Хроматографические аналитические системы Iatroscan MK7s HPTLC/FID, Iatroscan MK7s Lipides, Iatroscan MK7s Bitumes SARA

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Iatroscan MK7s Bitumens SARA

Iatroscan MK7s HPTLC/FID Bitumen reference: 7001-Bi

The **Iatroscan MK7s Bitumens** is the ideal tool for the qualification and quantification of **bituminous samples,** and more particularly the separation of the 4 main compounds (Saturated, Aromatics, Resins, Asphaltenes) according to their polarity.

Migration on quartz rods avoids the **risk of damage** to chromatographic columns of other technologies, and detection by **Flame Ionization FID sensor** ensures precise and reliable detection of a wide range of highly volatile compounds.

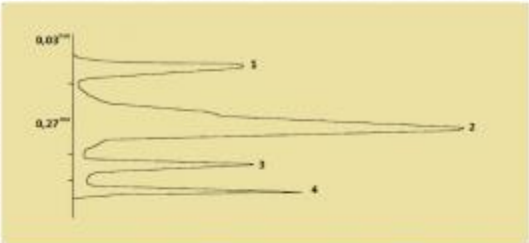
The separation of the 4 SARA families allows the colloidal instability index (Ic) to be calculated precisely.

$$Ic = \frac{(\%\ \text{Asphaltènes}) + (\%\ \text{Saturés})}{(\%\ \text{Résines}) + (\%\ \text{Aromatiques})}$$

This index reflects the state of **dispersion of Asphaltenes** in the inter-micellar medium. The higher the Ic value, the lower the colloidal stability of the bitumen, and the more the bitumen is said to be "Structured".

This calculation allows, among other things, to detect a **destabilized colloidal index** and to determine if an additive has the necessary characteristics to rebalance the colloidal index.

● Fuel oil (Fingerprint)



1 - Saturated HC 2 - Aromatic
3 - Resin 4 - Asphaltene

CHROMA ROD N°	Peak 1 Saturated	Peak 2 Aromatic	Peak 3 Resin	Peak 4 Asphal-tene
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

CONDITIONS:

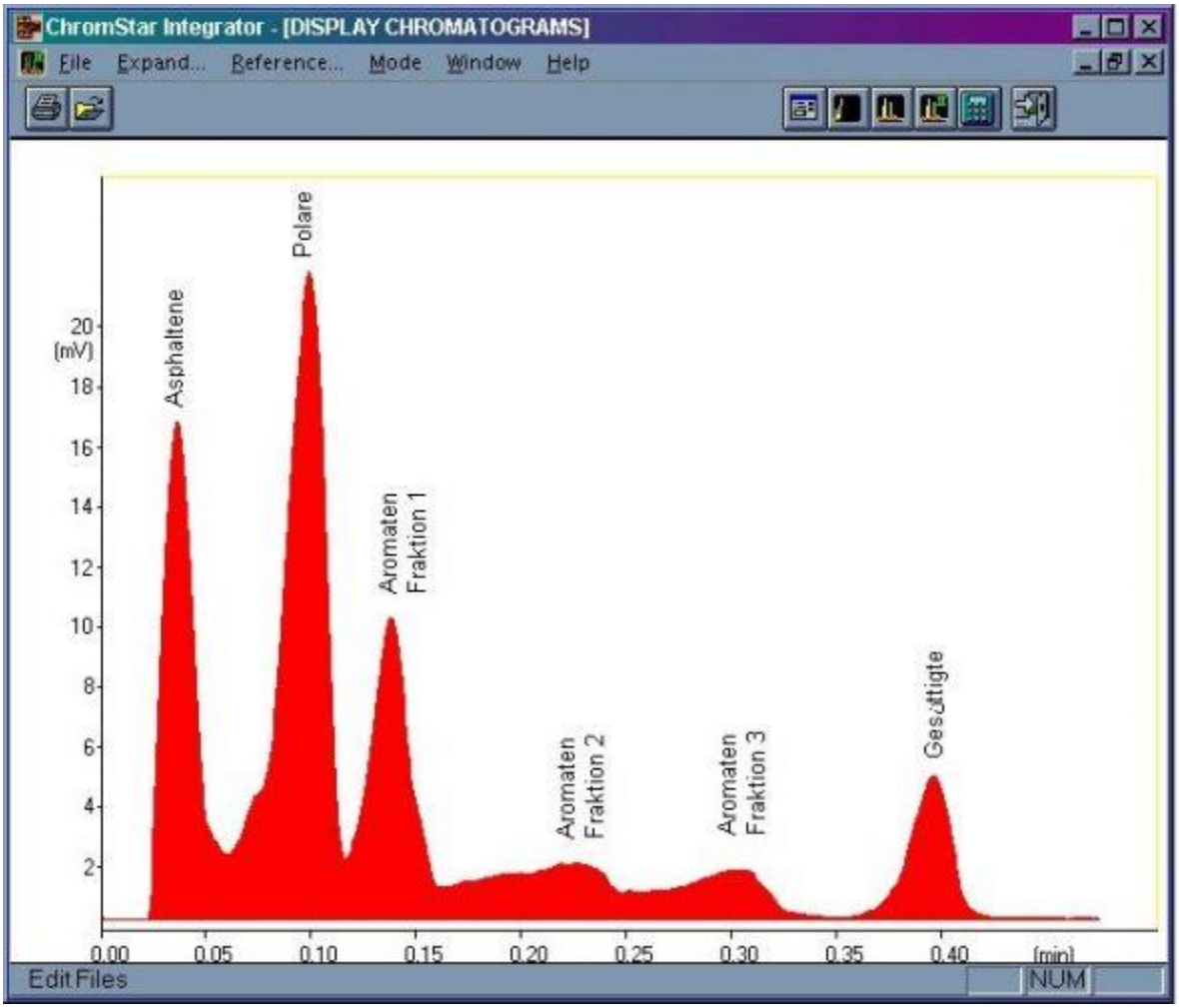
Stationnary Phase: Chromarods SIII
Mobile Phase:

