



# Index Gas Chromatography Applications

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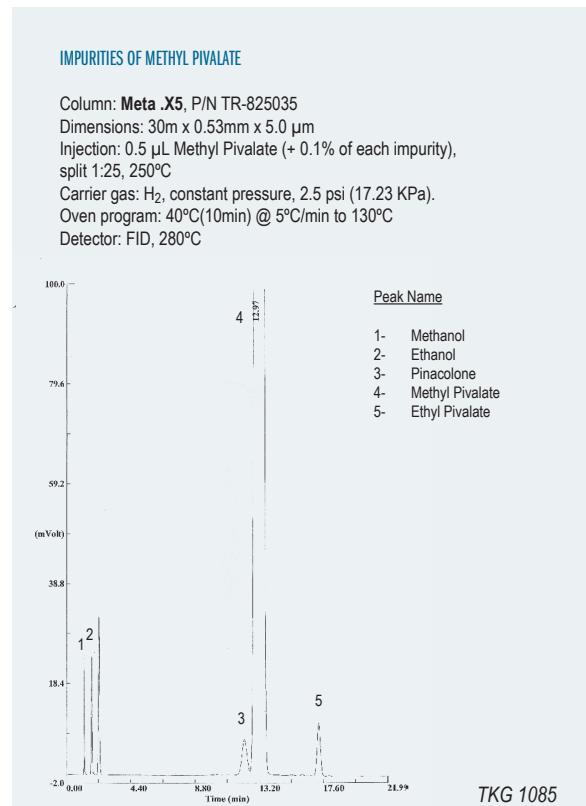
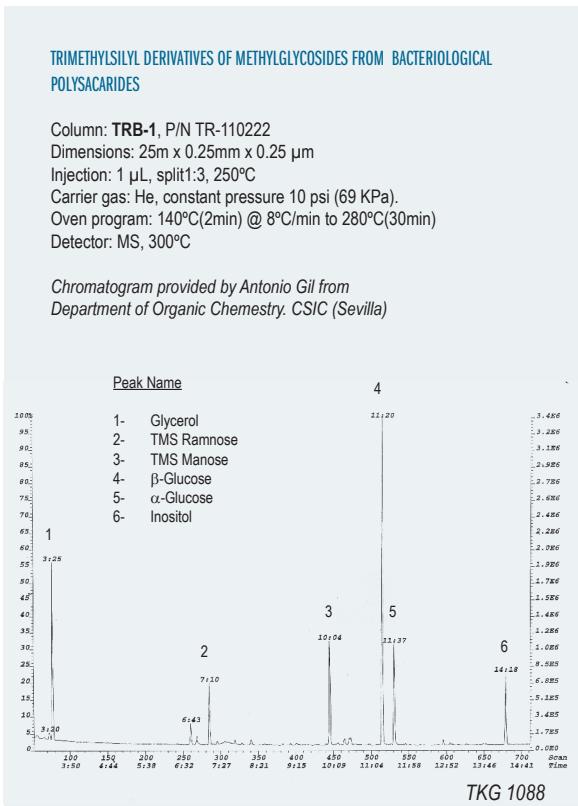
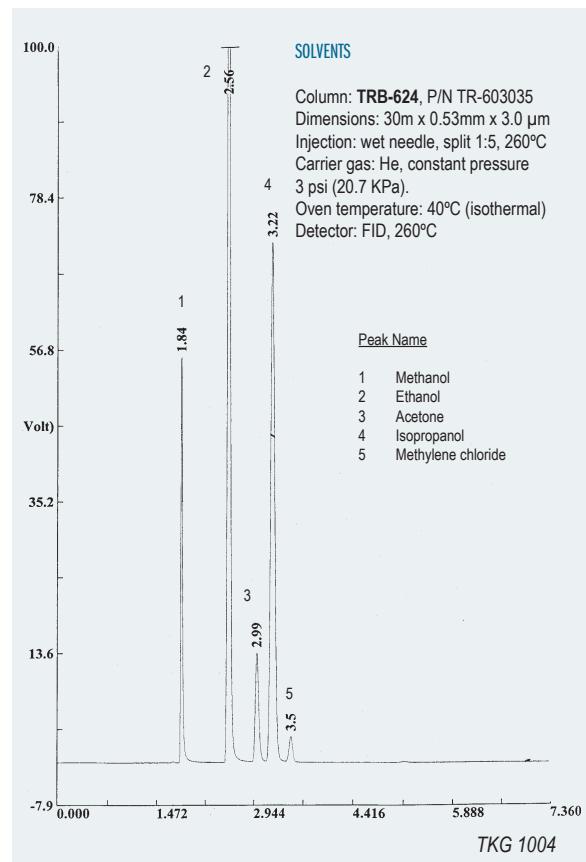
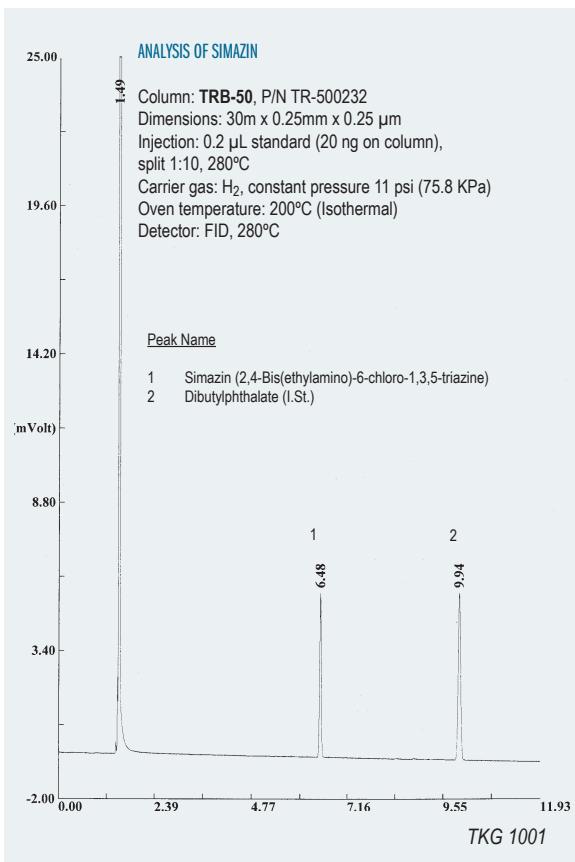
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## **Food & Flavors**

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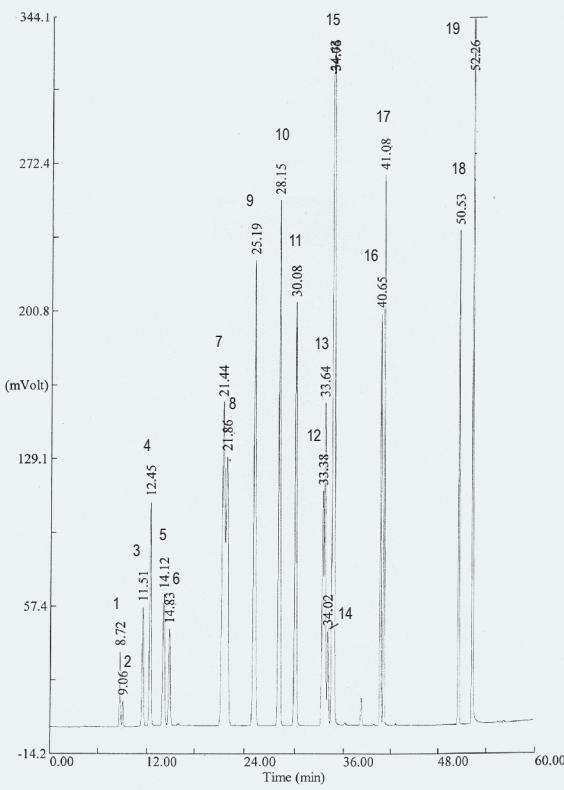
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## ANALYSIS OF SOLVENTS

Column: TRB-WAX, P/N TR-142065  
 Dimensions: 60m x 0.53mm x 2.0  $\mu$ m  
 Injection: wet needle, split, 250°C  
 Carrier gas: H<sub>2</sub>, constant pressure 4 psi (27.6 kPa).  
 Oven program: 55°C(20min) @ 3°C/min to 220°C(15min)  
 Detector: FID, 260°C

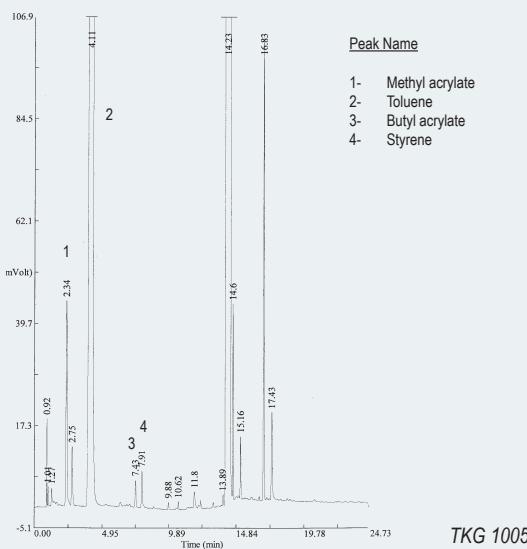
Peak Name
1- Acetone
2- Methyl acetate
3- Ethyl acetate
4- Methanol + MEK
5- Isopropanol
6- Ethanol
7- MIKB
8- Methoxypropyl acetate
9- Isobutyl acetate
10- Toluene
11- Methoxypropanol
12- n-butyl acetate
13- Isobutanol
14- n-butanol
15- p,m-xylenes
16- o-xylene
17- Ethylglycol
18- Diacetone alcohol
19- Butyl glycol



TKG 1003

## SEPARATION OF MONOMERS IN PAINTS

Column: Meta-WAX, P/N TR-811035  
 Dimensions: 30m x 0.53mm x 1.0  $\mu$ m  
 Injection: 1  $\mu$ L Monomers mixture (20ppm, 100ppm toluene in DMSO), split 1:50, 240°C  
 Carrier gas: He, 4 psi (27.6 kPa)  
 Oven temperature: 40°C(5min) @ 15°C/min to 180°C(15min)  
 Detector: FID, 240°C

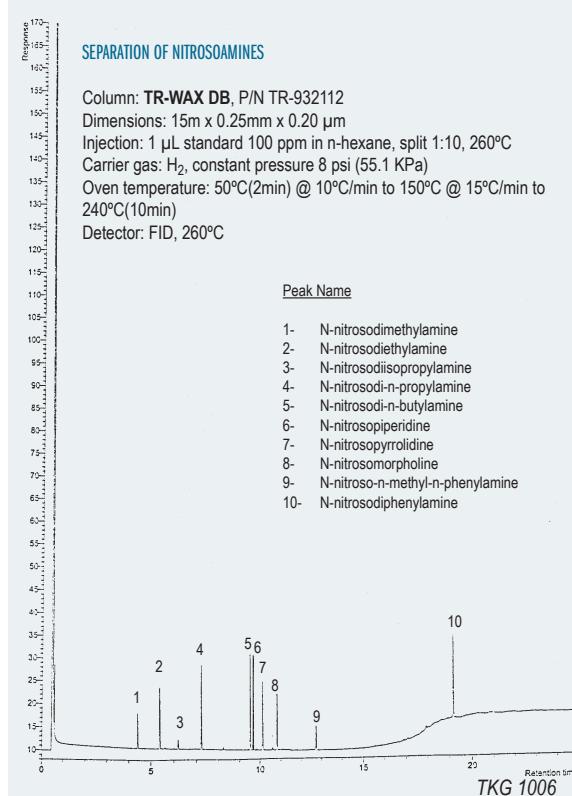


### Peak Name

- 1- Methyl acrylate
- 2- Toluene
- 3- Butyl acrylate
- 4- Styrene

## SEPARATION OF NITROSOAMINES

Column: TR-WAX DB, P/N TR-932112  
 Dimensions: 15m x 0.25mm x 0.20  $\mu$ m  
 Injection: 1  $\mu$ L standard 100 ppm in n-hexane, split 1:10, 260°C  
 Carrier gas: H<sub>2</sub>, constant pressure 8 psi (55.1 kPa)  
 Oven temperature: 50°C(2min) @ 10°C/min to 150°C @ 15°C/min to 240°C(10min)  
 Detector: FID, 260°C



### Peak Name

- 1- N-nitrosodimethylamine
- 2- N-nitrosodiethylamine
- 3- N-nitrosodiisopropylamine
- 4- N-nitrosodi-n-propylamine
- 5- N-nitrosodi-n-butylamine
- 6- N-nitrosopiperidine
- 7- N-nitrosopyrrolidine
- 8- N-nitrosomorpholine
- 9- N-nitroso-n-methyl-n-phenylamine
- 10- N-nitrosodiphenylamine

## SODIUM CYCLAMATE IMPURITIES

Column: TRB-5A, P/N TR-210533

Dimensions: 30m x 0.32mm x 0.5 µm

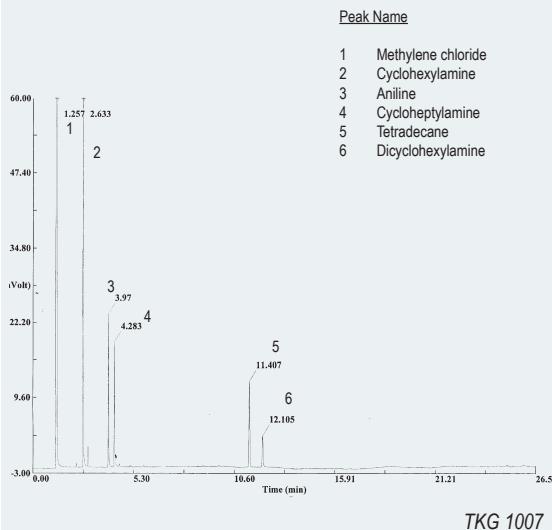
Injection: 1 µL (50-500 ppm), split 1:15, 280°C

Carrier gas: He, constant pressure 17 psi (117.1 KPa)

Oven program: 85°C (1 min) @ 8°C/min to 150°C(10min)

@ 30°C/min to 220°C(5min)

Detector: FID, 280°C



Column: TRB-624, P/N TR-603035

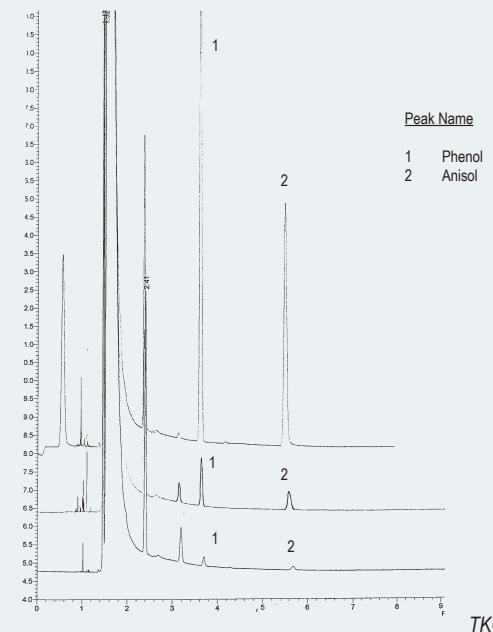
Dimensions: 30m x 0.53mm x 3.0 µm

Injection: 1 µl (0.5, 5 and 50ppm), split 1:5, 260°C

Carrier gas: He, constant pressure 5 psi (34.5 KPa).

Oven temperature: 150°C (isothermal)

Detector: FID, 280°C



## SEPARATION OF SOLVENTS

Column: TRB-1, P/N TR-115063

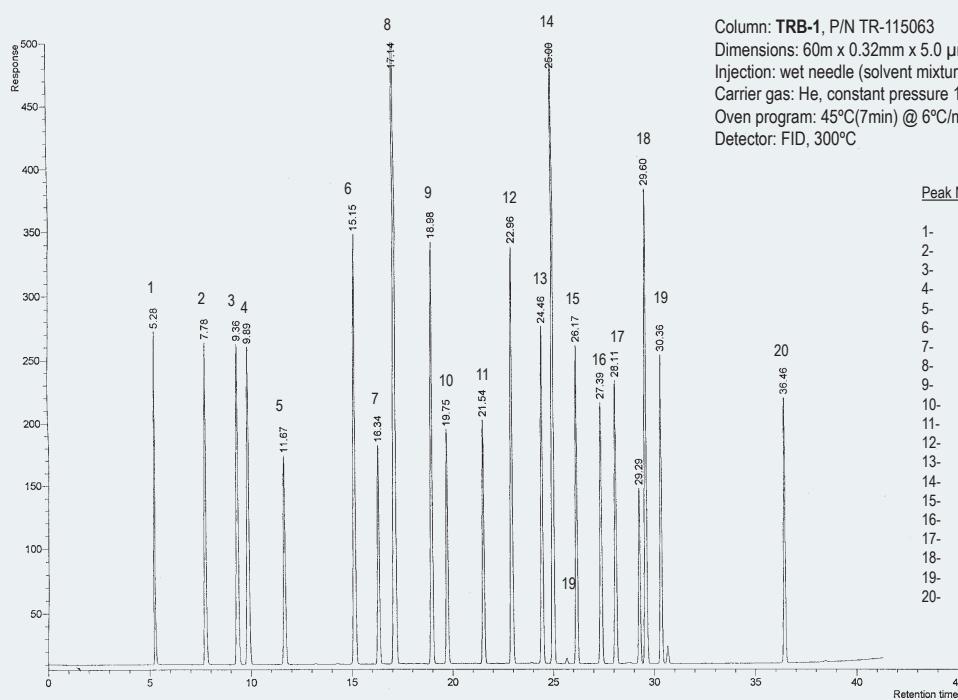
Dimensions: 60m x 0.32mm x 5.0 µm

Injection: wet needle (solvent mixture), split 1:100, 280°C

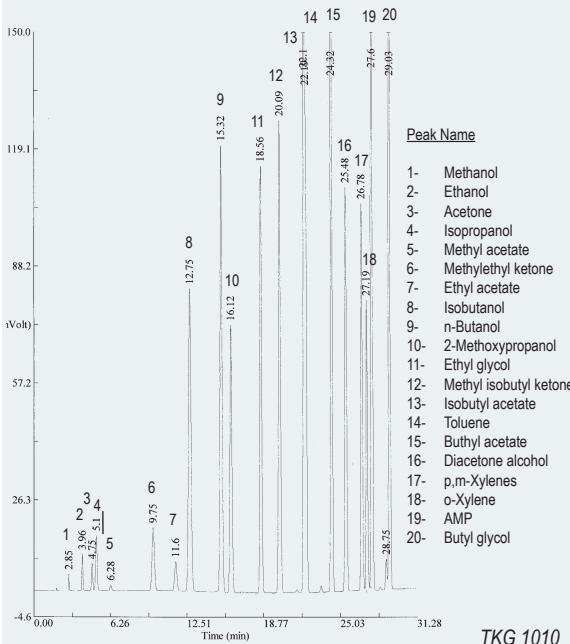
Carrier gas: He, constant pressure 14 psi (96.5 KPa).

