

# **IATROSCAN<sup>®</sup> MK-6**

## **TLC-FID/FDP Dual Detection System**

### **IATROSCAN with mounted FPD Detector**

The new model IATROSCAN MK-6 with FPD (flame photometric detector) detects the hetero-atoms such as phosphorous and sulfur selectively. The simultaneous measurement by both FPD and FID (flame ionization detector) is possible. Organic compounds on the thin-layer are surely captured by means of two eyes of FID and FPD without omission. The addition of FPD to the former TLC-FID IATROSCAN with improved quantification and reproducibility enables to acquire a new wealth of analytical information.



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## Iatroscan TLC-FID is the fastest and least expensive method on the market for SARA analysis.

You can have Petroleum and Bitumen characterization within seconds. A quick sample preparation and... not days or hours, just a few seconds. SARA analysis can apply to many components of crude oil. Asphaltenes could be pentane-or heptane-insolubles. Resins may be classified as a solubility fractions, such as heptane-soluble and pentane-insoluble or heptane-soluble and acetone or ethyl acetate insoluble, or as the polar fraction eluted from a polar adsorbent with a polar solvent, such as pyridine, toluene or methanol. Saturates and Aromatics are determined by adsorption chromatography, through our patented Chromarod silica gel bars. Saturates are eluted with a paraffinic solvent, such as pentane or heptane.

## FEATURES

### Simple operation

The measuring time required for one sample is 30 seconds, which enables efficient analysis with the possibility of simultaneous development and detection of component in a samples on 10 Chromarods at once mounted on one rod-holder

### Wide range

It is possible to analyze the organic compounds analyzable by TLC and also the organic compounds with high boiling points hardly analyzed by GC and those difficult to be detected by LC : oligomers, polymers, oils, fats, lipids.

### Higher Efficiency

The measuring time required for one sample is 30 seconds, which enables efficient analysis with the possibility of simultaneous development and detection of component in a samples on 10 Chromarods at once mounted on one rod-holder.

### Cost Effective

Our patented Chromarod Quartz specially designed quartz rod coated with a thin layer of silica can be used repeatedly, leading to a cost effective and quick solution for your laboratory

## APPLICATION FIELDS

### Petrochemical Industry

Surfactants and detergents,  
Metal, Textile and leather industries,  
Polymer industry,  
Pesticides and growth regulators.

### Oil Industry

Heavy oil separation  
with S.A.R.A. method,  
Wax percentage in heavy oils.

### Biology and Pharmacy

Steroid compounds, Vitamins, Alkaloids  
and purine bases, Amino Acids, Terpenes and Resins,  
Psychotropic substances, Antipyretics, Analgesics  
and Hypnotics Antibiotics, Sulphonamides  
and Sulphanilic Acid Polyamines.

### Cosmetics

Fats, Oils and related substances,  
Phospholipids, Saccharides,  
Food additives, Cosmetics.

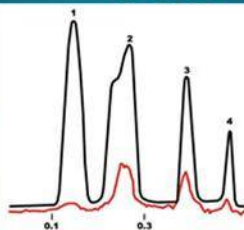


# SARA

Saturates Aromatic Resins Asphaltenes

## Just 30 minutes!

SAVE TIME



### Heavy oil analysis (FID/FPD:S)

Sample: Bitumen	Stationary phase: Chromarod - S III
1 Saturated H.C.	Mobile phase:
2 Aromatic	1st. Hexane 100%
3 Resin	2nd. Toluene 100%
4 Asphaltene	3rd. Dichloromethane: Methanol 57:3

Aromatics are eluted either with paraffinic or moderately polar solvents, such as toluene. Iatroscan standard method is IP 469 which determines all four compound classes by adsorption chromatography. True, there are other SARA analysis alternatives, including IP 143 followed by preparative HPLC (IP-368) or Clay-Gel (ASTM D-2007), which are more complicated and slower. Iatroscan is quick, precise, unexpensive. The best technology on the market for Petroleum and Bitumen analysis. Iatroscan is not only Sara analysis though : with Iatroscan you can also get Wax percentages in a flash! In fact this is also described as Asphaltene/Wax/Hydrate Deposition analysis.