1st: n-Hexane	**100%**	**10cm**
2nd: Toluene	**100%**	**5cm**
3rd: Dichlorometane:Methanol	**95%:5%**	**2cm**

The **Iatroscan MK7s Bitumens** is therefore the fastest solution (less than an hour for a complete analysis), the most economical (no consumables except the chromarods which can be reused more than 50 times), in a word, the best suited to SARA bitumen analyses.

Separation of Aromatic families:

One of the many methods allowed by Iatroscan is the possibility of separating aromatics into 3 groups, corresponding to Mono-, Di- and Poly-aromatics.



The results of the **Iatroscan MK7s** HPTLC/FID technology were compared with those of conventional column chromatography. The result is a much better resolution with the **separation on Chromarods** than by column chromatography.

With this method it is possible to obtain a better **overview** of the **composition and quality of the bitumen ,** especially with regard to the **optimal binding of polymers** .

Iatroscan MK7s Lipids

Iatroscan MK7s HPTLC/FID Reference: 7001-Li

The **Iatroscan MK7 Lipids** is the ideal tool for the qualification and quantification of **Lipids and Phospho-lipids** .

With its technology combining migration on quartz rods coated with silica and detection by HPTLC/FID system, the **Iatroscan MK7s Lipids** allows the reliable and precise characterization of lipid substances, even the most complex to analyze.

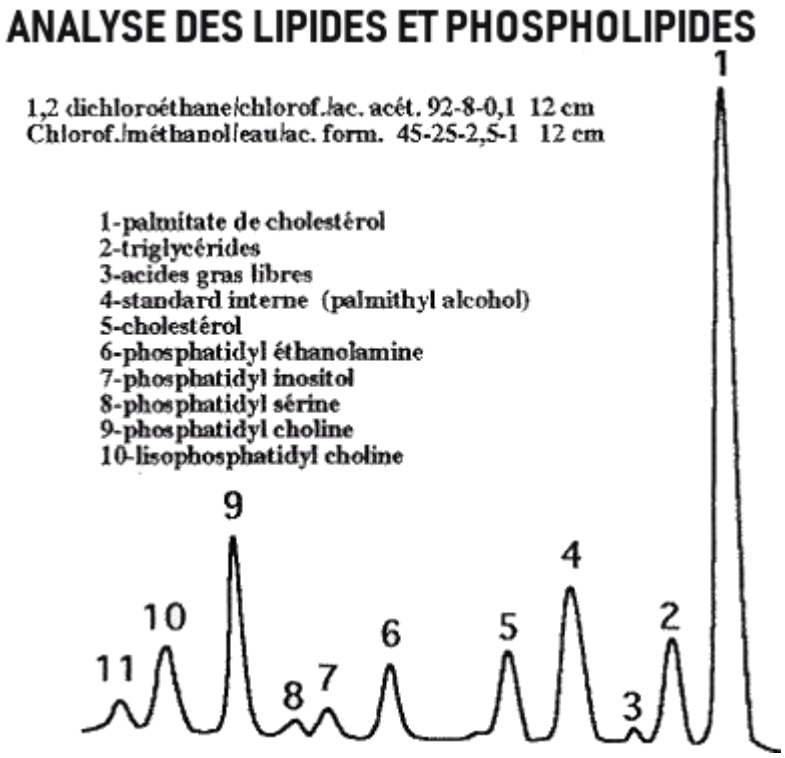
The **Iatroscan MK7s Lipids** is the subject of more than 2000 scientific publications and is particularly used in the following areas:

