha Chromatography Range Analyzer is based on the Agilent Gas Chromatograph and is equipped with:

- Flame ionization detector (FID)
- JAS UNIS inlet
- Automatic liquid sampler

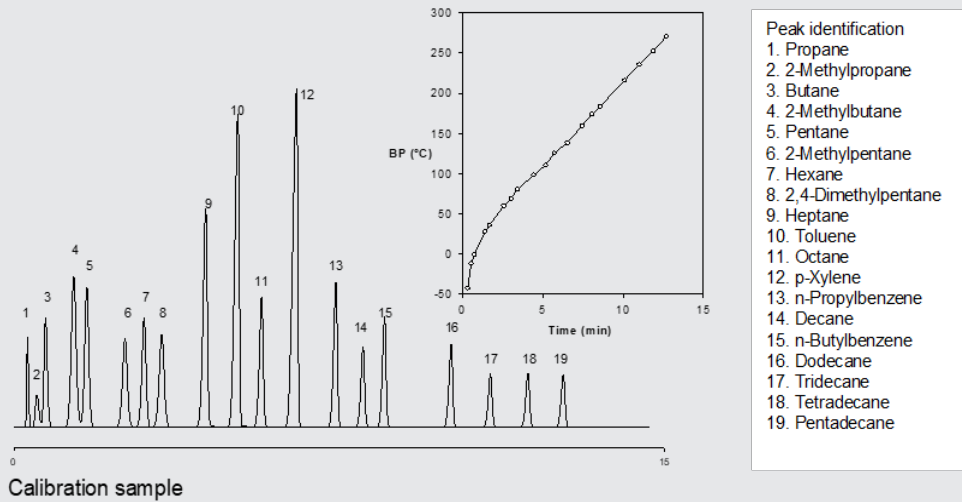
## JAS GCD86-12 Typical Chromatogram and PIONA Data



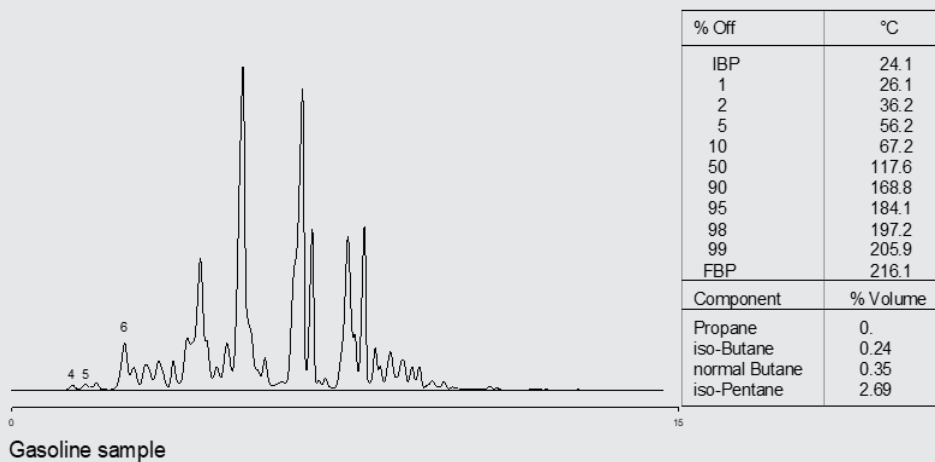
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### JAS SIMDIS ANALYZERS – ASTM D3710 Calibration



### JAS SIMDIS ANALYZERS – ASTM D3710 Gasoline Sample



Includes automatic identification of various refinery sample types.

Sample peaks were identified by the Kovats retention index.

The DHA data was converted to D 86 distillation range data using the Fugacity - Film model.

- Automated analysis, data processing, calibration, and verification, reporting D 86 data results.
- According to the special requirements of Chinese users, the requirements for analysis of high-end point samples have been increased. The sample end point can be as high as 220 ° C.
- The boiling point can also reach below 25 °C.