Oven program: 45°C(7min) @ 6°C/min to 260°C(5min)

Detector: FID, 300°C



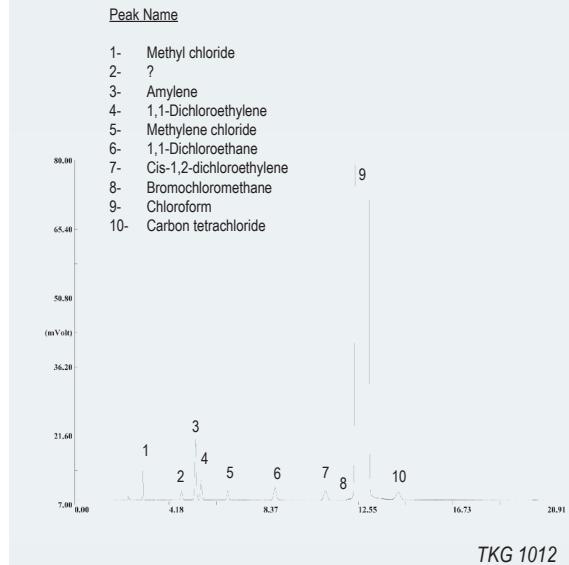
Column: TRB-1, P/N TR-115065  
 Dimensions: 60m x 0.53mm x 5.0  $\mu$ m  
 Injection: 0.1  $\mu$ l solvent mix, split, 250°C  
 Carrier gas: H<sub>2</sub>, constant pressure 6.5 psi (45 KPa).  
 Oven program: 40°C (10min) @ 5°C/min to 200°C(15min)  
 Detector: FID, 280°C



TKG 1010

## CHLOROFORM IMPURITIES

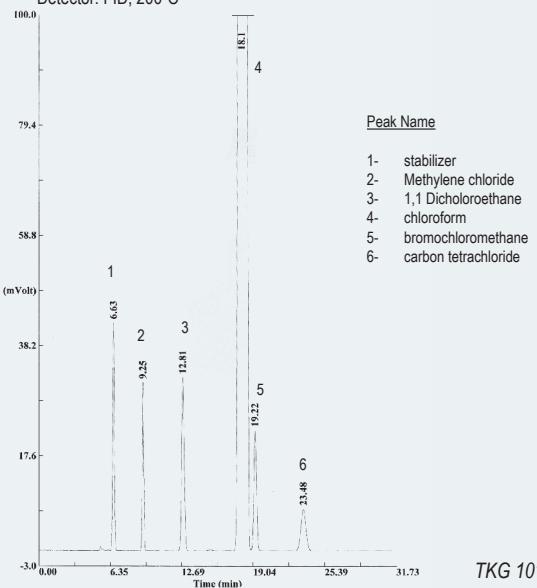
Column: TRB-624, P/N TR-603035  
 Dimensions: 30m x 0.53mm x 3.0  $\mu$ m  
 Injection: 1  $\mu$ l split 1:6, 260°C,  
 Liner: single tape with wool  
 Carrier Gas: He, 3psi (20.7 KPa), 21.9cm/s (40°C)  
 Program temperature: 40°C  
 Detector: FID, 200°C



TKG 1012

## CHLOROFORM IMPURITIES

Column: Meta.VOC, P/N TR-943035  
 Dimensions: 30m x 0.53mm x 3.0  $\mu$ m  
 Injection: 1  $\mu$ l chloroform , split, 5:1, 150°C  
 Carrier gas: He, constant pressure 2 psi (13.8 KPa), 19.53 cm/s (30°C)  
 Oven program: 30°C (isothermal)  
 Detector: FID, 200°C



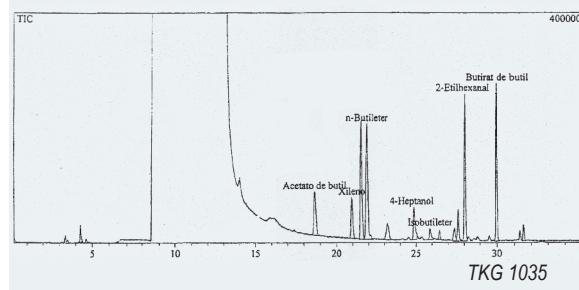
TKG 1013

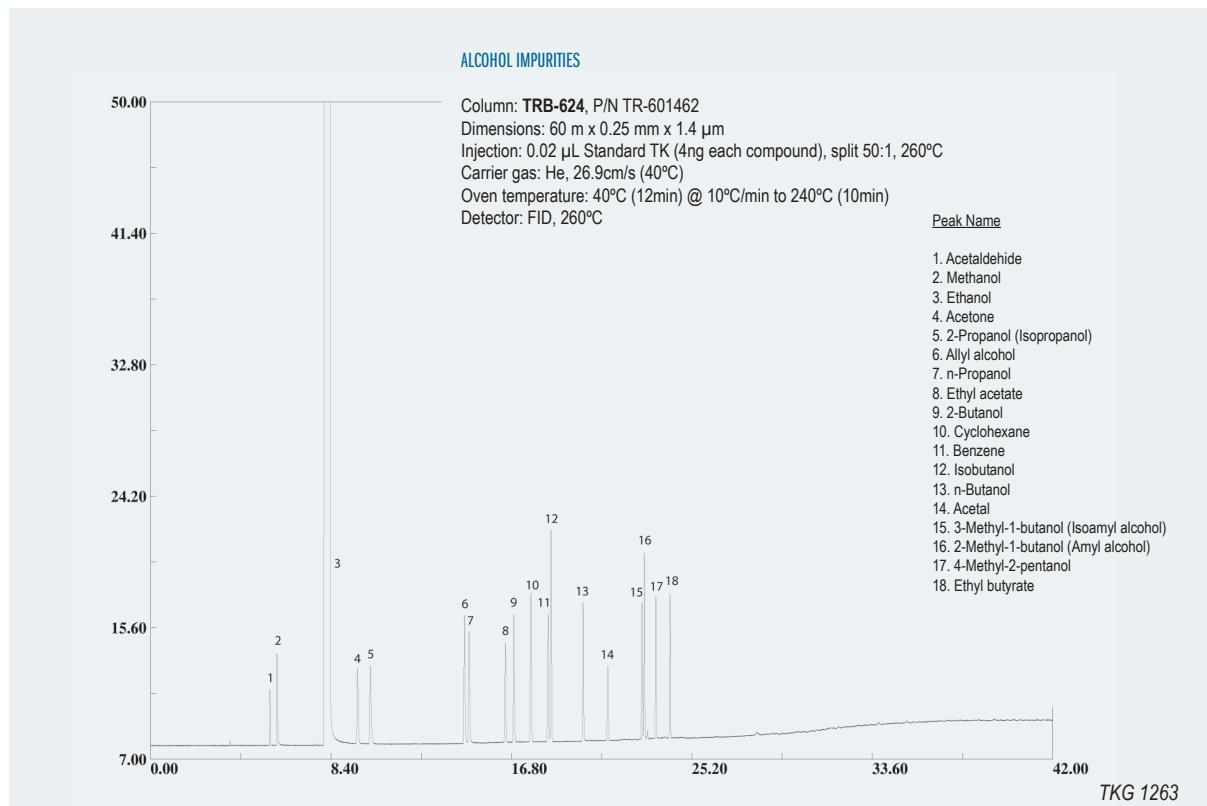
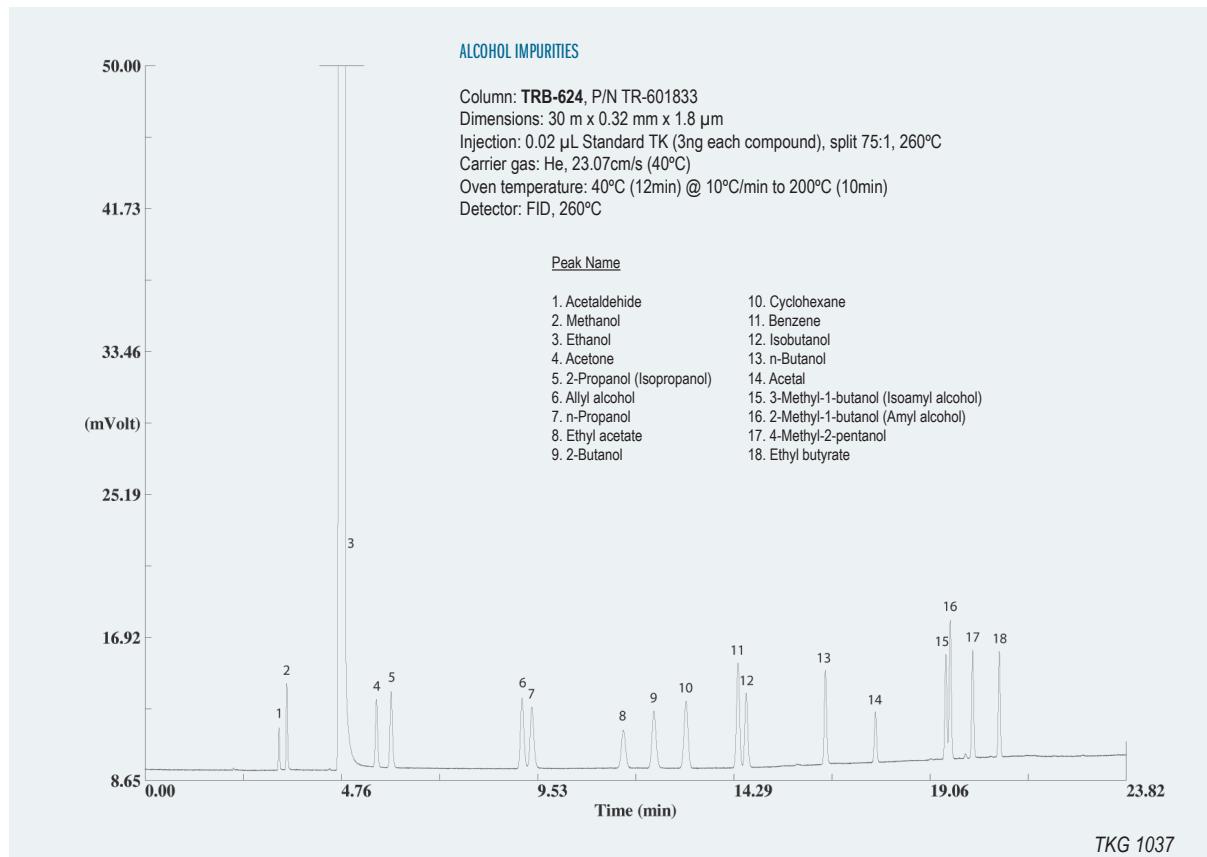
## IMPURITIES OF n-BUTANOL

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25  $\mu$ m  
 Injection: 1  $\mu$ L n-Butanol, split 1:20, 250°C  
 Carrier gas: He, constant flow 1 mL/min  
 Oven temperature: 40°C @ (5min) @ 4°C/min to 200°C  
 @ 15°C/min to 300°C  
 Detector: MS, 280°C (interphase)

Chromatogram provided by F. Sisteré from IUCT

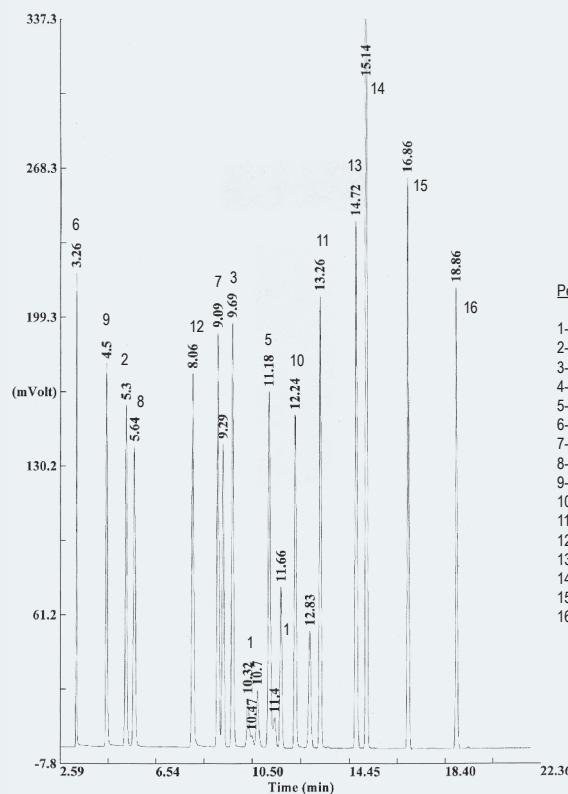
Peak Number
1- Butyl acetate
2- Xylene
3- n-Butylether
4- 4-Heptanol
5- Isobutylether
6- 2-Ethylhexanal
7- Butyl butyrate





**SEPARATION OF SOLVENTS**

Column: TRB-624, P/N TR-603075  
 Dimensions: 75m x 0.53mm x 3.0  $\mu$ m  
 Injection: 0.2  $\mu$ L, split 1:5, 260°C  
 Carrier gas: H<sub>2</sub>, constant pressure 7.8 psi (53.74 KPa).  
 Oven temperature: 40°C(5min) @ 7°C/min to 240°C  
 Detector: FID, 280°C



TKG 1042

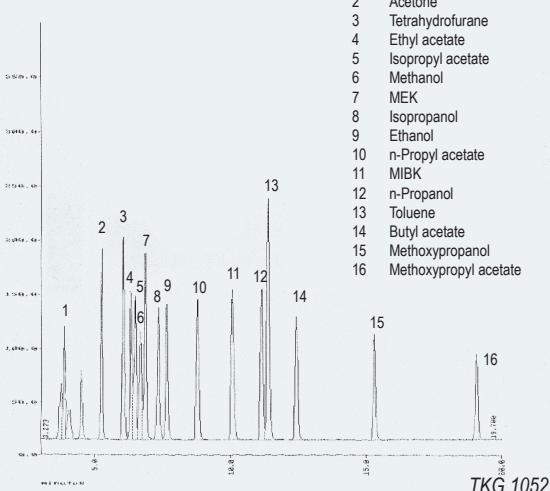
**SEPARATION OF SOLVENTS**

Column: TRB-WAX, P/N TR-141253  
 Dimensions: 50m x 0.32mm x 1.2  $\mu$ m  
 Injection: 1  $\mu$ L standard (500 ng/mL comp.), split 1:25, 260°C  
 Carrier gas: He, constant pressure 12 psi (82.7 Kpa)  
 Oven temperature: 65°C(7min) @ 4°C/min to 117°C  
 Detector: FID, 260°C

Chromatogram provided by  
 Jaume Piedrabuena from Danisco

Peak Name

- 1 Heptane (isomers mixture)
- 2 Acetone
- 3 Tetrahydrofurane
- 4 Ethyl acetate
- 5 Isopropyl acetate
- 6 Methanol
- 7 MEK
- 8 Isopropanol
- 9 Ethanol
- 10 n-Propyl acetate
- 11 MIBK
- 12 n-Propanol
- 13 Toluene
- 14 Butyl acetate
- 15 Methoxypropanol
- 16 Methoxypropyl acetate



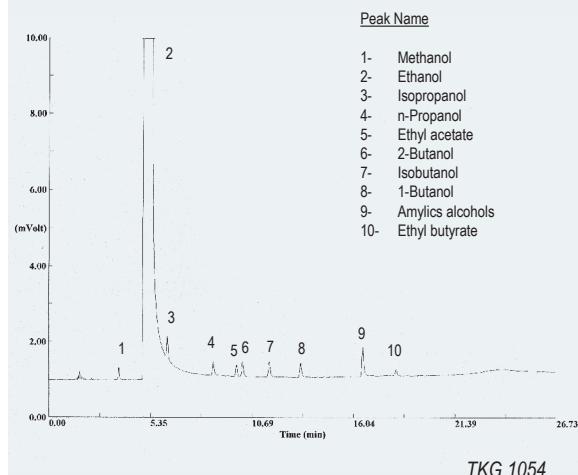
TKG 1052

**IMPURITIES OF ETHANOL**

Column: TRB-G43, P/N TR-163035  
 Dimensions: 30m x 0.53mm x 3.0  $\mu$ m  
 Injection: 1  $\mu$ L standard alcohols (20 ppm/comp), split 1:5, 200°C  
 Carrier gas: He, constant pressure 2.6 psi (17.9 KPa).  
 Oven temperature: 42°C(4min) @ 5°C/min to 140°C(4min)  
 Detector: FID, 200°C

Peak Name

- 1- Methanol
- 2- Ethanol
- 3- Isopropanol
- 4- n-Propanol
- 5- Ethyl acetate
- 6- 2-Butanol
- 7- Isobutanol
- 8- 1-Butanol
- 9- Amylics alcohols
- 10- Ethyl butyrate



TKG 1054

## SEPARATION IMPURITIES OF BUTYL ACRYLATE

Column: TRB-1, P/N TR-111052

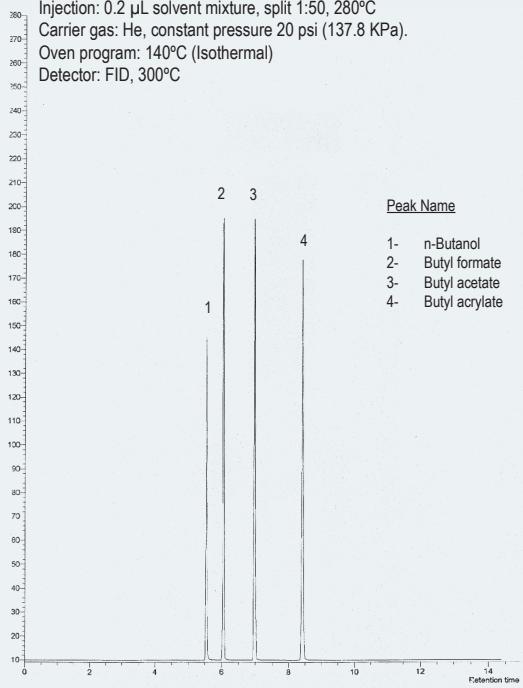
Dimensions: 50m x 0.25mm x 1.0  $\mu\text{m}$

Injection: 0.2  $\mu\text{L}$  solvent mixture, split 1:50, 280°C

Carrier gas: He, constant pressure 20 psi (137.8 kPa)

Oven program: 140°C (isothermal)

Detector: FID, 300°C



## SEPARATION OF HYDROCARBONS (FAST CHROMATOGRAPHY)

Column: TRB-1, P/N TR-110441

Dimensions: 10m x 0.10mm x 0.40  $\mu\text{m}$

Injection: 0.5  $\mu\text{L}$  standard Hydrocarbons

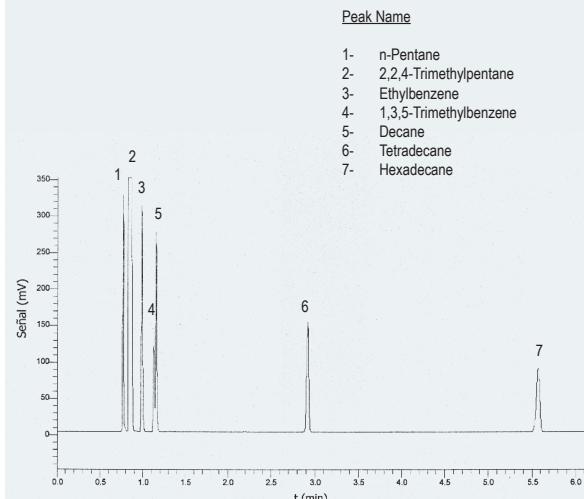
(0.95%/comp. in 2,2,4-Trimethylpentane), split 1:200, 200°C

Carrier gas: He, constant pressure 40 psi (275.6 kPa)

Oven temperature: 190°C (isothermal)

Detector: FID, 200°C

Chromatogram provided by J.I. Gómez Civicos, M.A. Uguina Zamorano and J.L. Sotelo Sancho from Universidad Complutense de Madrid



## CHLOROFORM PURITY

Column: TRB-5, P/N TR-121063

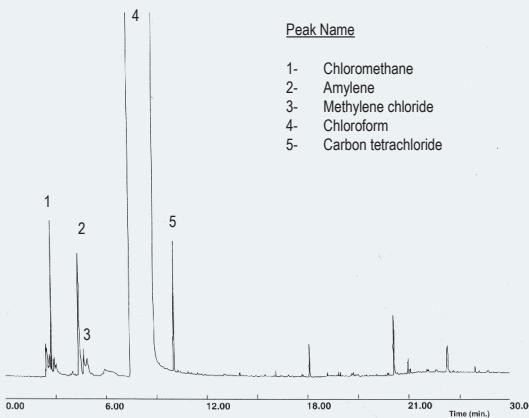
Dimensions: 60m x 0.32mm x 1.0  $\mu\text{m}$

Injection: 250°C, 2  $\mu\text{L}$  (split 20:1)

Carrier gas: H<sub>2</sub>, 11 psi (75.8 kPa).