# EXAMPLE OF WORKS

## Heavy oil analysis (FID/FPD:S)

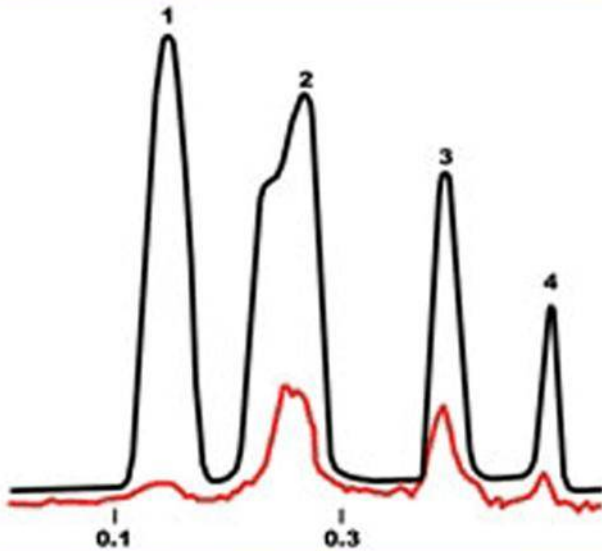
Sample: Bitumen

- 1 Saturated H.C.
- 2 Aromatic
- 3 Resin
- 4 Asphaltene

Stationary phase: Chromarod - S III

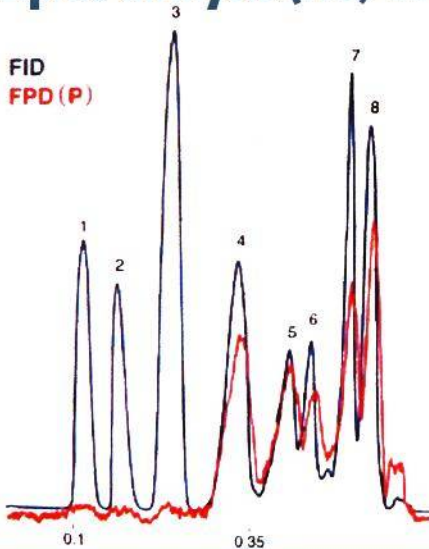
Mobile phase:

- 1st. Hexane 100%
- 2nd. Toluene 100%
- 3rd. Dichloromethane: Methanol 57:3



## Lipids analysis (FID/FPD:P)

FID  
FPD (P)



Sample: Standard mixture

- 1 Cholesterol ester
- 2 Triglyceride
- 3 Cholesterol
- 4 Phosphatidyl ethanolamine
- 5 Phosphatidyl choline
- 6 Phosphatidyl inositol
- 7 Sphingomyelin
- 8 Lysophosphatidyl choline

Stationary phase: Chromarod - S III

Mobile phase:

- 1st. Chloroform:Methanol:Water:  
25%Ammonia 47:20:2.5:0.28 7cm
- 2nd. Hexane: Diethyl ether 63:7 10cm

## Glycerides analysis (FID)

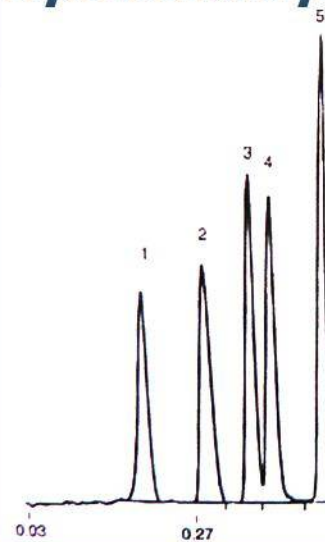
Sample: Standard mixture

- 1: TG (tripalmitin)
- 2: FA (palmitic acid)
- 3: 1,3 - DG (1,3 - dimyristin)
- 4: 1,2 - DG (dipalmitin)
- 5: MG (monopalmitin)

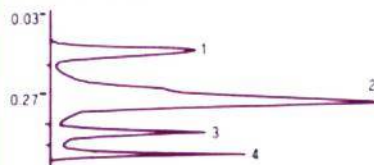
Stationary phase: Chromarod - S III

Mobile phase:

- Benzene:Chloroform : Acetic acid  
50 : 20 : 0.7



## Fuel Oil



Sample: Standard mixture

- 1 Saturated H.C. 2 Aromatic
- 3 Resin 4 Asphaltene

Stationary phase: Chromarod - S III

Mobile phase:

- 1st. n-Hexane 100% 10cm
- 2nd. Toluene 100% 5cm
- 3rd. Dichloromethane: Methanol  
9:5 2cm

CHROMA-ROD No.	Peak 1 Saturated	Peak 2 Aromatic	Peak 3 Resin	Peak 4 Asphaltene
1	17.6 %	58.9 %	13.4 %	9.9 %
2	18.1	58.5	13.2	10.2
3	17.8	59.3	13.0	9.9
4	18.4	59.3	12.8	9.5
5	18.2	57.7	13.4	10.7
6	18.5	57.9	13.0	10.6
7	18.3	58.8	12.4	10.4
8	18.0	58.7	13.0	10.3
9	18.2	58.6	12.6	10.6
10	18.8	58.9	12.6	9.7
X	18.2	58.7	12.9	10.2
SD	0.34	0.53	0.34	0.41
CV %	1.9	0.9	2.6	4.0



IATROSCAN can cover the whole range of organic compounds' TLC analysis and has been especially developed for heavy oil type analysis. It is also perfect for tracking organic synthetic reactions. The sample spotted on the Chromarod can be simply quantified without development. All results were derived with little sample preparation, and immediate results.

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