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- According to user requirements, after years of practice and gradual upgrade, it has been updated to a more open system. User can be based on physical distillation.
- Results Adjust the parameters of the software - sample distillation rate, heating power, etc., establish your own sample calibration, make simulated distillation.
- The results are more comparable to physical distillation results.
- In addition to reporting the results of the distillation range, vapor pressure and octane (RON) results can also be reported. Sample PIONA data is available, C/H.
- Ratio, density, average molecular weight, bromine number, etc., for process control reference.
- It can be used for distillation range analysis of benzene, n-hexane, xylene and the like.
- The analysis period for one sample is 8-12 minutes.

## JAS GCD86-34 diesel, jet coal chromatography Process analyser

- Distillation range is an important parameter for process control and product quality. Traditionally, ASTM D86 physical distillation is used to obtain diesel and aviation.
- The distillation range of the coal fraction.
- JAS GCD86-34 aviation coal diesel fast chromatographic distillation range analyzer, based on ASTM D2887, D7215 analysis of jet fuel, diesel.
- Distillation range and flash point of samples such as gas oil and other D86 groups 3 and 4. Sample analysis time is 6-8 minutes; analysis period is 10 - 15 minutes.
- Save 75% time cost over the classic D86 method.
- The principle of JAS GCD86-34 aviation coal diesel fast chromatographic distillation range analyzer is based on simulated distillation technology, the sample is injected by the autosampler.
- After entering the system, the sample is gradually evaporated by the temperature-programmed inlet, and the column is separated from low to high according to the boiling point of the sample.
- The distillation range distribution of the sample (ASTM D2887 Annex 4 and Annex 5) is given along with the flash point results (ASTM D7215).
- The mass percentage of the FID test is accurately converted to volume percent, which is very meaningful for actual production process control.

JAS GCD86-34 Diesel and Aviation Coal Chromatography Range Analyzers are based on the Agilent Gas Chromatograph and are equipped with:

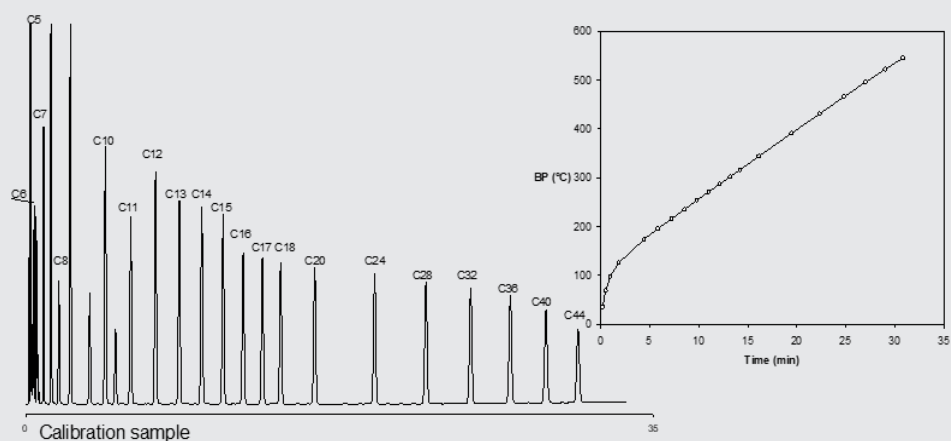
- Flame ionization detector (FID)
- Temperature programmed inlet
- Automatic liquid sampler