Oven temperature: 40°C (8 min) to 200°C (5 min) @ 10°C/min

Detector: FID, 250°C



## POLYWAX 655

Column: TRB-5ht, P/N TR-620112

Dimensions: 15m x 0.32mm x 0.1  $\mu\text{m}$

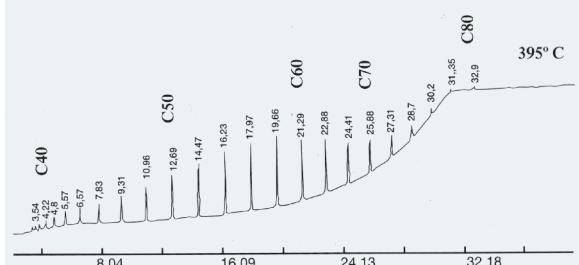
Injection: 0, 2  $\mu\text{L}$  (split) 2% Polywax 655 in Carbon sulfide

Oven program: 70°C to 250°C @ 70°C/min. to 395°C (10 min)

@ 5°C/min.

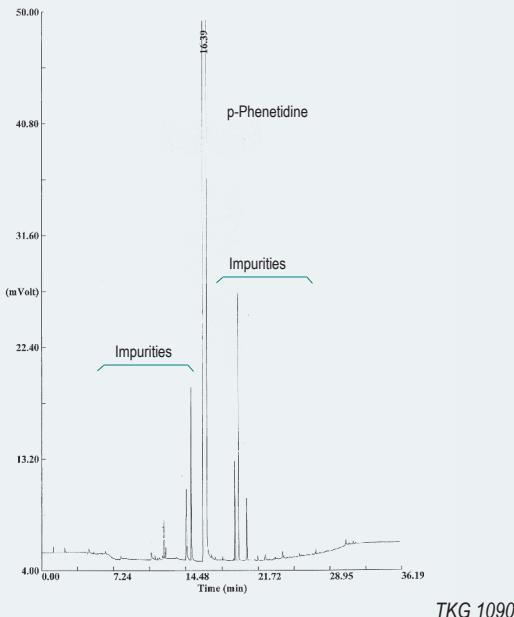
Detector: FID, 410°C

(base line without compensation)



#### IMPURITIES OF p-PHENETIDINE

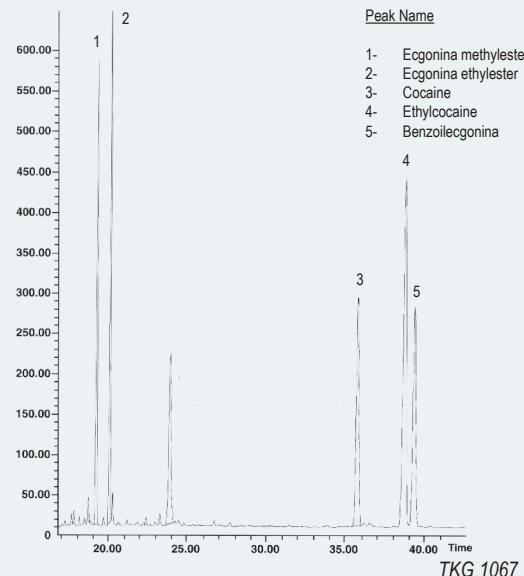
Column: TRB-5A, P/N TR-210532  
 Dimensions: 30m x 0.32mm x 0.50 µm  
 Injection: p-Phenetidine wet needle, split 1:50, 260°C  
 Carrier gas: H<sub>2</sub>, 11 psi (69 kPa)  
 Oven temperature: 80°C(5min) @ 7°C/min to 260°C (6min)  
 Detector: FID, 300°C



#### DRUGS IN URINE

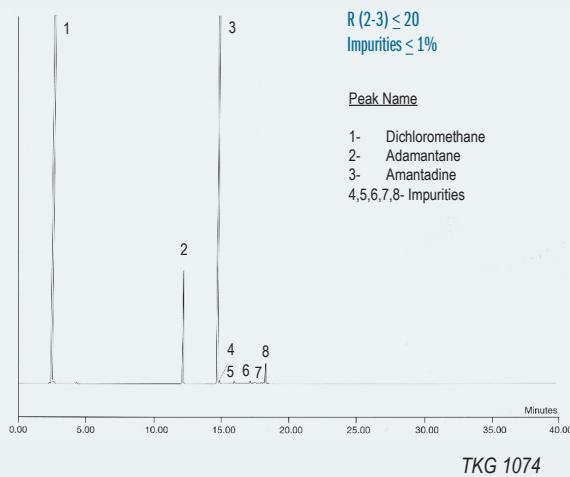
Column: TRB-5ms, P/N TR-520129  
 Dimensions: 25m x 0.20mm x 0.11 µm  
 Injection: 250°C, 1 µl splitless (BSTFA Derivatives in ACN)  
 Carrier gas: He, 15 psi (103.3 kPa)  
 Oven temperature: 60°C (1') to 180°C (1') @ 10°C/min. to 220°C @ 10°C/min.  
 Detector: FID, 280°C

Chromatogram provided by Jordi To, Hospital Clínico from Barcelona.



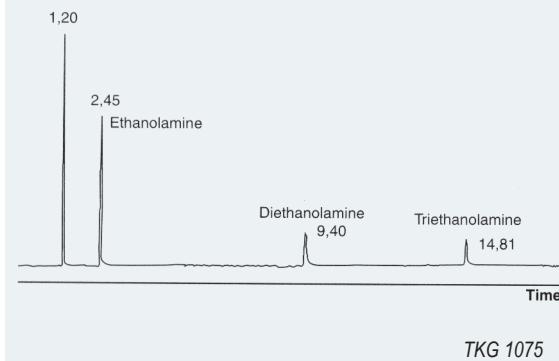
#### AMANTADINE HYDROCHLORIDE IMPURITIES

Column: TRB-5 AMINE, P/N TR-210533  
 Dimensions: 30m x 0.53mm x 1.0m  
 Injection: 2 µl (split 1:50), 220°C  
 Carrier gas: He, 4.2 psi (28.9 kPa)  
 Oven temperature: 70°C (5') to 250°C (20min) @ 10°C/min.  
 Detector: FID, 300°C  
 Sample: Test solution according to USP 25



#### ETHANOLAMINES SEPARATION (25 ng/peak level)

Column: TRB-5 AMINE, P/N TR-210533  
 Dimensions: 30m x 0.32mm x 0.50 µm  
 Injection: 2 µl (split 1:50), 280°C  
 Carrier gas: H<sub>2</sub>, 7 psi (48.2 kPa)  
 Oven temperature: 50°C (2') to 200°C @ 10°C/min.  
 Detector: FID, 300°C  
 Sample: Ethanolamines solution in methanol (1,25 mg/ml)



## USP SOLVENTS <USP> COLUMN TRB-G27+GUARDCOLUMN 5M

Column: **TRB-G27**, P/N-175035

Dimensions: 30m x 0.53mm x 5.0  $\mu$ m

Oven temp.: 35°C(5') to 175°C@ 8°C/min. to 260°C (16')@35°C/min.

Carrier gas: He, 4.5 psi (31 KPa), 35 cms. to 35°C

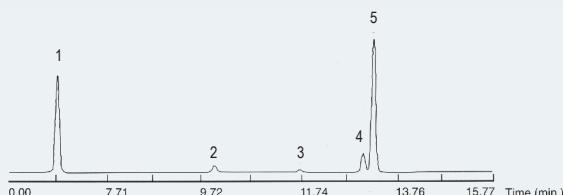
Injector temp: 70°C

FID temp: 260°C

Injection: Direct injection of 1  $\mu$ L (Unilinler), standard dissolution in distilled water (1:10)

### Standard      Concentration

1-	Methylene chloride	600ppm
2-	Chloroform	60ppm
3-	Benzene	2ppm
4-	Trichloroethylene	80ppm
5-	1,4 - Dioxan	380ppm



TKG 1076

## ANALYSIS OF CYCLOSIOXANES

Column: **TRB-5**, P/N TR-120232

Dimensions: 30m x 0.25mm x 0.25  $\mu$ m

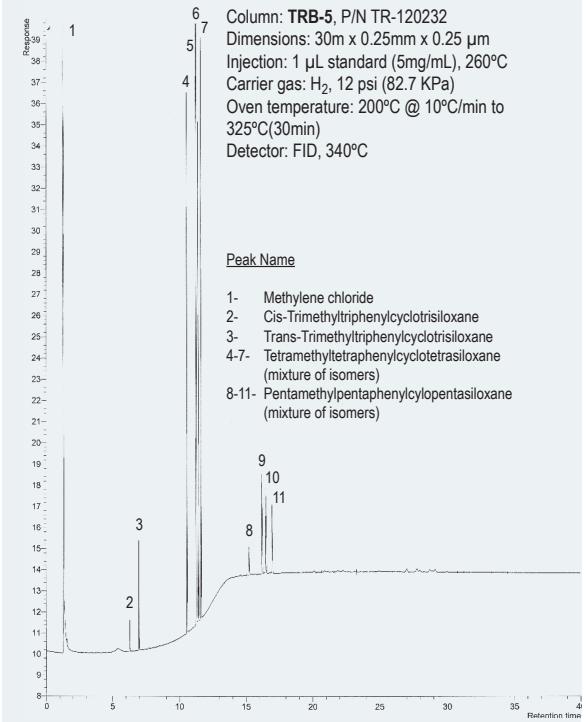
Injection: 1  $\mu$ L standard (5mg/mL), 260°C

Oven temperature: 200°C @ 10°C/min to 325°C(30min)

Detector: FID, 340°C

### Peak Name

1-	Methylene chloride
2-	Cis-Trimethyltriphenylcyclotrisiloxane
3-	Trans-Trimethyltriphenylcyclotrisiloxane
4-7-	Tetramethyltetraphenylcyclotetrasiloxane (mixture of isomers)
8-11-	Pentamethylpentaphenylcyclopentasiloxane (mixture of isomers)



TKG 1094

## EPA 601/602 PURGEABLE HALOCARBONS MIX PLUS 2-CHLOROETHYL VINYL ETHER

Column: **TRB-624**, P/N TR-601462

Dimensions: 60m x 0.25mm x 1.4  $\mu$ m

Injection: 0.5  $\mu$ L EPA 601/602 Purgeable Halocarbons Mix (2000 ng/mL), split 1:50, 260°C

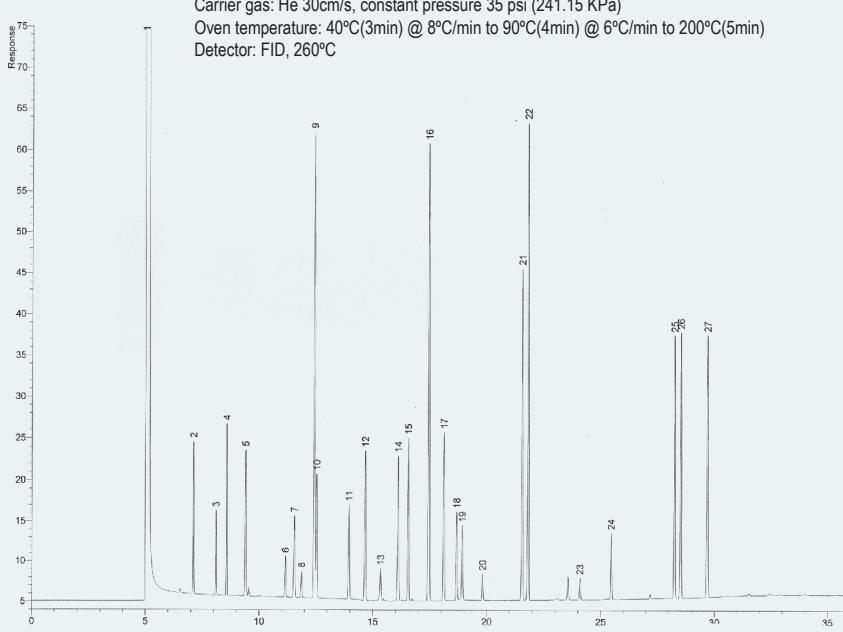
Carrier gas: He 30cm/s, constant pressure 35 psi (241.15 KPa)

Oven temperature: 40°C(3min) @ 8°C/min to 90°C(4min) @ 6°C/min to 200°C(5min)

Detector: FID, 260°C

### Peak Name

1-	Methanol
2-	1,1-Dichloroethylene
3-	Methylene chloride
4-	trans-1,2-Dichloroethylene
5-	1,1-Dichloroethane
6-	Chloroform
7-	1,1,1-Trichloroethane
8-	Carbon Tetrachloride
9-	Benzene
10-	1,2-Dichloroethane
11-	Trichloroethylene
12-	1,2-Dichloropropane
13-	Bromodichloromethane
14-	2-Chloroethyl vinyl ether
15-	cis-1,3-Dichloropropene
16-	Toluene
17-	trans-1,3-Dichloropropene
18-	1,1,2-Trichloroethane
19-	Tetrachloroethylene
20-	Dibromochloromethane
21-	Chlorobenzene
22-	Ethylbenzene
23-	Bromoform
24-	1,1,2,2-Tetrachloroethane
25-	1,3-Dichlorobenzene
26-	1,4-Dichlorobenzene
27-	1,2-Dichlorobenzene



TKG 1093

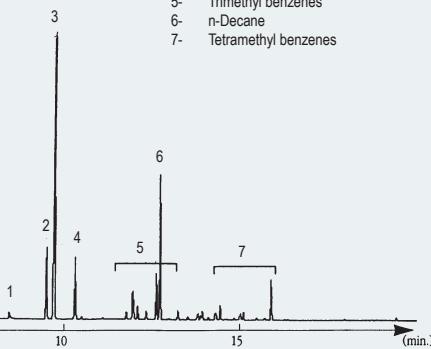
## SOLVENTS IN WATER

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 m  
 Injection: 1  $\mu$ L, split  
 Carrier gas: He  
 Oven temperature:  
 Detector: FID

*Chromatogram provided by J. Teixidor and E. Bosch from  
 Laboratory Dr. Riera*

### Peak Name

- 1- Butyl acetate
- 2- Ethyl benzene
- 3- m,p-Xylene
- 4- o-Xylene
- 5- Trimethyl benzenes
- 6- n-Decane
- 7- Tetramethyl benzenes



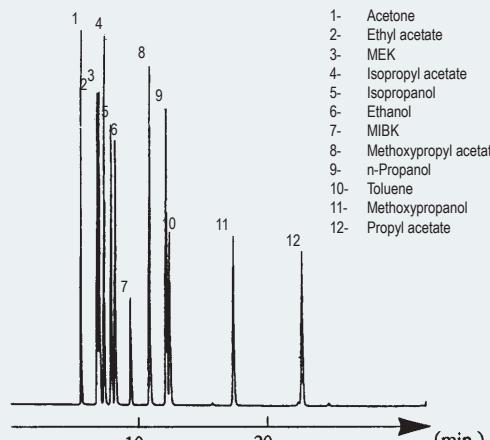
TKG 1160

## INDUSTRIAL SOLVENTS

Column: TR-WAX, P/N TR-141253  
 Dimensions: 50m x 0.32mm x 1.2  $\mu$ m  
 Injection: 0.1  $\mu$ L, split  
 Carrier gas: H<sub>2</sub>, 16 psi (110.24 KPa)  
 Oven temperature: 60°C @ 2°C/min to 125°C  
 Detector: FID, 250°C

### Peak Name

- 1- Acetone
- 2- Ethyl acetate
- 3- MEK
- 4- Isopropyl acetate
- 5- Isopropanol
- 6- Ethanol
- 7- MIBK
- 8- Methoxypropyl acetate
- 9- n-Propanol
- 10- Toluene
- 11- Methoxypropanol
- 12- Propyl acetate



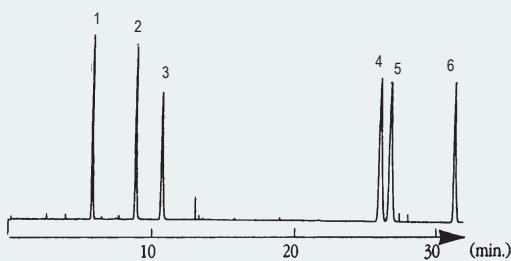
TKG 1161

## INDUSTRIAL SOLVENTS

Column: TR-WAX, P/N TR-141233  
 Dimensions: 30m x 0.32mm x 1.2  $\mu$ m  
 Injection: 0.1  $\mu$ L, split  
 Carrier gas: He, 12 psi (82.7 KPa)  
 Oven temperature: 40°C @ 1°C/min to 70°C @ 7.5°C/min to 125°C  
 Detector: FID, 250°C

### Peak Name

- 1- Acetone
- 2- Methanol
- 3- Ethanol
- 4- p-Xylene
- 5- m-Xylene
- 6- o-Xylene



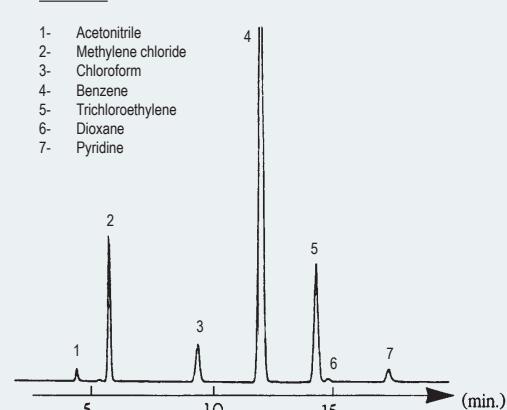
TKG 1162

## INDUSTRIAL SOLVENTS IN RAW MATERIALS

Column: TRB-5, P/N TR-125035  
 Dimensions: 30m x 0.53mm x 5.0  $\mu$ m  
 Injection: 1  $\mu$ L, head space  
 Carrier gas: N<sub>2</sub>, 5 mL/min  
 Oven temperature: 40°C(5min) @ 3°C/min to 110°C  
 Detector: FID

### Peak Name

- 1- Acetonitrile
- 2- Methylene chloride
- 3- Chloroform
- 4- Benzene
- 5- Trichloroethylene
- 6- Dioxane
- 7- Pyridine



TKG 1163

## IMPURITIES IN RAW MATERIALS

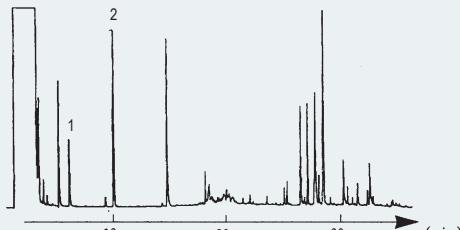
### Analysis of Monochloroacetic acid

Column: TRB-5, P/N TR-120233  
 Dimensions: 30m x 0.32mm x 0.25 µm  
 Injection: splitless 1 min, 260°C  
 Carrier gas: He, 8 psi  
 Oven temperature: 30°C(12min) @ 10°C/min to 250°C  
 Detector: FID, 260°C

Chromatogram provided by A. Tintó from MOEHS, S.A., Barcelona.