- -Lagoon biology (algae, micro-organisms, etc.) and marine biology (fish, crustaceans, etc.)
- -Animal feed
- -Food industry (food additives, colorants, determination of phosphatidylcholine content in egg yolk lecithin, etc.)
- -Biochemistry, Cosmetics (essential oils)
- -Medicine (blood plasma, skin, eye, amniotic fluids, etc.)
- -Biofuels
- - Dam water (Algae, etc.)
- -Amino acids, peptides, fatty acids

The **Iatroscan MK7s HPTLC/FID** provides a solution without a preparatory phase for almost all types of chromatography related to **complex substances with little or no volatility** or a high boiling point.

Detection is carried out within a flame in which the eluates are vaporized and then ionized. The **cathode** traps the positive ions.

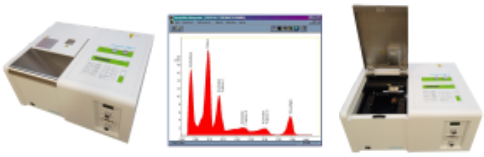
The typical analysis is lipid / **phospholipid** analysis .



Calibration curves:

The operation of the **Iatroscan MK7s** on 10 Chromarods allows a simple and rapid implementation of the calibration curves.

The user chooses the number of standards and samples and their arrangement. Once the analysis is performed in one phase for the set of 10 Chromarods (or less), the calibration curve is generated by the operating software.



Iatroscan MK7s HPTLC/FID

For any information and quote, please contact us.

Reference: 7001

The **Iatroscan MK7s HPTLC/FID** is the clever combination of two complementary technologies:

-Migration on HPTLC quartz rods
-FID electrode detection

This clever approach allows the Iatroscan MK7s to reliably respond to the problems encountered in the characterization of certain substances **with low volatility** or **without UV absorption** .

The main advantages of the **Iatroscan MK7s FID** system are:

- Possibility to work simultaneously on 10 Chromarods
-Numerous fields of application
-Chromarods are reusable more than 50 times
-20-30 minutes of analysis on average (depending on the method)

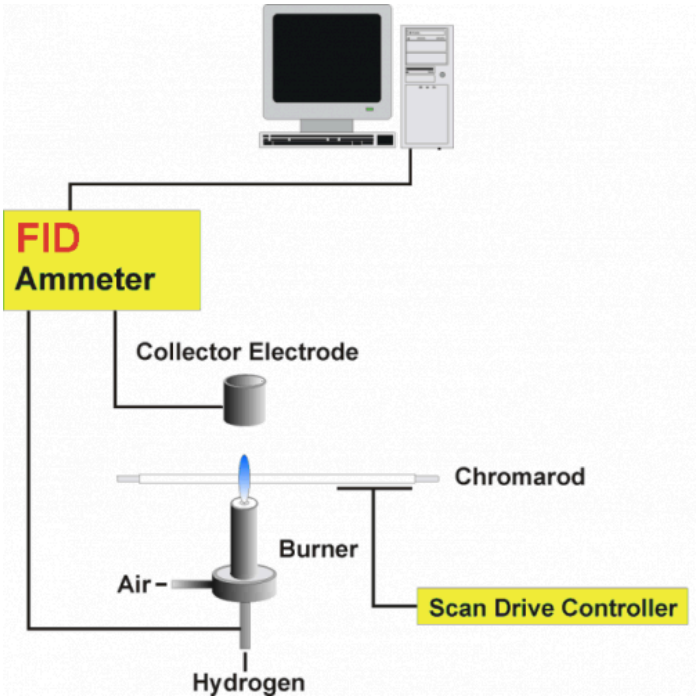
The most complicated samples can be qualified and quantified simply **,** quickly **and** economically **,** without the risk of column clogging and without the measurement uncertainty linked to the low UV reflection of certain substances.