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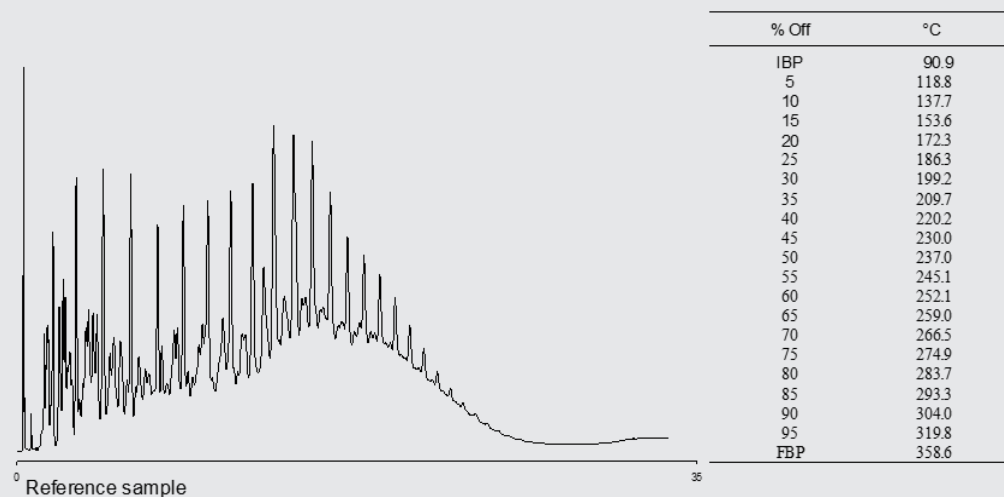
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## JAS SIMDIS ANALYZERS – ASTM D2887 Calibration



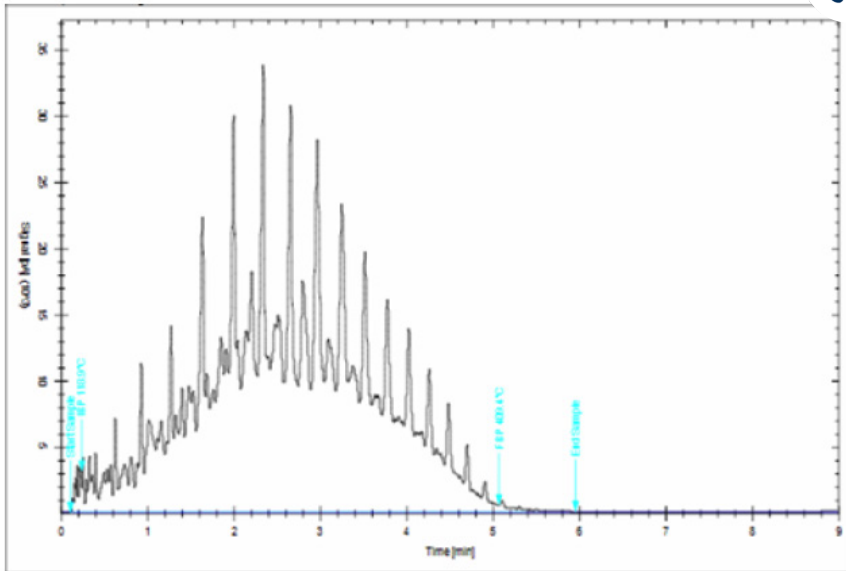
## JAS SIMDIS ANALYZERS – ASTM D2887 Reference sample



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## ASTM D86 Jetfuel and Diesels (D2887-6a)

Rec Vol%	BP °C	Rec Vol%	BP °C	Rec Vol%	BP °C	Rec Vol%	BP °C
IBP	188.5	30.0	265.7	60.0	298.1	90.0	342.5
5.0	223.7	35.0	271.0	65.0	303.9	95.0	357.6
10.0	235.8	40.0	275.9	70.0	310.8	FBP	369.1
15.0	244.4	45.0	280.9	75.0	316.3		
20.0	252.3	50.0	286.7	80.0	323.8		
25.0	259.1	55.0	292.5	85.0	332.7		

## Special Calculations

Property	Results	Unit
ASTM D93 Flashpoint	71.7	Centigrade

- Precision is better than ASTM D86, and the results are in accordance with Good Laboratory Practice (GLP), independent of user level; sample points.
- The analysis efficiency is 4 times that of the classic D86 automatic distillator, the sample analysis time is 6-8 minutes; the analysis period is 10 - 15 minutes.
- The D86 method saves 75% of labor costs; it runs around the clock and does not need to be on duty; it reduces personnel errors. Safe and environmentally friendly, no fire.
- Does not pollute the environment. It also meets ASTM D7215 standards and reports the flash point of the sample.
- JAS temperature-programmed inlet adopts light and low heat capacity material, and the heating and cooling speed is fast. When it is lowered from 350 °C to 100 °C, the time is less than 1.5 minute. The heating of the sample pan and the high temperature loss of the septum are avoided, and the safety of the operator is effectively protected.
- JAS GCD86-34 Diesel and Aviation Coal Chromatography Range Analyzers meet the following standard test methods: ASTM D2887 Annex 4 and Appendix Item 5, ASTM D7215.
- The JAS GCD86-34 diesel and jet coal chromatographic range analyzers can use helium as a carrier gas or cheap nitrogen as a carrier gas.
- Reduce daily operating costs.