#### Peak Name

- 1- Methyl chloroacetate
- 2- Internal Standard



TKG 1164

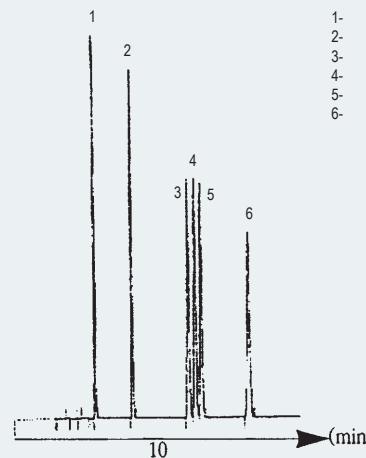
## AROMATIC SOLVENTS

Column: TRB-WAX, P/N TR-141233  
 Dimensions: 30m x 0.32mm x 1.2 µm  
 Injection: split  
 Carrier gas: He, 10 psi (68.9 KPa)  
 Oven temperature: 80°C (Isothermal)  
 Detector: FID, 250°C

Chromatogram provided by E. Cura from SGS, S.A., Barcelona.

#### Peak Name

- 1- Benzene
- 2- Toluene
- 3- Ethyl benzene
- 4- p-Xylene
- 5- m-Xylene
- 6- o-Xylene



TKG 1165

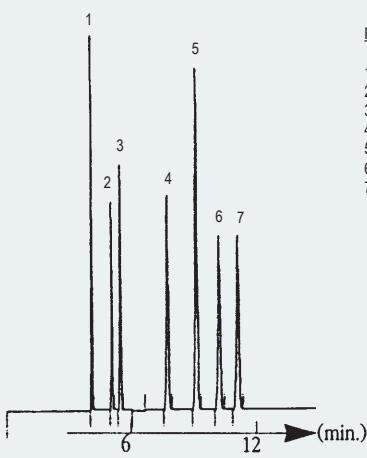
## MIXTURE OF SOLVENTS

Column: TRB-WAX, P/N TR-141233  
 Dimensions: 30m x 0.32mm x 1.2 µm  
 Injection: split  
 Carrier gas: He, 10 psi (68.9 KPa)  
 Oven temperature: 75°C (Isothermal)  
 Detector: FID, 250°C

Chromatogram provided by E. Cura from SGS, S.A., Barcelona.

#### Peak Name

- 1- Acetone
- 2- Methanol
- 3- Isopropanol
- 4- MIBK
- 5- Toluene
- 6- Butyl acetate
- 7- Isobutanol



TKG 1166

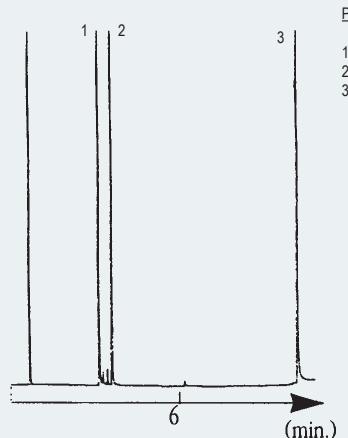
## GLYCOLS IN WATER

Column: TRB-FFAP, P/N TR-150535  
 Dimensions: 30m x 0.53mm x 0.5 µm  
 Injection: 1 µL, split  
 Carrier gas: H<sub>2</sub>, 2 psi (13.8 KPa)  
 Oven temperature: 100°C @ 10°C/min to 220°C  
 Detector: FID

Chromatogram provided by E. Cura from SGS, S.A., Barcelona.

#### Peak Name

- 1- Butanediol
- 2- Propylene glycol
- 3- Glycerine



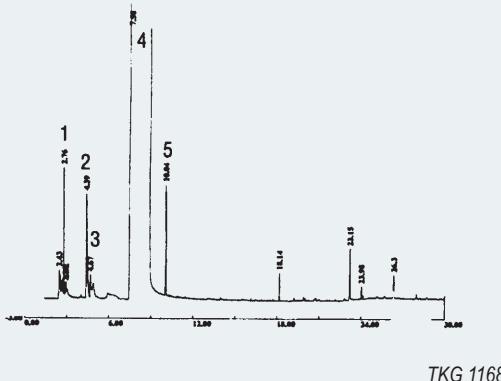
TKG 1167

## PURITY OF CHLOROFORM

Column: TRB-5, P/N TR-121063  
 Dimensions: 60m x 0.32mm x 1.0  $\mu$ m  
 Injection: 2  $\mu$ L, split, 260°C  
 Carrier gas: H<sub>2</sub>, 11 psi (75.8 KPa)  
 Oven temperature: 40°C(8min) @ 10°C/min to 200°C(5min)  
 Detector: FID, 260°C

### Peak Name

- 1- Methyl chloroform
- 2- Amylene
- 3- Methylen chloride
- 4- Chloroform
- 5- Carbon tetrachloride



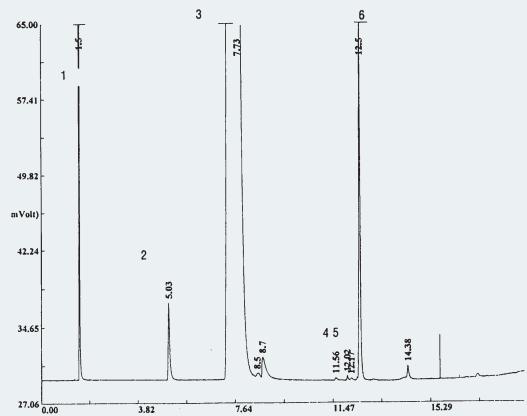
TKG 1168

## IMPURITIES OF DIMETHYLACETAMIDE

Column: TRB-WAX, P/N TR-140232  
 Dimensions: 30m x 0.25mm x 0.25  $\mu$ m  
 Injection: 0.3  $\mu$ L, split, 260°C  
 Carrier gas: H<sub>2</sub>, 11 psi (78.8 KPa)  
 Oven temperature: 75°C(7min) @ 10°C/min to 200°C  
 Detector: FID, 280°C

### Peak Name

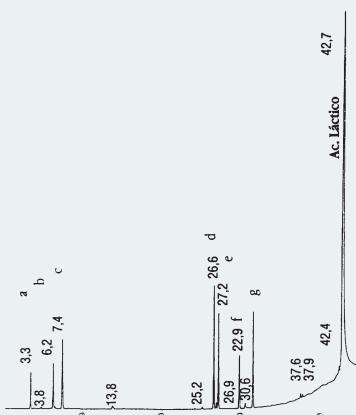
- 1- Methanol
- 2- Dimethylformamide
- 3- Dimethylacetamide
- 4- Propylene glycol
- 5- Ethylene glycol
- 6- Monomethyl acetamide



TKG 1169

## IMPURITIES OF LACTIC ACID

Column: TRB-FFAP, P/N TR-151035  
 Dimensions: 30m x 0.53mm x 1.0  $\mu$ m  
 Injection: 0.5  $\mu$ L, split, 260°C  
 Carrier gas: H<sub>2</sub>, 3 psi (20.7 KPa)  
 Oven temperature: 45°C(15min) @ 8°C/min to 240°C(15min)  
 Detector: FID, 280°C



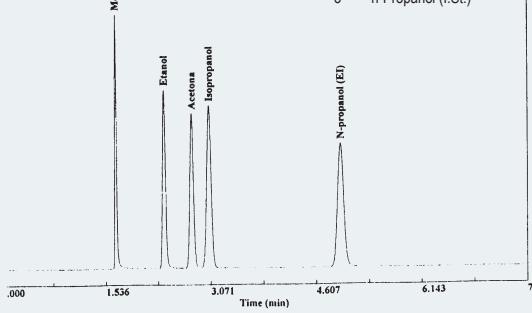
TKG 1170

## ALCOHOLS IN BLOOD

Column: TRB-G43, P/N TR-163035  
 Dimensions: 30m x 0.53mm x 3.0  $\mu$ m  
 Injection: 1  $\mu$ L, split, alcohols standard  
 Carrier gas: H<sub>2</sub>, 4 psi (27.6 KPa)  
 Oven temperature: 35°C (isothermal)  
 Detector: FID, 250°C

### Peak Name

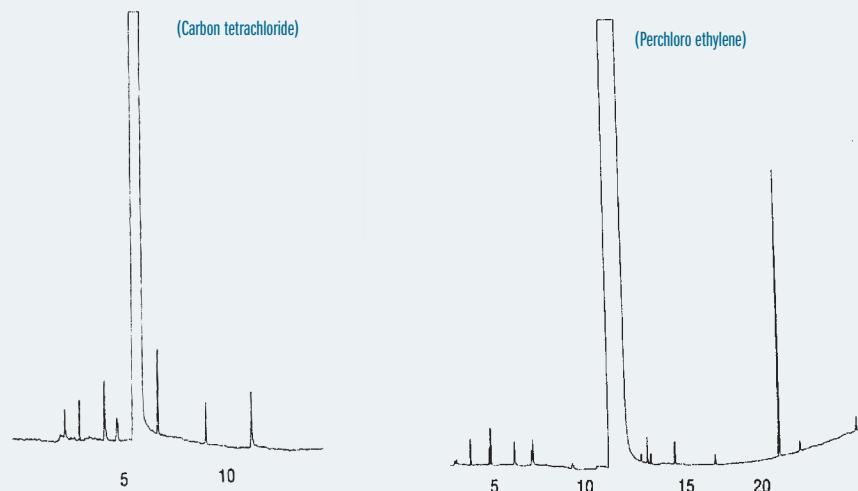
- 1- Methanol
- 2- Ethanol
- 3- Acetone
- 4- Isopropanol
- 5- n-Propanol (I.St.)



TKG 1172

**IMPURITIES IN SOLVENTS**

Column: **TRB-1**, P/N TR-110352  
 Dimensions: 50m x 0.25mm x 0.33 µm  
 Injection: 1 µL, split, neat solvent  
 Carrier gas: H<sub>2</sub>, 19 psi (130.9 KPa)  
 Oven temperature: 35°C(5min) @ 6°C/min to 150°C(5min)  
 Detector: FID, 275°C



TKG 1171

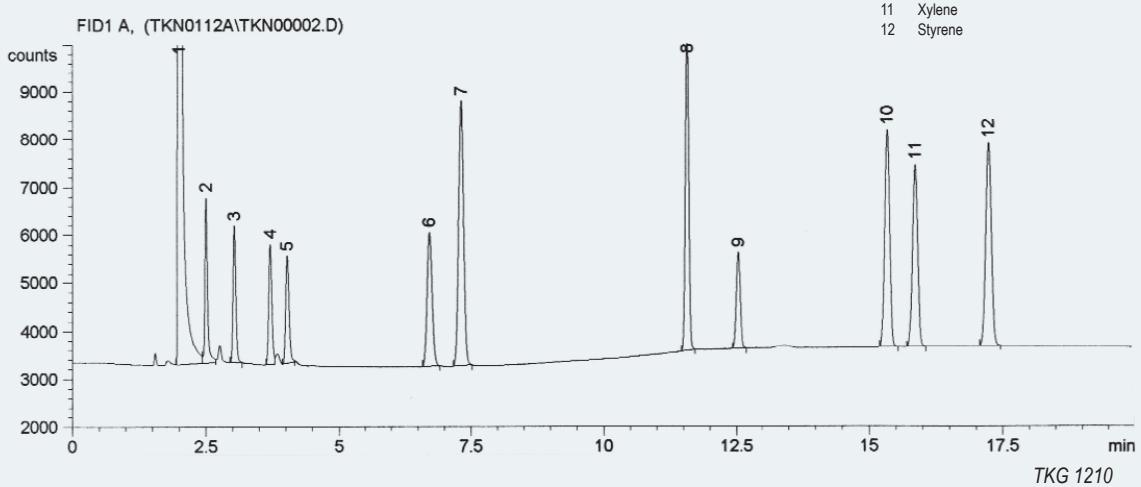
**POLLUTANTS IN BLOOD**

Column: **MetaBLOOD 1**, P/N TR-853035  
 Dimensions: 30m x 0.53mm x 3.0µm  
 Injection: 1 mL Head Space 2t (vial 70°C), alcohols and aromatics in blood (2-20 ppm), split 1:30, 225°C  
 Carrier gas: He, 5 psi  
 Oven temperature: 45°C(7 min) @ 10°C/min to 90°C(10min)  
 Detector: FID, 300°C

Chromatogram provided by Dra. Guadalupe Montoya and Dra. Isabel Bonaparte de General Lab (Barcelona)

Peak Name

1	Methanol
2	Ethanol
3	Isopropanol
4	Acetone
5	n-Propanol
6	Methylethylketone (MEK)
7	Benzene
8	Toluene
9	Methylisobutylketone (MIBK)
10	Ethylbenzene
11	Xylene
12	Styrene



**POLLUTANTS IN BLOOD**

Column: **MetaBLOOD 1**, P/N TR-853035

Dimensions: 30m x 0.53mm x 3.0 $\mu$ m

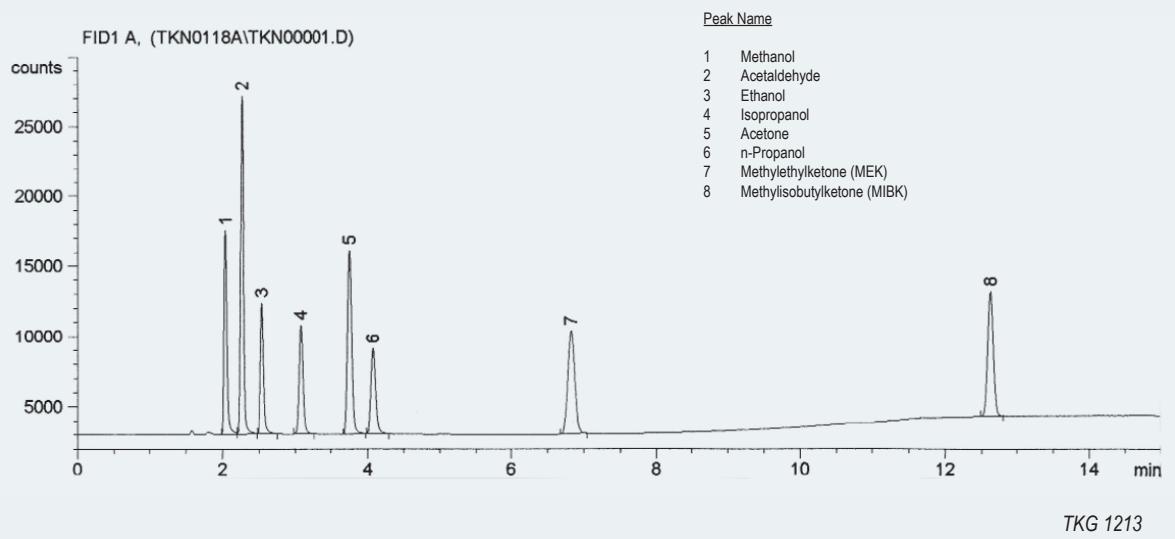
Injection: 1 mL Head Space 2t (vial 70°C), alcohols and aromatics in blood (2-20 ppm), split 1:30, 225°C

Carrier gas: He, 5 psi

Oven temperature: 45°C(7 min) @ 10°C/min to 90°C(10min)

Detector: FID, 300°C

Chromatogram provided by Dra. Guadalupe Montoya and Dra. Isabel Bonaparte de General Lab (Barcelona)



**ALCOHOLS IN BLOOD**

Column: **MetaBLOOD 2**, P/N TR-862035

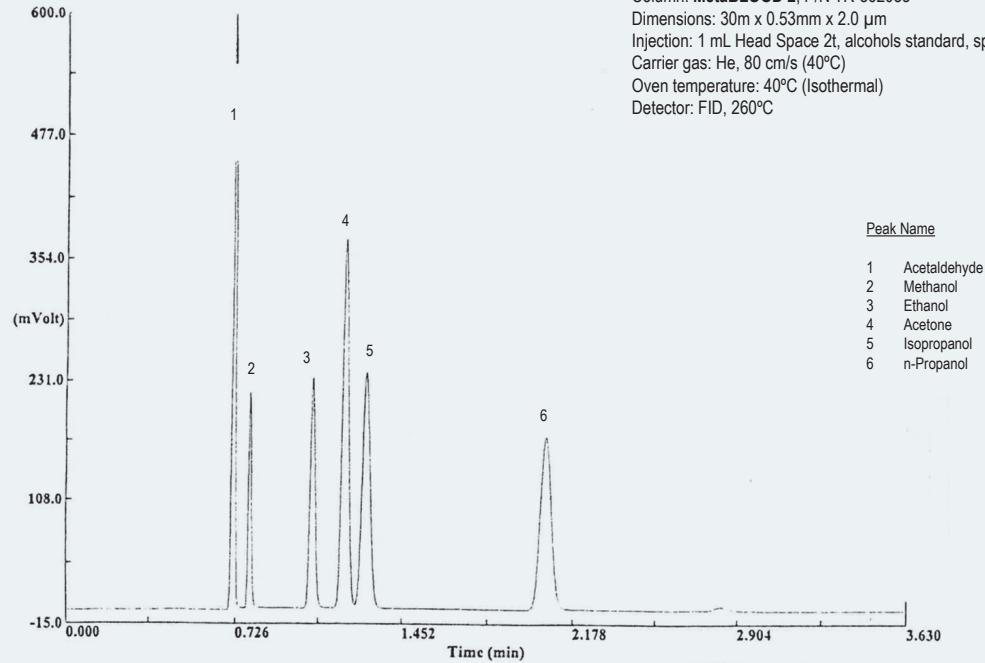
Dimensions: 30m x 0.53mm x 2.0  $\mu$ m

Injection: 1 mL Head Space 2t, alcohols standard, split 1:10, 250°C

Carrier gas: He, 80 cm/s (40°C)