Iatroscan MK-7s HPTLC/FID analytical system can be used in **many application fields** such as plant breeding, forestry, fishery, crude oil and carbon industry, biochemical industry, biotechnology, pharmaceutical industry, environmental pollution, food industry etc.

The Iatroscan MK7s can be operated using Azur software, or directly controlled from your HPLC or GC software *

Principle:
Samples deposited on **quartz rods** coated with microgranulometric silica called **Chromarods** or S-microcolumns are eluted with aqueous or organic solvents.

The separated constituents are detected by a **flame ionization detector** (FID), then identified and quantified. The Iatroscan MK7s allows to separate, identify and quantify samples of a few nanograms.



Operation in 5 steps:

1-Activation of the Chromarods

Press the Blank Scan button to clean and reactivate the ***CHROMARODs*** *by passing them through the hydrogen burner flame. Each Chromarod can be reused 50 times or more, giving the set a potential of 500 scans.*

2-Sample submission

Deposit with a microdispenser or an automaton of the order of ***1µl of sample*** *on each* ***Chromarod*** *. The deposition can be partially or completely automated. See the "accessories" section.*

3-Separation

Install the ***Chromarods*** *in the analysis chamber. The components are separated on the* ***Chromarods by elution*** *according to the recommended procedure.*

4-Solvent removal

When development is complete, place the rack in the ***drying oven*** *provided for this purpose to eliminate the solvent adsorbed by the* ***Chromarods .*** *The drying chamber is adapted to the frame format to obtain rapid drying. A slight* ***overpressure prevents*** *dust from entering the chamber.*

5-Measurement

When the solvent has been removed from the ***Chromarods , place the rack in the Iatroscan*** *measuring chamber and press* ***Start*** *to start the process. The measurement is performed according to the parameters that have been entered in the menu. The analysis time for each* ***Chromarod*** *is between* ***25 sec*** *and* ***60 sec*** *. It is set by the operator when establishing the menu.*

Chromatography on quartz rods… the Chromarod:

The chromatographic support called ***Chromarod*** or **microcolumn-S is a quartz** rod 1 mm in diameter covered with a **75 µm** thick film of **SiO2 phase** with fine particle size: **3-5 µm** associated with an **inorganic binder** .

Chromarods **provide *excellent*** separations with good repeatability.

Depending on the type of components to be separated, the ***Chromarods*** **can** be "prepared" by first immersing them in baths. For example, if you want to obtain an excellent separation of **triglycerides** according to their degree of unsaturation or of **glyceride isomers,** you can soak them in a solution of **silver nitrate** or **boric acid** respectively.

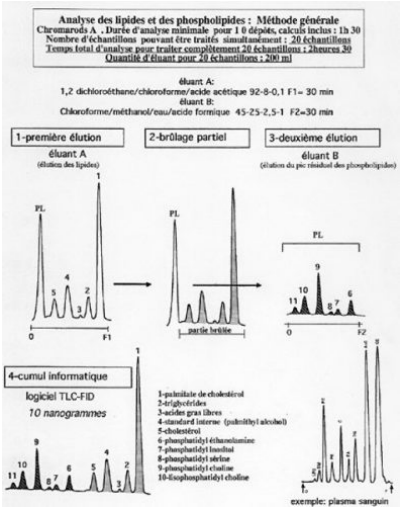
Partial burning…a specific feature of Iatroscan:

The method consists of separating all the constituents of a mixture using a cocktail of eluents of different polarities.

First, we use an eluent of **polarity A** which will carry away some of the molecules while the rest of the sample does not detach or only slightly from the deposit. The part of the support containing the molecules which have migrated is burned. We obtain their quantification and the results are automatically **stored in memory** .

The preserved (unburned) sample portion is then **eluted** with a polarity B eluent to separate the other molecules, etc. as many times as necessary. After using the last eluent of the cocktail, the **chromarods** are burned along their entire length, including what remains at the deposition.

At each stage, the results are associated with the first ones. For each sample, a **complete chromatogram** of all polar to non-polar molecules is finally obtained. This technique, which uses a single support and identical detection for each sample, makes it possible to obtain the **% compared** between molecules of the same sample and between the different samples, **FID detection** having the advantage of rendering a **linear response** on a very large scale depending on the concentration.



** The* ***Iatroscan MK7s*** *works with most HPLC/GC software on the market. Compatibility to be confirmed after study by our technical department.*

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