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## JAS Simulated Distillation Analyzer

- Boiling point data is the main parameter for characterizing petroleum fractions. The distillation range is an important parameter for process control and product quality. Traditionally, it has been adopted.
- Physical distillation of ASTM D86, D1160, D2892, D5236, etc. to obtain the distillation range of the petroleum fraction.
- Compared to physical distillation, Simulated Distillation (SimDis) is a gas chromatographic method to determine the real boiling point distribution of an oil.
- JAS provides a turnkey solution for carbon dioxide 120 for simulated distillation. The key part of the JAS Simulated Distillation Analyzer is
- JAS's UNIS HT temperature-programmed vaporization inlet and unique JAS simulated distillation software.
- The JAS Simulated Distillation Analyzer is designed to meet the most widely used ASTM, DIN, IP, EN methods: eg ASTM D2887, D3710, D5399, D5442, D6352, D6417, D7096, D7169, D7213, D7398, D7500; DIN51435-1, DIN51435-2; IP406, IP480, IP507, IP545; EN15199-1, EN15199-2, EN15199-3, EN15199-4, ISO3924.

### Features and advantages

- Based on the Agilent gas chromatograph platform;
- JAS HTPTV temperature-programmed inlet with a maximum operating temperature of 500 ° C, using lightweight, low heat capacity materials for rapid heating and cooling.
- Use a user-friendly, easy-to-understand JAS simulation distillation software.
- JAS simulated distillation software provides a customizable report format.
- JAS simulated distillation software automatically performs calibration, calibration, sample analysis and data processing to ensure the entire analysis process is effective.
- The crude oil and crude oil fractions can be measured at a real boiling point of up to 750 ° C (carbon number C120); the analysis time is approximately forty-three minutes.
- The JAS high temperature simulated distillation unit completes the analysis of crude oil and residual oil fractions in 45 minutes.
- Provide a qualitative calibration sample (normal paraffin mixture) for determining retention time and boiling point relationships and a reference to ensure the effectiveness of the entire analysis (the actual fraction of hydrocarbons of known boiling point).

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## JAS UNIS high temperature simulated distillation program temperature inlet

With its unique temperature-programmed heating device, its light weight, low heat capacity and reachability

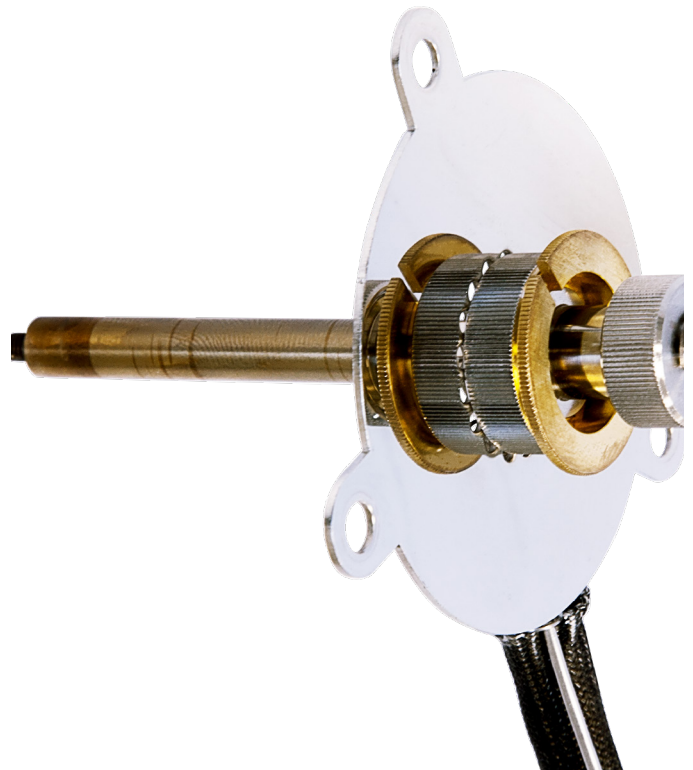
The heating rate of 720 ° C / min ensures that UNIS HT is fully compatible with high temperature environments

Analysis below.