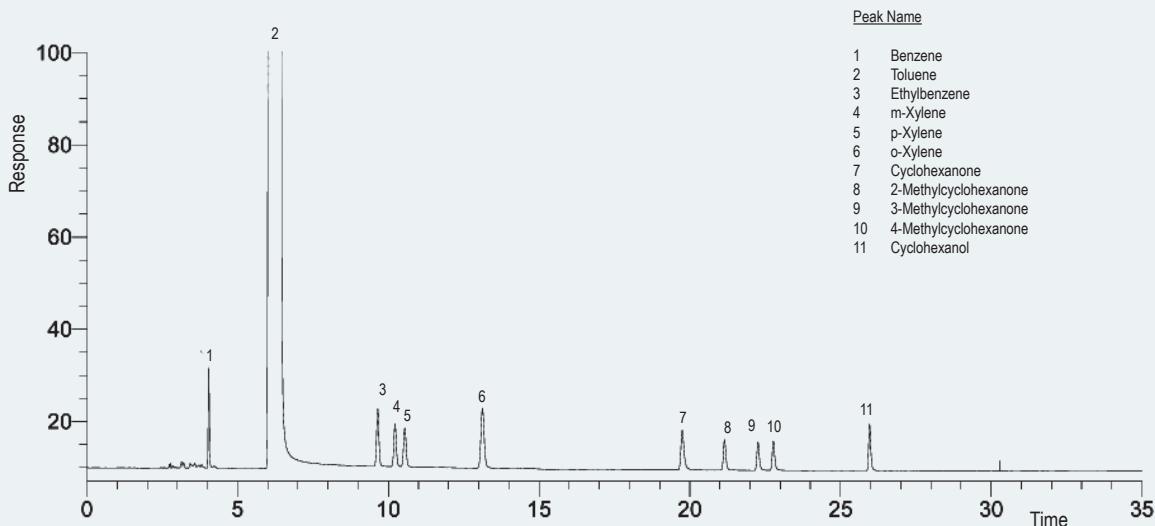
Oven temperature: 40°C (Isothermal)

Detector: FID, 260°C



IMPURITIES IN TOLUENE

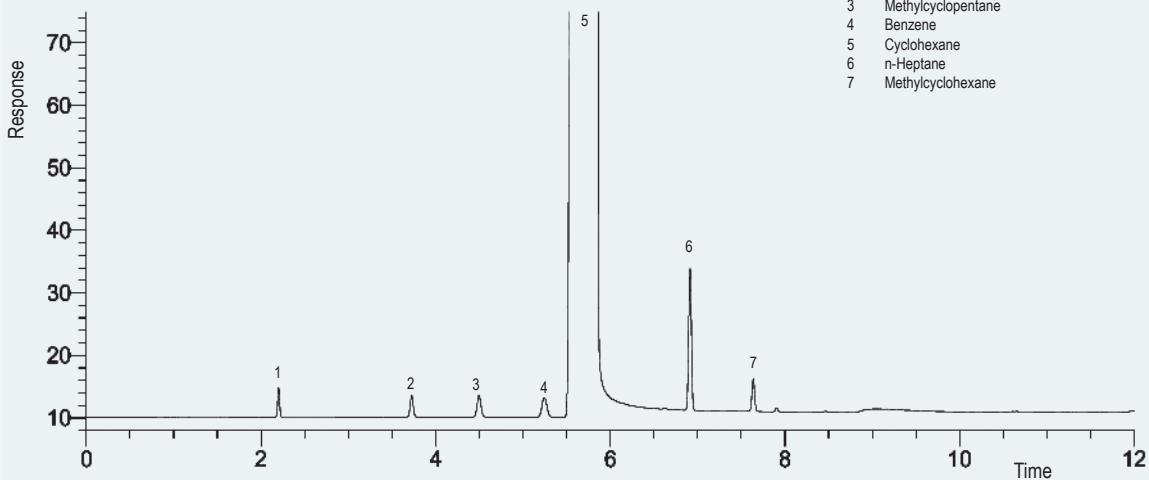
Column: TRB-PAG, P/N TR-550232  
 Dimensions: 30m x 0.25mm x 0.25 $\mu$ m  
 Injection: 1  $\mu$ L Toluene Standard, split 1:50, 260°C  
 Carrier gas: He, constant pressure 11 psi (75.8 Kpa)  
 Oven Temperature: 40°C @ 6°C/min to 230°C(5min)  
 Detector: FID, 260°C



TKG 1194

IMPURITIES IN CYCLOHEXANE

Column: TRB-1, P/N TR-111226  
 Dimensions: 25m x 0.15mm x 1.2  $\mu$ m  
 Injection: 1 $\mu$ L Cyclohexane, split 1:100, 260°C  
 Carrier gas: H<sub>2</sub>, constant pressure 22 psi (0.8 mL/min)  
 Oven temperature: 60°C(6 min) @ 20°C/min to 160°C(2 min)  
 Detector: FID, 300°C



TKG 1195

**MIXTURE OF SOLVENTS AND ISOMERS OF N-HEPTANE**

Column: TRB-624, P/N TR-603075

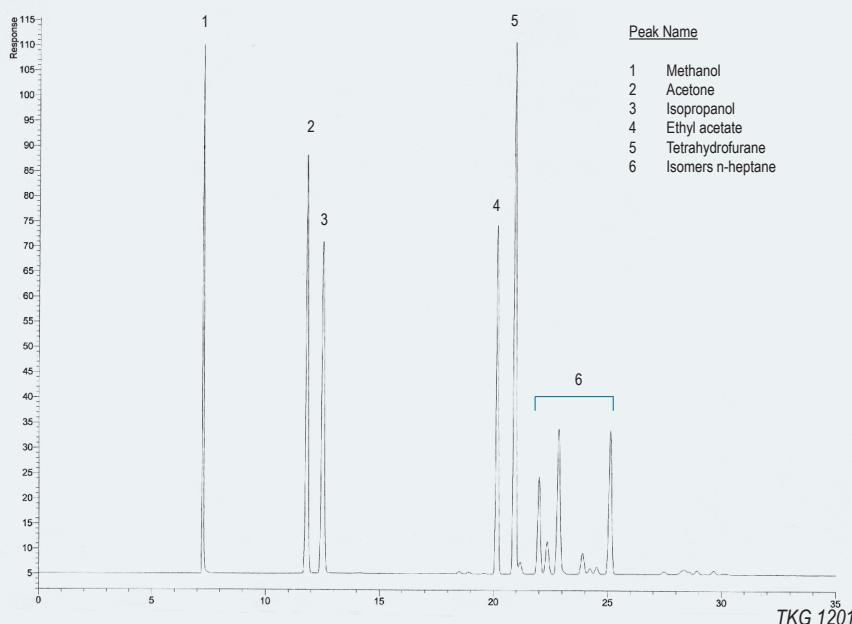
Dimensions: 75m x 0.53mm x 3.0  $\mu\text{m}$

Injection: mixture of solvents (wet needle), split 1:100, 250°C

Carrier gas: He, constant pressure 8 psi (55.7 Kpa)

Oven temperature: 40°C(15 min) @ 15°C/min to 75°C(15 min)

Detector: FID, 250°C



**PETROL**

Column: TRB-PETROL, P/N TR-110592

Dimensions: 100m x 0.25mm x 0.50 $\mu\text{m}$

Injection: 0.1 $\mu\text{L}$  petrol, split 100:1, 280°C

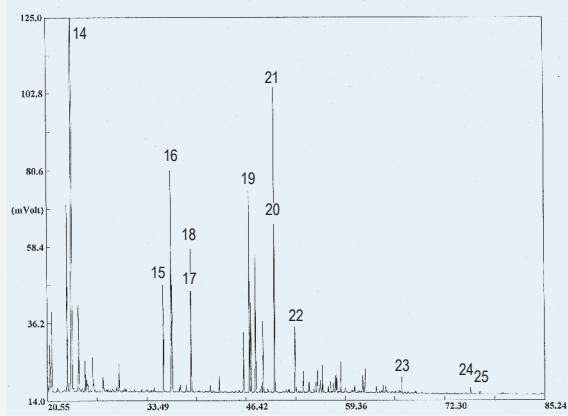
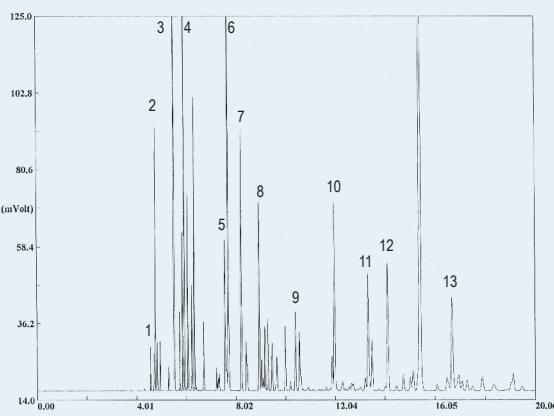
Carrier gas: H<sub>2</sub>, constant pressure 221Kpa (35°C)

Oven temperature: 35°C(18min) @ 2°C/min to 200°C(5min)

Detector: FID, 280°C

Peak Name

1	isobutane	14	toluene
2	n-butane	15	ethylbenzene
3	isopentane	16	m-xylene
4	pentane	17	p-xylene
5	2,3-dimethylbutane	18	o-xylene
6	2-methylpentane	19	1-methyl-3-ethylbenzene
7	3-methylpentane	20	1,3,5-trimethylbenzene
8	hexane	21	1,2,4-trimethylbenzene
9	2,4-dimethylpentane	22	1,2,3-trimethylbenzene
10	benzene	23	naphthalene
11	2-methylhexane	24	2-methylnaphthalene
12	3-methylhexane	25	1-methylnaphthalene
13	n-heptane		



TKG 1203

ALCOHOLS IN BLOOD

Column: **MetaBLOOD 2**, P/N TR-862035

Size: 30m x 0.53mm x 2.0 $\mu$ m

Carrier gas: He, 5 psi

Oven Temperature: 45°C (15 min)

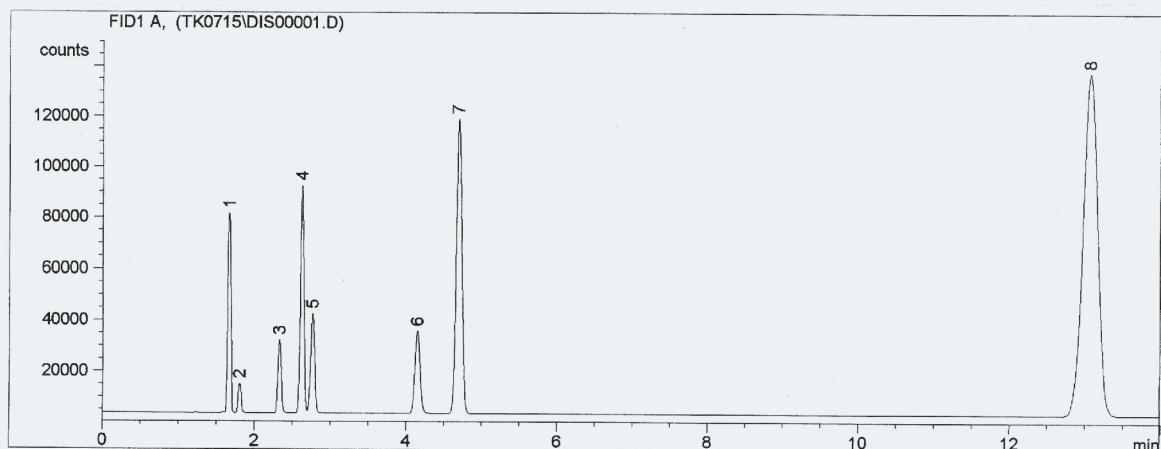
Injection: 1 mL Head Space 2t (vial 70°C), alcohols in blood (2-20 ppm), split 1:20, 225°C

Detector: FID, 300°C

Chromatogram provided by Dra. Guadalupe Montoya y Dra. Isabel Bonaparte from General Lab (Barcelona)

Peak Name

1	Acetaldehyde
2	Methanol
3	Ethanol
4	Acetone
5	Isopropanol
6	n-Propanol
7	Methylethyl ketone (MEK)
8	Methylisobutylketone (MIBK)



TKG 1209

AMINES

Column: **TRB-624**, P/N TR-603065

Size: 60m x 0.53mm x 3.0 $\mu$ m

Injection: 1  $\mu$ L amines standard, split 1:5, 260°C

Carrier Gas: He, 8 mL/min

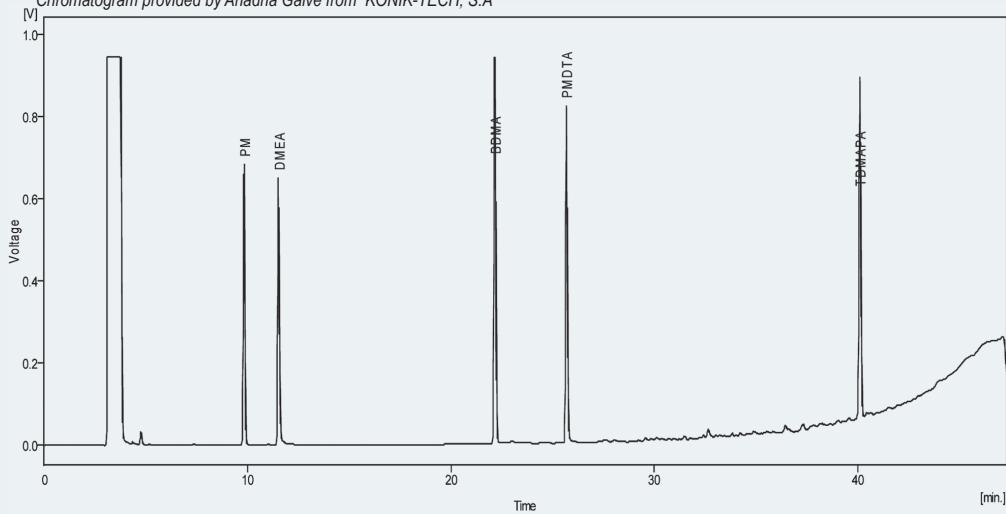
Program temperature: 40°C (1min) @ 5°C/min to 260°C (10min)

Detector: FID KONIK-TECH, 270°C

Sample

PM (1-methoxy-2-propanol)
DMEA (N,N-dimethylethanolamine)
BDMA (N,N-dimethylbenzylamine)
PMDTA (pentamethyldiethylenetriamine)
TDMAPA (N,N,N-tris(3-dimethylaminopropyl)amine)

Chromatogram provided by Ariadna Galve from KONIK-TECH, S.A



TKG 1214

### AMINOACIDS

Column: **TRB-50ht**, P/N TR-531332

Size: 30m x 0.25mm x 0.15μm

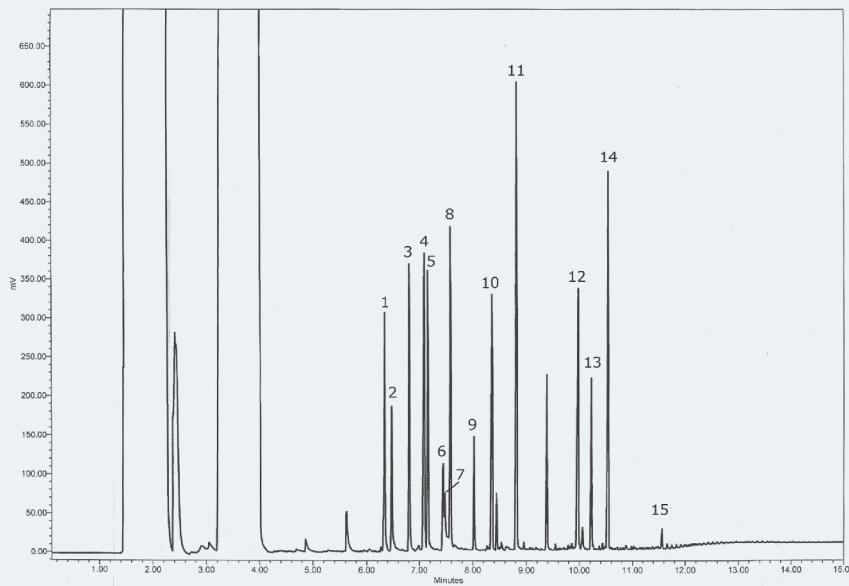
Injection: 2 μl standard AA-S-18 Sigma (2.5μmol/ml), split, 300°C

Carrier gas: He, 1mL/min

Program temperature: 50°C (2min) @ 30°C/min to 350°C (3min)

Detector: MS Polaris Q, EI, 200°C, transfer line 200°C

Chromatogram provided by Antonio Tintó from Moehs S.A.



#### Peak Name

1	Alanine
2	Glycine
3	Valine
4	Leucine
5	Isoleucine
6	Serine
7	Threonine
8	Proline
9	Hydroxyproline
10	Methionine
11	Phenylalanine
12	Lysine
13	Histidine
14	Tyrosine
15	Cysteine

TKG 1215

### HYDROCARBONS

Column: **TRB-1ht**, P/N TR-610133

Size: 30m x 0.32mm x 0.1μm

Injection: hydrocarbons standard1250 ppb, splitless, 250°C

Carrier gas: He, constant flow 2 mL/min

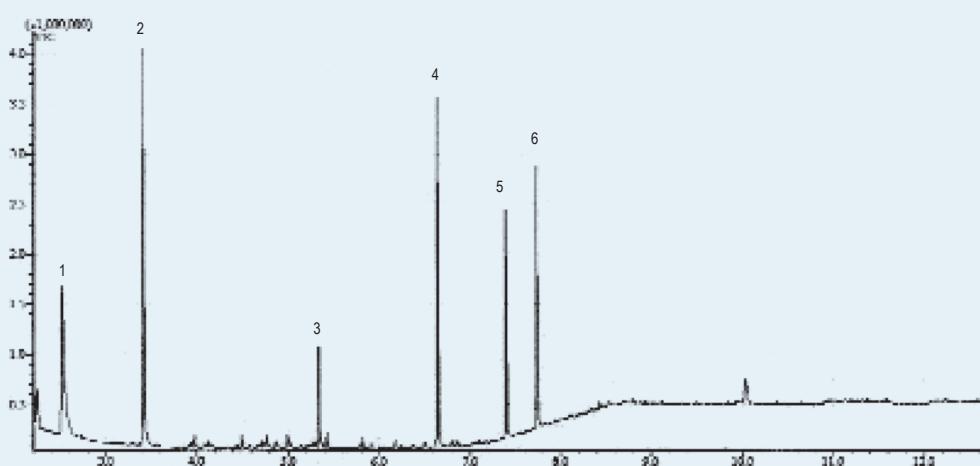
Program Temperature: 50°C(1 min) @ 40°C/min to 320°C(5 min)