At the upper operating temperature of 500 ° C, the inlet is basically self-cleaning, thus reducing

Less residue and memory effect of the inlet.

- S/SL and PTV modes
- Lightweight low heat capacity material
- Extend the heater and heated column nut to avoid cold spots.
- Dedicated simulated distillation liner
- Liner capacity from 100 to 930 microliters
- Simulated distillation up to C120



### JAS simulated distillation software

JAS Simulated Distillation Software includes all for comprehensive analysis

Related features and provide a user-friendly and easy-to-understand graphical world surface.

- Calibration
- Blank run
- Reference
- Chromatogram from the initial boiling point to the final boiling point
- Boiling point distribution curve
- Results of boiling point %
- Standard cutting point
- Custom cut points
- Embedded quality % and volume % conversion features

# JAS SimDis

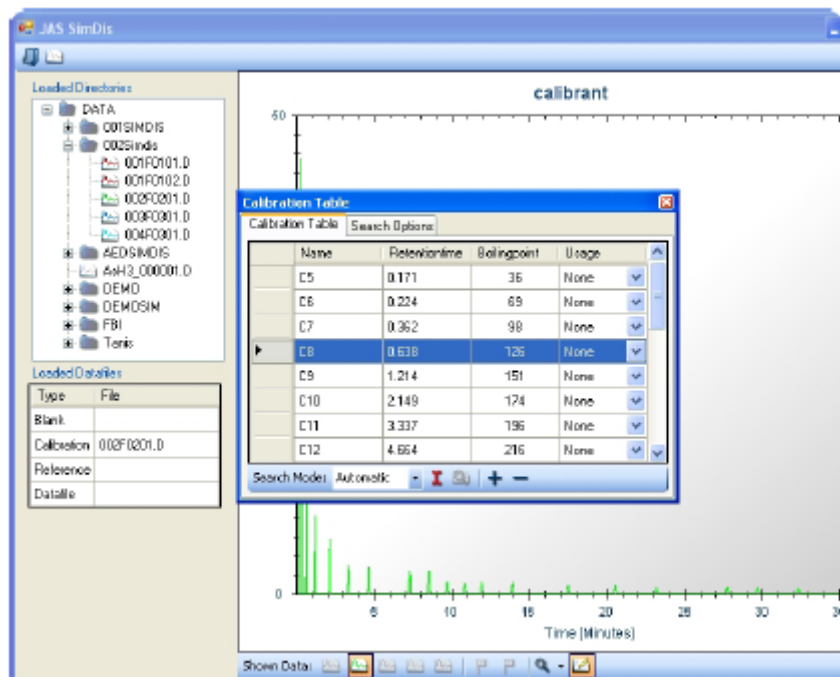
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JAS analog distillation software is fully embedded in the Agilent ChemStation software