Detector: MS, ion source 200°C, Interfase 280°C, scan 20-600

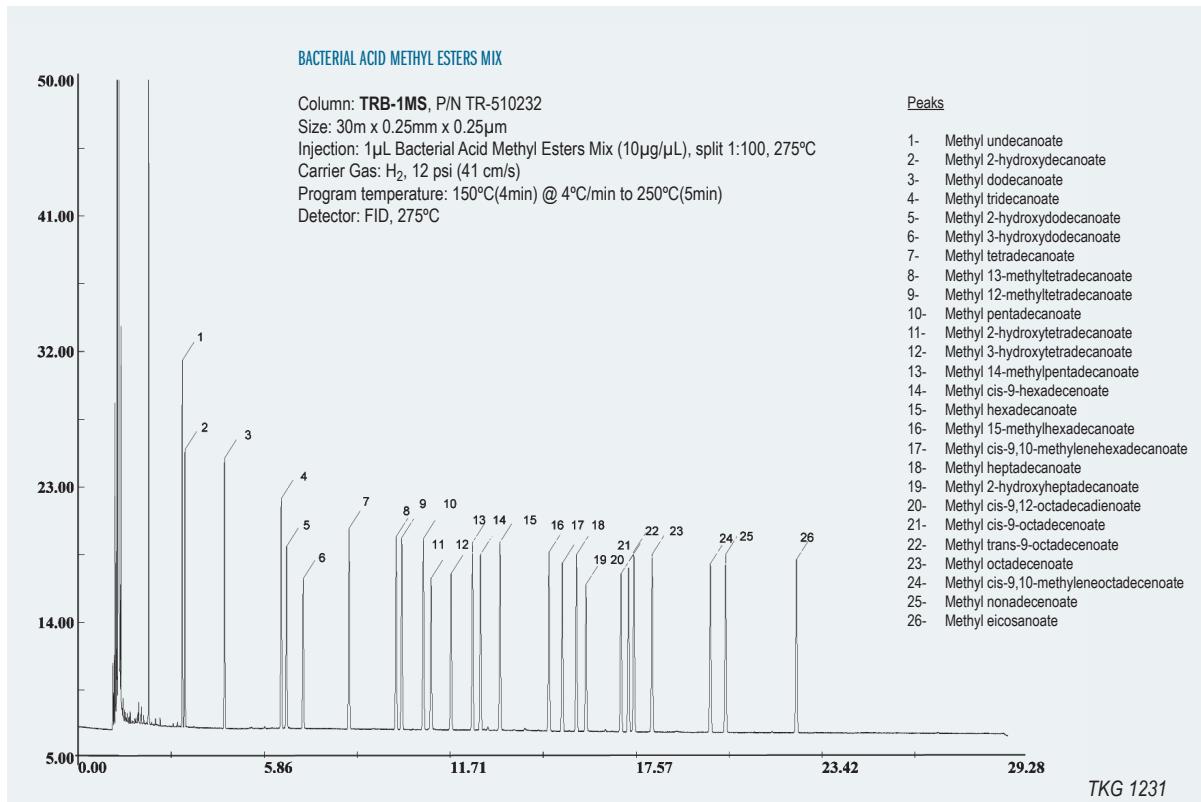
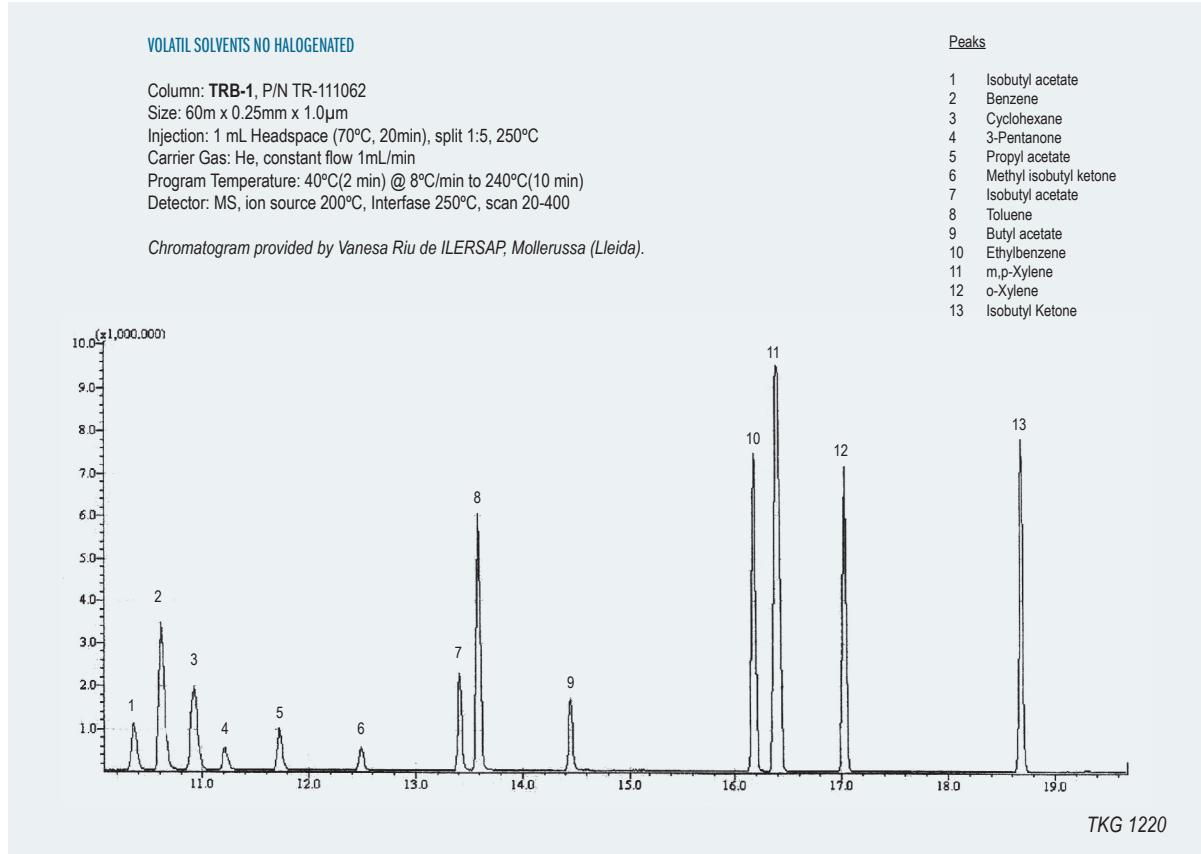
Chromatogram provided by Vanesa Riu de ILERSAP, Mollerussa (Lleida).

#### Peak Name

1	C10
2	C12
3	C24
4	C28
5	C30
6	C40



TKG 1221



### RESIDUAL SOLVENTS IN DMSO

Column: **TRB-624**, P/N TR-601863

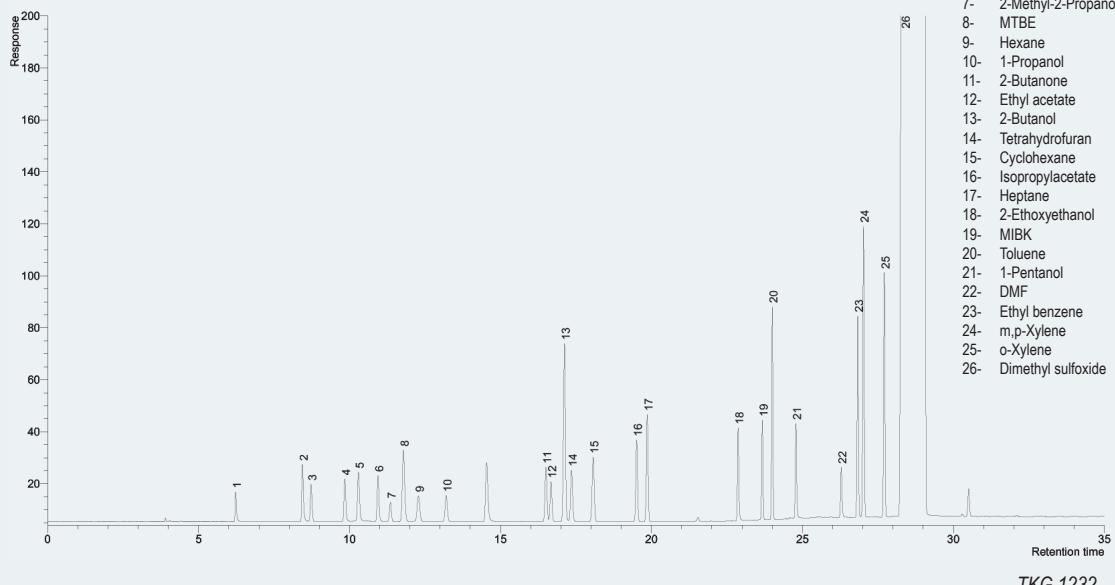
Size: 60m x 0.32mm x 1.8 $\mu$ m

Injection: 1 $\mu$ L mixture of solvents (500 ppm in DMSO), split 1:50, 260°C

Carrier gas: He, constant pressure 16 psi

Program Temperature: 40°C(5 min) @ 2°C/min to 60°C @ 9°C/min to 115°C @ 35°C/min to 220°C(15min)

Detector: FID, 260°C



### COMMON INDUSTRIAL SOLVENTS

Column: **TRB-1**, P/N TR-111033

Size: 30m x 0.32mm x 1.0 $\mu$ m

Injection: 0.01 $\mu$ L Neat solvents, split 1:300, 200°C

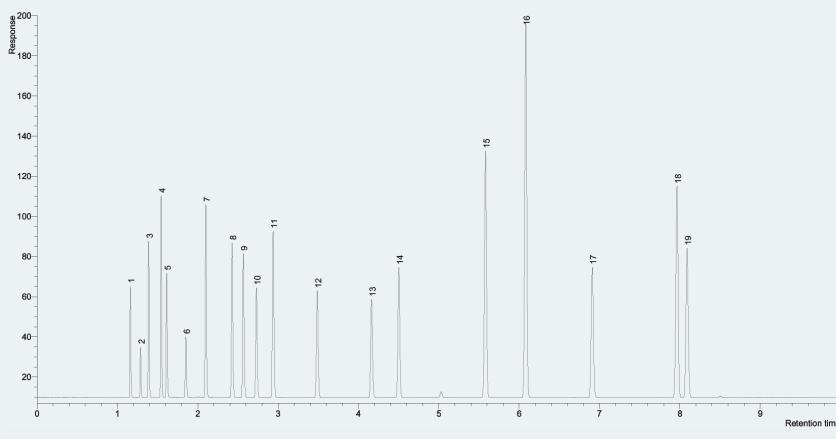
Carrier Gas: H<sub>2</sub>, 7 psi

Program temperature: 30°C @ 8°C/min to 140°C(2min)

Detector: FID, 200°C

### Peaks

1- Methanol
2- Methyl formate
3- Ethanol
4- Acetone
5- Isopropanol
6- Dichloromethane
7- n-Propanol
8- Methyl ethyl ketone
9- Sec-Butanol
10- Ethyl acetate
11- Isobutanol
12- Isopropyl acetate
13- Nitropropane
14- 1,4-Dioxane
15- Toluene
16- Mesityl oxide
17- Diacetone alcohol
18- m-Xylene
19- Cyclohexanone



TKG 1234

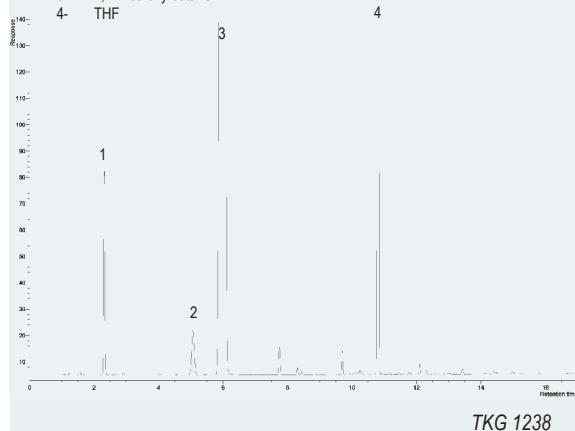
## REACTION PRODUCTS OF 1,1-DIETHOXY BUTANE

Column: TRB-624, P/N TR-603035  
 Size: 30m x 0.53mm x 3.0 $\mu$ m  
 Injection: 0.5  $\mu$ L, split 1:5, 260°C  
 Carrier Gas: He, 6 psi  
 Program temperature: 40°C (6min) @ 30°C/min to 200°C (5min)  
 Detector: FID, 260°C

Chromatogram provided by Ion Aguirre from Escuela Superior de Ingeniería de Bilbao (Spain)

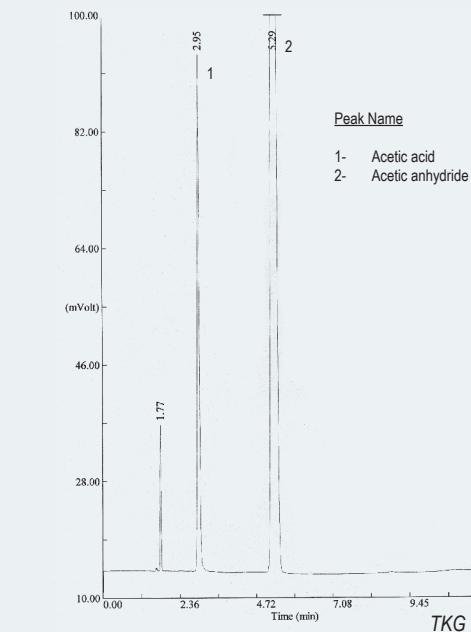
### Peak Name

- 1- Butanal
- 2- Ethanol
- 3- 1,1-Diethoxy butane
- 4- THF



## SEPARATION OF ACETIC ACID AND ACETIC ANHYDRIDE

Column: TRB-1, P/N TR-115035  
 Dimensions: 30m x 0.53mm x 5.0  $\mu$ m  
 Injection: wet needle (solvent mixture), split 1:100, 200°C  
 Carrier gas: H<sub>2</sub>, constant pressure 3 psi (20.7 KPa).  
 Oven program: 90°C  
 Detector: FID, 260°C

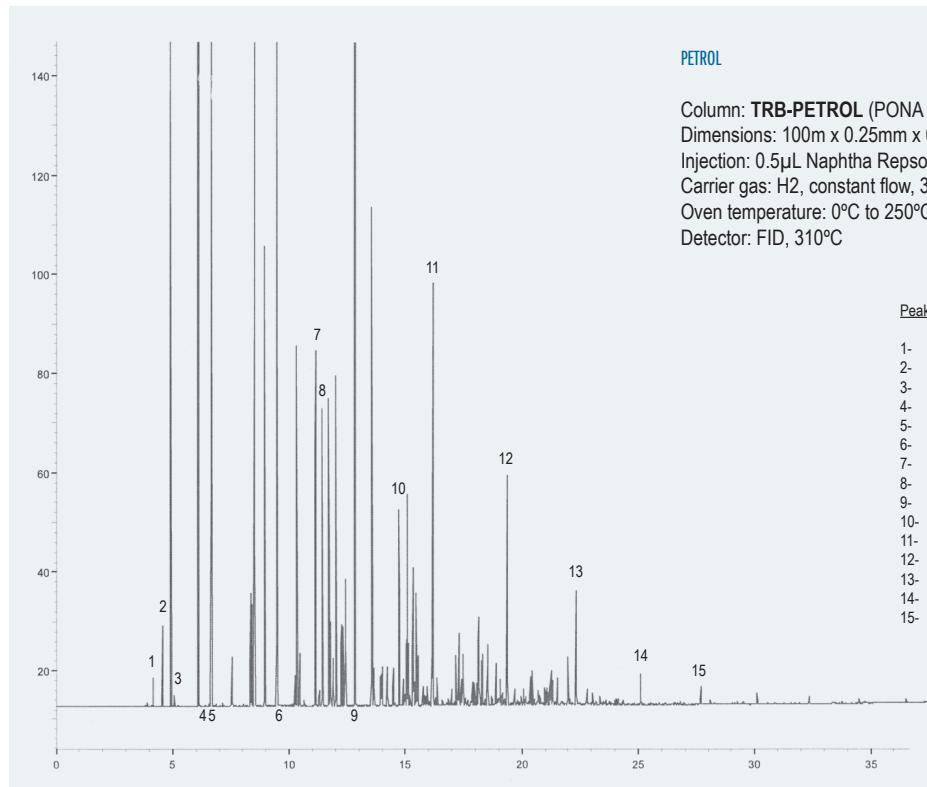


## PETROL

Column: TRB-PETROL (PONA Column), P/N TR-110592  
 Dimensions: 100m x 0.25mm x 0.50 $\mu$ m  
 Injection: 0.5 $\mu$ L Naphtha Repsol, split 1:250, 250°C  
 Carrier gas: H<sub>2</sub>, constant flow, 30 psi (206.7 KPa)  
 Oven temperature: 0°C to 250°C  
 Detector: FID, 310°C

### Peak Name

- 1- Propane
- 2- Isobutane
- 3- Butane
- 4- Isopentane
- 5- n-Pentane
- 6- n-Hexane
- 7- Benzene
- 8- Cyclohexane
- 9- n-Heptane
- 10- Toluene
- 11- n-Octane
- 12- n-Nonane
- 13- n-Decane
- 14- n-Undecane
- 15- n-Dodecane



#### ANALYSIS OF SOIL AND SLUDGE OF A WATER-TREATMENT PLANT

Column: TRB-5, P/N TR-120233

Dimensions: 30m x 0.32mm x 0.25 µm

Injection: splitless 1 min

Carrier gas: He, 20 psi

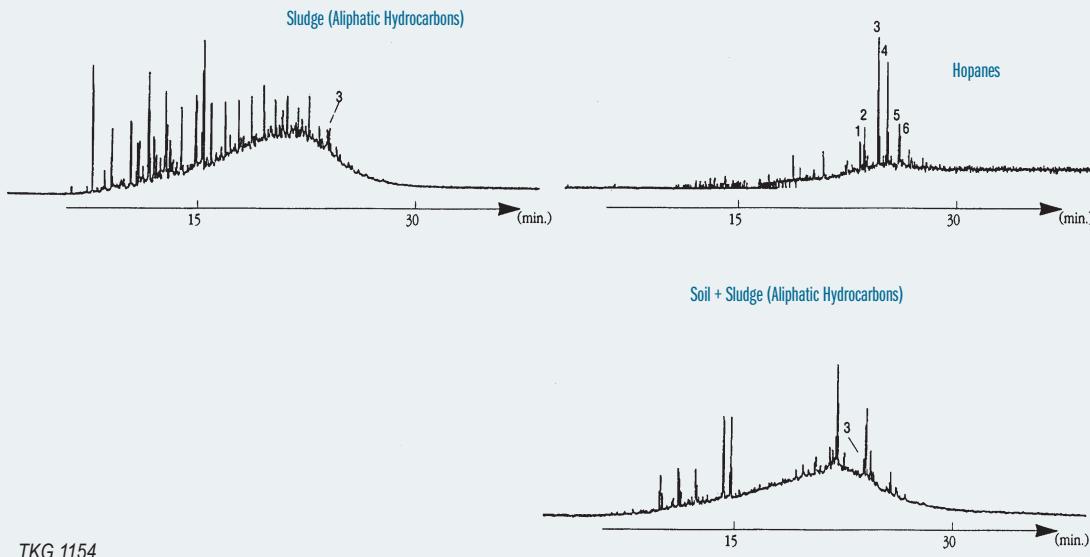
Oven temperature: 65°C(1.2 min) @ 30°C/min to 90°C(1 min) @ 10°C/min to 300°C(15 min)

Detector: MS

#### Peak Name

1-	Tg
2-	Tm
3-	C29 ab
4-	C30 ab
5-	C31 ab (22S)
6-	C31 ab (22R)

Chromatogram provided by T. Vaguero, L. Strongilò and L. Comellas from CETS Institut Químic de Sarrià, Barcelona.



#### ANALYSIS OF POLYCYCLIC AROMATIC HYDROCARBONS

Column: TRB-5, P/N TR-120232

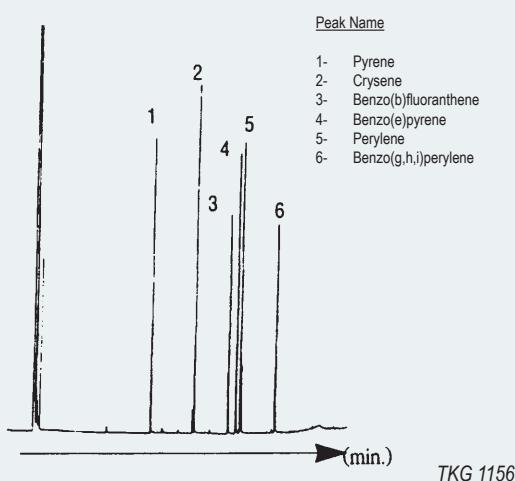
Dimensions: 30m x 0.25mm x 0.25 µm

Injection: 1 µL, cold on-column

Carrier gas: H<sub>2</sub>, 50 cm/s

Oven temperature: 110°C @ 6°C/min to 300°C

Detector: FID, 325°C

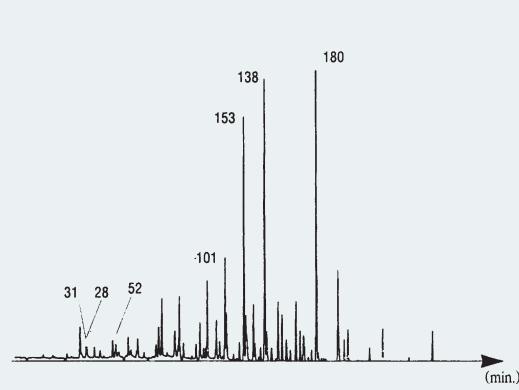


#### ANALYSIS OF PCB's

Column: TRB-5, P/N TR-120262

Dimensions: 60m x 0.25mm x 0.25 µm

Chromatogram provided by A. de Pablo from ASINEL S.A., Madrid.



## SEPARATION OF BTX

Column: **Meta.X5**, P/N TR-820232

Dimensions: 30m x 0.25mm x 0.25 µm

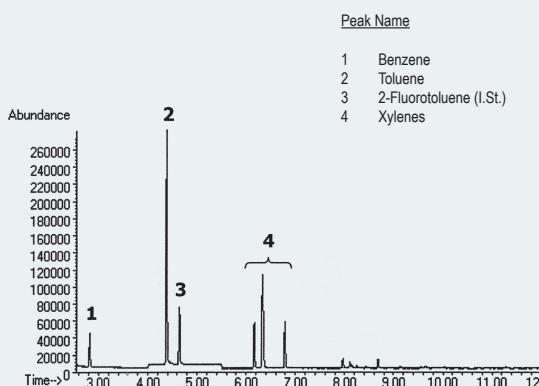
Injection: 1 µL BTX mixture, split 1:20, 250°C

Carrier gas: He, constant pressure 10 psi (68.9 KPa)

Oven temperature: 40°C (2min)@ 10°C/min to 100°C @ 20°C/min to 200°C

Detector: MS, SIM, 250°C transfer line

*Chromatogram provided by Bárbara Bagó and Lluís Comellas from Institut Químic de Sarrià (IQS), Barcelona.*



TKG 1014

## SEPARATION OF VOLATIL SOLVENTS

Column: **Meta.X5**, P/N TR-820232

Dimensions: 30m x 0.25mm x 0.25 µm

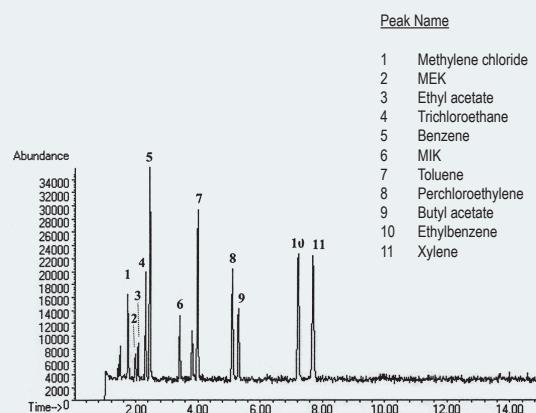
Injection: 1 µL solvents mixture, Head Space, split 1:20, 250°C

Carrier gas: He, constant pressure 11 psi (75.8 KPa)

Oven program: 50°C (10min)@ 3°C/min to 90°C (0.5min) @ 30°C/min to 200°C(5min)

Detector: MS, full scan, 250°C transfer line

*Chromatogram provided by Bárbara Bagó and Lluís Comellas from Institut Químic de Sarrià (IQS), Barcelona.*



TKG 1015

## GLYCOLS

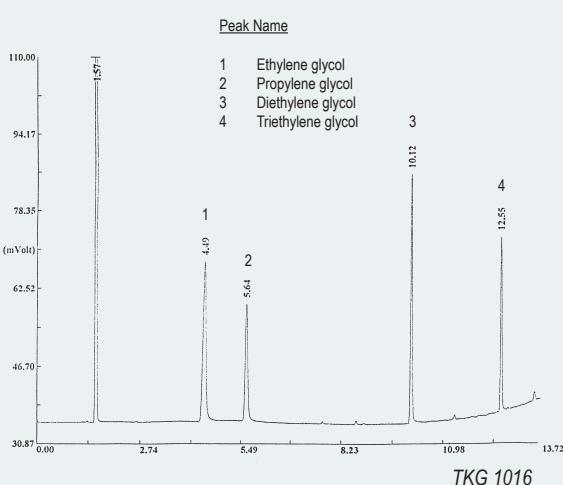
Column: **TRB-F50**, P/N TR-571015

Dimensions: 15m x 0.53mm x 1.0 µm

Injection: 0.4 µL Glycols mixture in Methanol, split 1:50, 15ng/comp on column, 250°C

Carrier gas: H<sub>2</sub>, constant pressure 1.5 psi (10.3 KPa), 40.15 cm/s (40°C)

Oven program: 40°C (5min) to 210°C/(10min) @ 15°C/min  
Detector: FID, 280°C



TKG 1016

## NITRILES AND AMINES IN WATER

Column: **TRB-5A**, P/N TR-210532

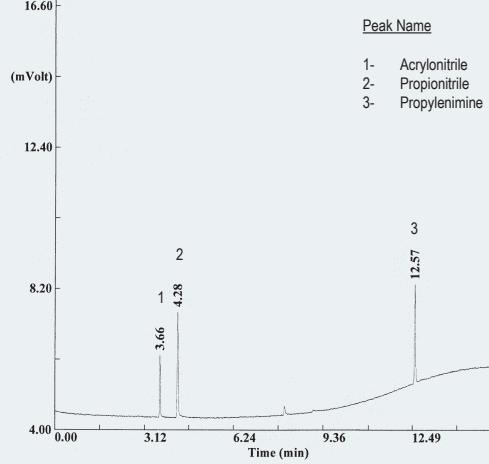
Dimensions: 30m x 0.25mm x 0.5 µm

Injection: 0.5 µL (0.1mg/mL) aqueous sample , split 1:25, 200°C

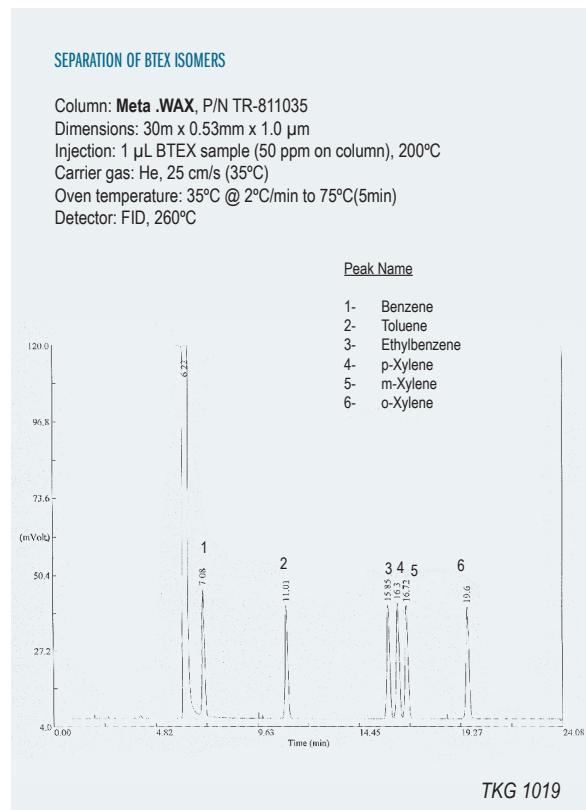
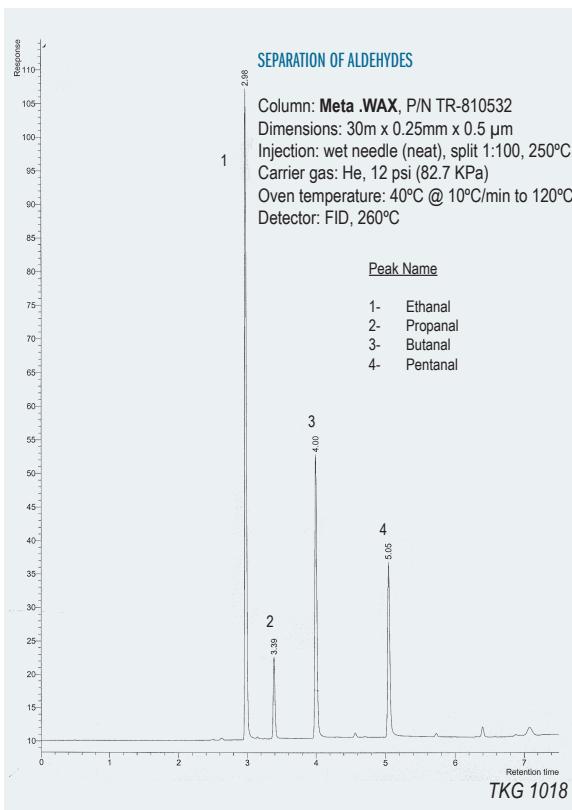
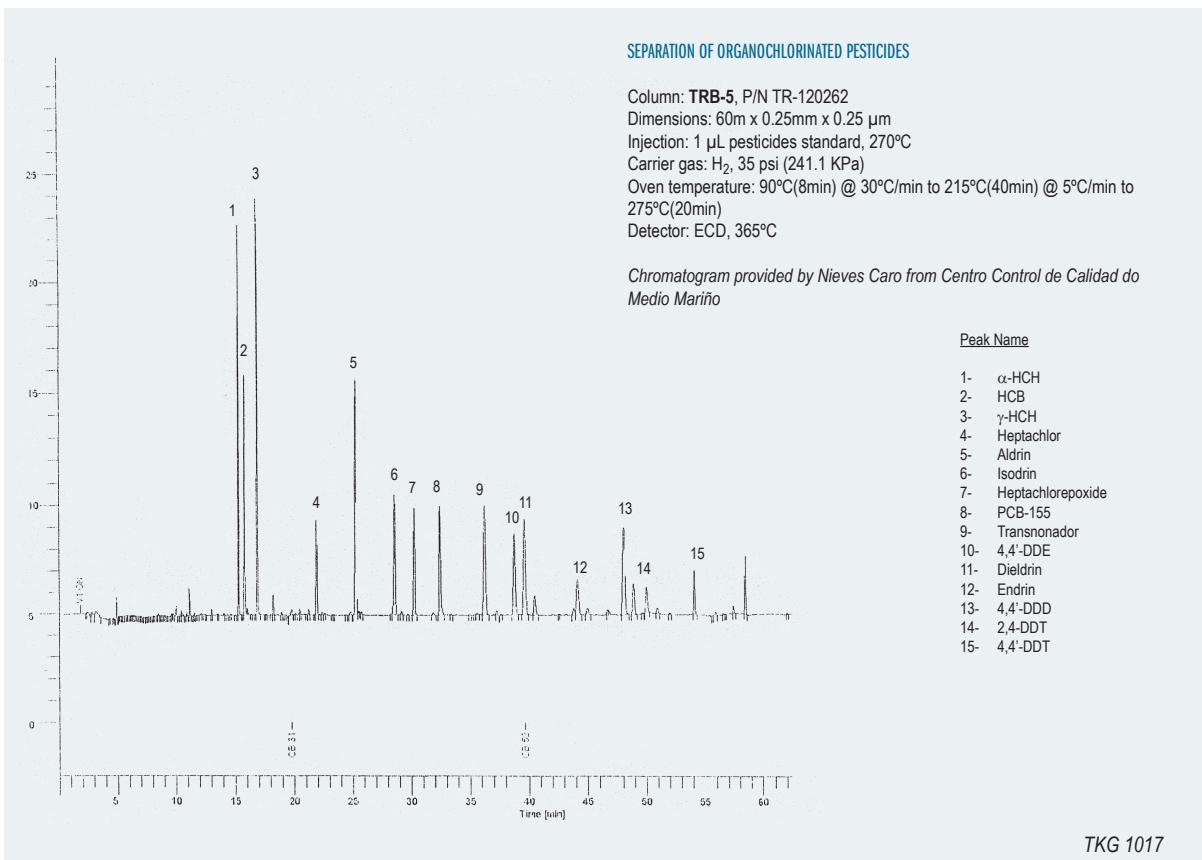
Carrier Gas: He, constant pressure 12 psi (82.7 KPa).

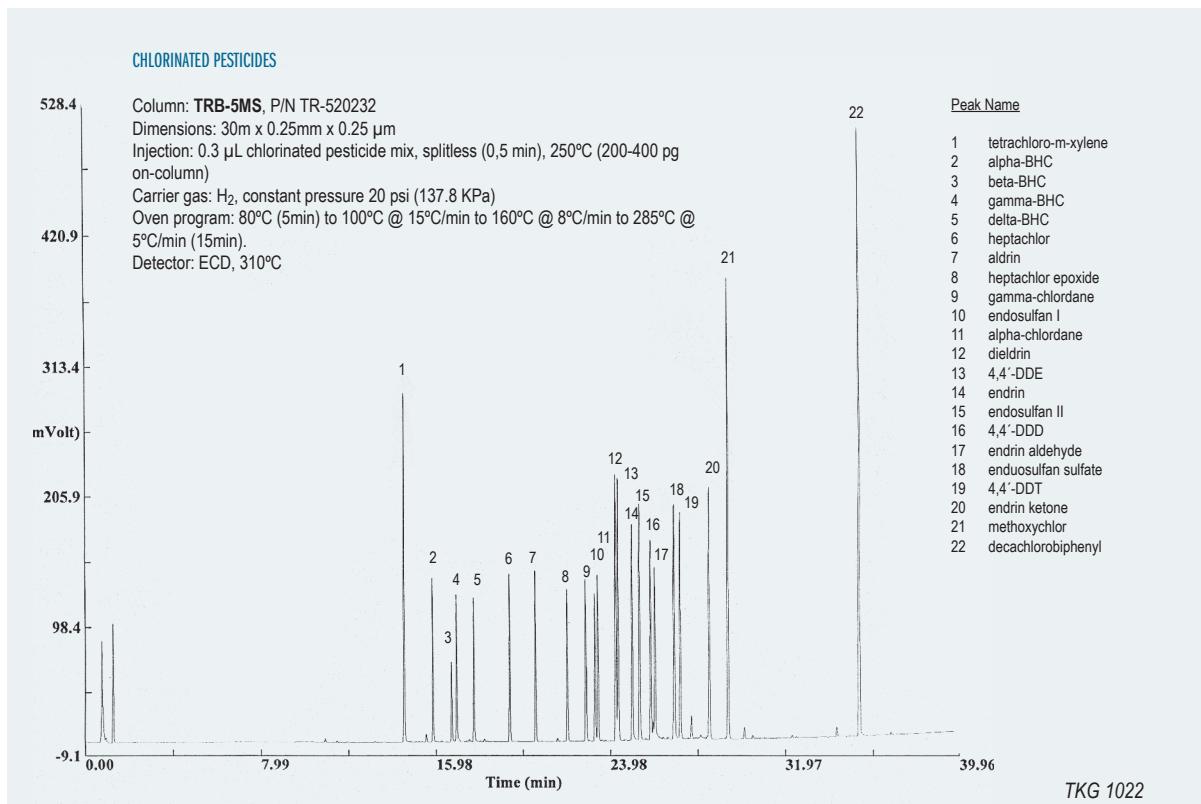
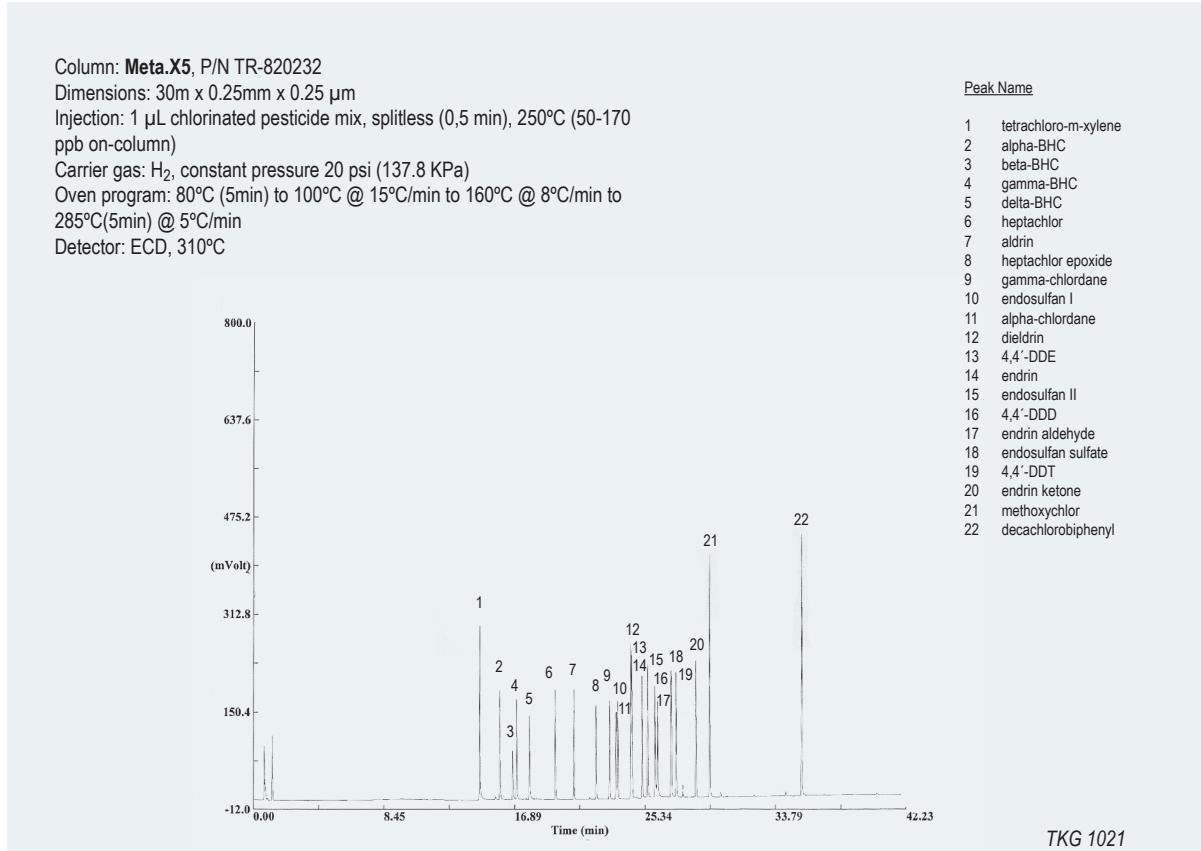
Oven Temperature: 50°C(5min) @ 15°C/min to 200°C