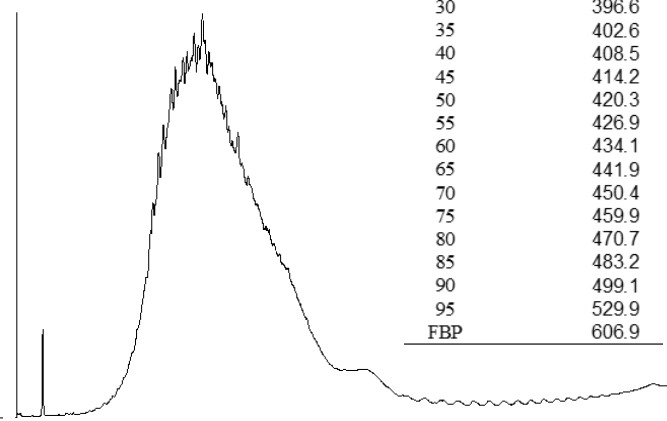
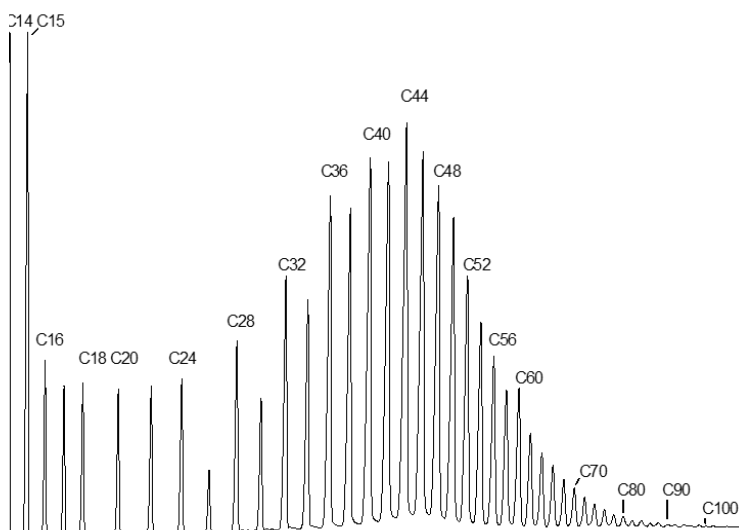
JAS Simulated Distillation Analyzer includes

- Agilent 7890 Gas Chromatograph with FID
- UNIS high temperature PTV inlet
- JAS simulated distillation analysis software
- JAS simulated distillation solution



JAS SIMDIS ANALYZERS – High Temp

JAS SIMDIS ANALYZERS – High Temp Gas Oil sample



% Off	°C
IBP	313.0
5	357.2
10	369.1
15	377.1
20	384.1
25	390.5
30	396.6
35	402.6
40	408.5
45	414.2
50	420.3
55	426.9
60	434.1
65	441.9
70	450.4
75	459.9
80	470.7
85	483.2
90	499.1
95	529.9
FBP	606.9

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## JAS Simulated Distillation Analyzers

JAS Simulated Distillation (SimDis) Analyzer is a powerful tool for determination of distillation fractions of petroleum products

Boiling point	-200	-100	0	100	200	300	400	500	600	700	800
ASTM D3710			gasoline								
ASTM D7096			gasoline + ethanol								
ASTM D7900			light hydrocarbons								
ASTM D288			petroleum fractions								
ASTM D5442				petroleum wax							
ASTM D7213			medium petroleum distillates								
ASTM D6417			medium petroleum distillates								
ASTM D6352			medium and heavy petroleum distillates								
ASTM D5307	crude petroleum										
ASTM D7500			medium and heavy petroleum distillates								
ASTM D7169	crude oil and residues										
DIN 51581-2			medium petroleum distillates								
DIN 51435			medium and heavy petroleum distillates								
EN 15199-1			middle distillates and lub base oils								
EN 15199-2			vacuum distillates and residues								
EN 15199-3	crude oil										
ISO 3924			petroleum fractions								
Carbon number	1	2 3	4 5	6	10	16 20	30	44	60	80	120



## About Joint Analytical Systems

Since 1995 JAS has been a Premier Solution Partner and Value Added Reseller of Agilent Technologies. We are an innovative-driven organization that offers customized solutions for GC, GCxGC,  $\mu$ GC, GC-AED, GC-MS, GC-QQQ, LC, LC-MS, LC-QQQ and Q-TOF LC-MS applications.

## JAS serves key industries such as

- Chemical
- Petrochemical/HPI
- Environmental
- Food & Flavor
- Forensic

## JAS Products for GC

- Atomic Emission Detector
- UNIS Inlet Systems
- Automatic Gas Samplers
- CryoTrap
- Customized Valving Systems
- EzPrep - Preparative Fraction Collector
- Olfactometer
- GICU - Gas Injection Control Unit

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