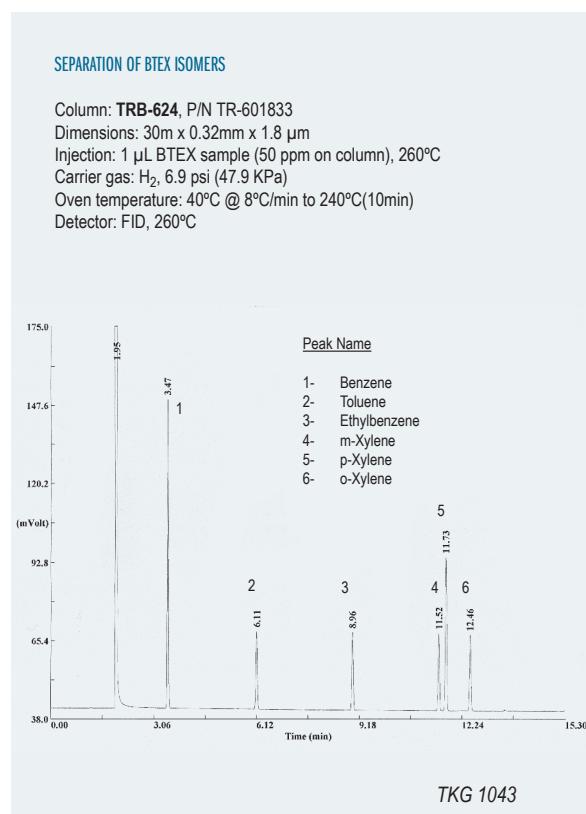
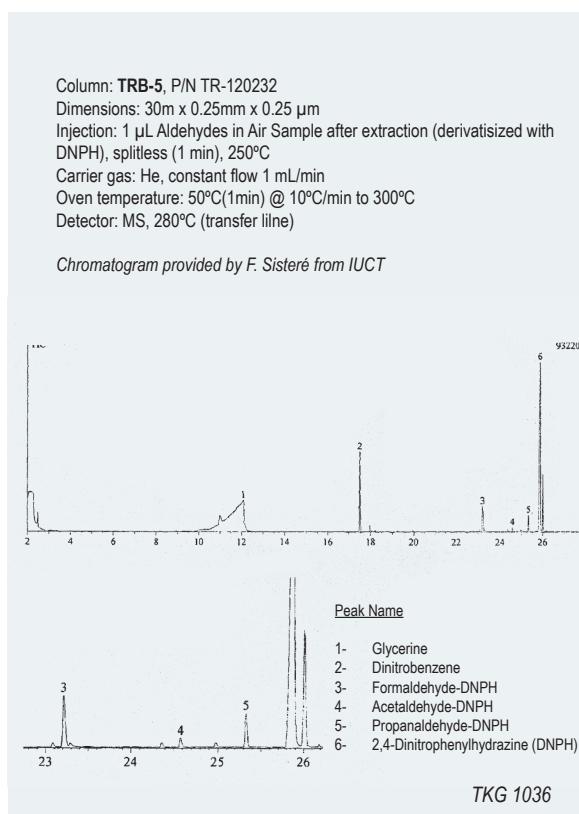
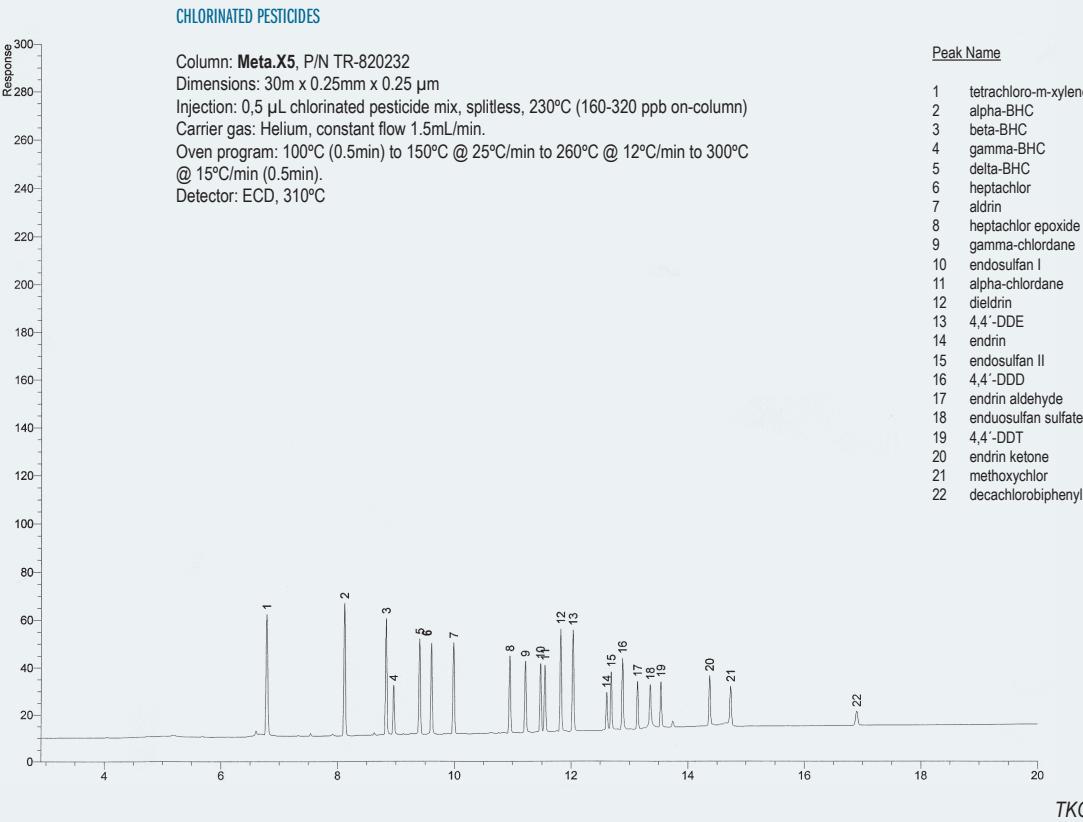
Detector: FID, 280°C



TKG 1020

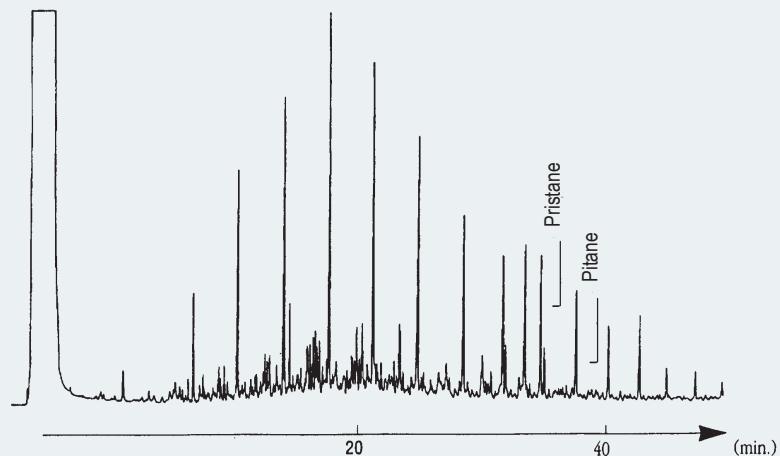






**ANALYSIS OF HYDROCARBONS (GASOIL)**

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL, splitless 0.7min  
 Carrier gas: H<sub>2</sub>, 50 cm/s (110°C)  
 Oven temperature: 60°C(3 min) @ 4°C/min to 300°C  
 Detector: FID, 305°C

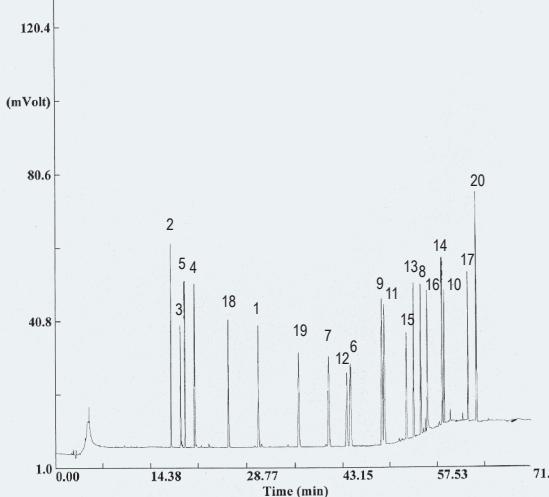


Chromatogram provided by Dr. Caixach from Laboratori Espectrometria de Masses, CSIC, Barcelona

TKG 1173

**PESTICIDES**

Column: TRB-5, P/N TR-120469  
 Dimensions: 60m x 0.20mm x 0.40 µm  
 Injection: 1 µL standard Organochloride Pesticide Mix AB#2, splitless(1min), 270°C  
 Carrier gas: He, constant pressure 39 psi (268.7 Kpa)  
 Oven temperature: 90°C(3min) @ 30°C/min to 215°C(40min) @ 5°C/min to 275°C(30min)  
 Detector: ECD, 300°C



Peak Name

1-	Aldrin
2-	α-BHC
3-	β-BHC
4-	δ-BHC
5-	γ-BHC (lindane)
6-	α-chlordane
7-	γ-chlordane
8-	4,4'-DDD
9-	4,4'-DDE
10-	4,4'-DDT
11-	Dieldrin
12-	Endosulfan I
13-	Endosulfan II
14-	Endosulfan sulfate
15-	Endrin
16-	Endrin aldehyde
17-	Endrin ketone
18-	Heptachlor
19-	Heptachlor epoxide (B)
20-	methoxychlor

TKG 1055

### AMINES

Column: TR-WAX.DB, P/N TR-931035

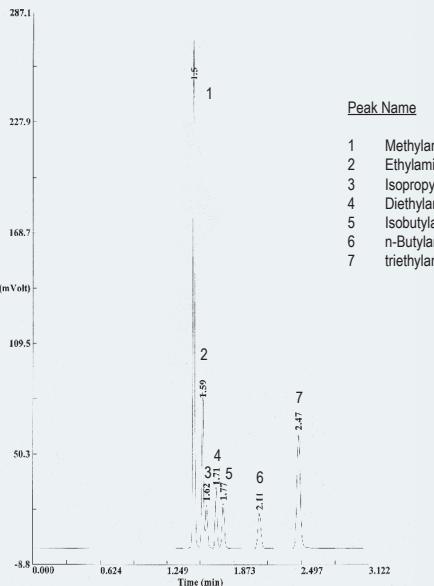
Dimensions: 30m x 0.53mm x 1.0  $\mu$ m

Injection: 1  $\mu$ L Amines mixture, Head Space, split 1:50, 260°C

Carrier gas: H<sub>2</sub>, constant pressure 1.8 psi (12.40Kpa)

Oven temperature: 60°C

Detector: FID, 280°C



TKG 1058

### SEPARATION OF SOLVENTS

Column: TR-Meta.WAX 400, P/N TR-402153

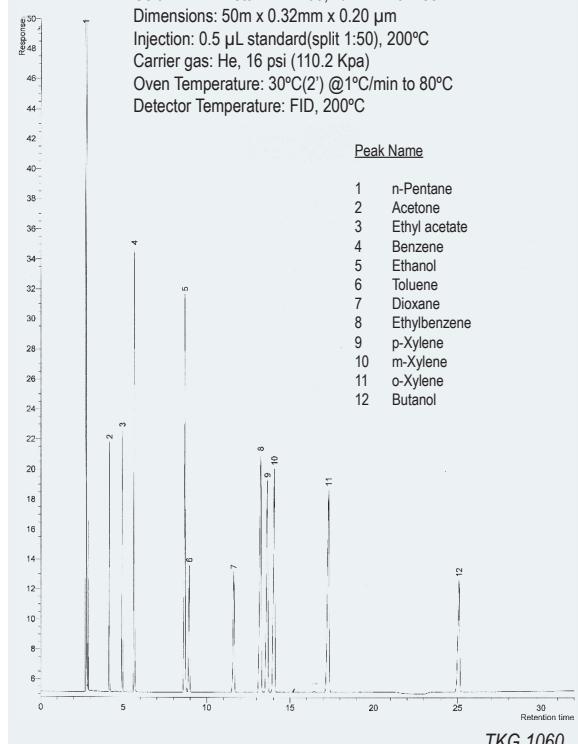
Dimensions: 50m x 0.32mm x 0.20  $\mu$ m

Injection: 0.5  $\mu$ L standard(split 1:50), 200°C

Carrier gas: He, 16 psi (110.2 Kpa)

Oven Temperature: 30°C(2') @1°C/min to 80°C

Detector Temperature: FID, 200°C



TKG 1060

### POLYAROMATIC HYDROCARBONS

Column: Meta.X5, P/N TR-821326

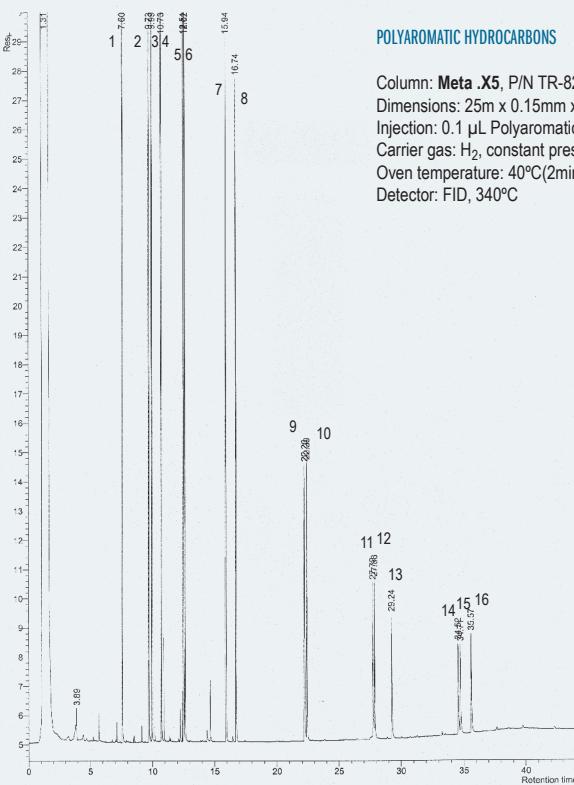
Dimensions: 25m x 0.15mm x 0.15  $\mu$ m

Injection: 0.1  $\mu$ L Polyaromatic hydrocarbons, (200ng/comp), splitless 30s, 300°C

Carrier gas: H<sub>2</sub>, constant pressure 35 psi (241.1 Kpa)

Oven temperature: 40°C(2min) @ 20°C/min to 200°C @ 4°C/min to 310°C(5min)

Detector: FID, 340°C



### Peak Name

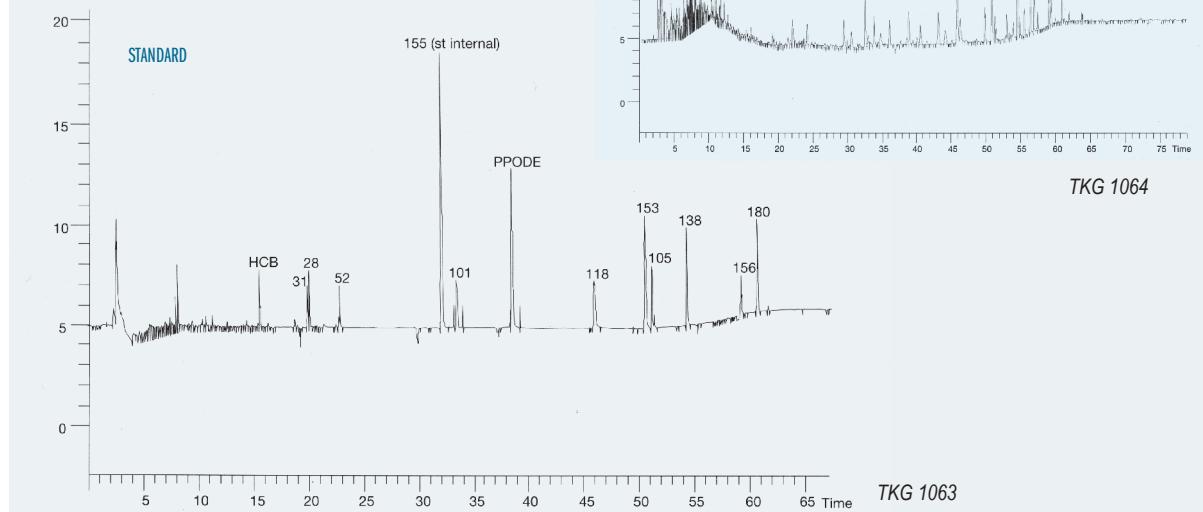
1	Naphthalene
2	Acenaphthene
3	acenaphthene
4	Fluorene
5	Phenanthrene
6	Anthracene
7	Fluoranthene
8	Pyrene
9	Benzo(a)anthracene
10	Chrysene
11	Benzo(b)fluoranthene
12	Benzo(k)fluoranthene
13	Benzo(a)pyrene
14	Indeno(1,2,3)pyrene
15	Dibenz(a,h)anthracene
16	Benzo(g,h,i)perylene

TKG 1061

## PCB'S IN MUSSELS

Column: TRB-5, P/N TR-120262  
 Dimensions: 60m x 0.25mm x 0.25 µm  
 Injection: PCBs in Mussel, split (1:30) 270°C  
 Carrier gas: H<sub>2</sub>, 35 psi (241.1 kPa)  
 Oven program: 90°C (8') to 215°C(40') @ 30°C/min. to 275°C(20') @ 5°C/min.  
 Detector: ECD, 365°C, make up Argon/methane

Chromatogram provided by Nieves Caro from Centro Control de Calidad do Medio Mariño.



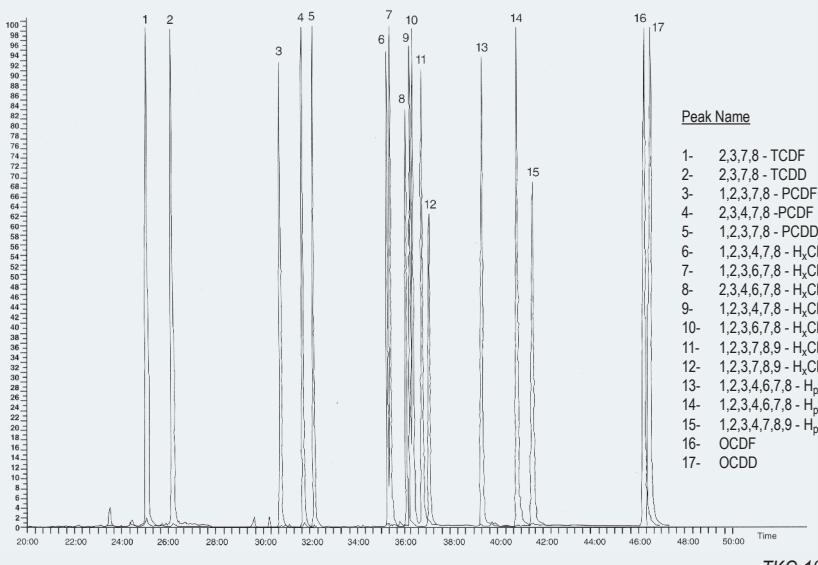
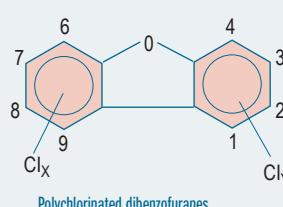
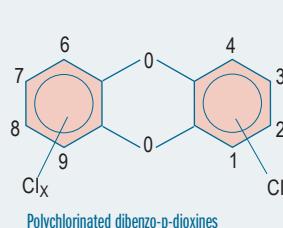
## DIOXINES AND FURANES SEPARATION

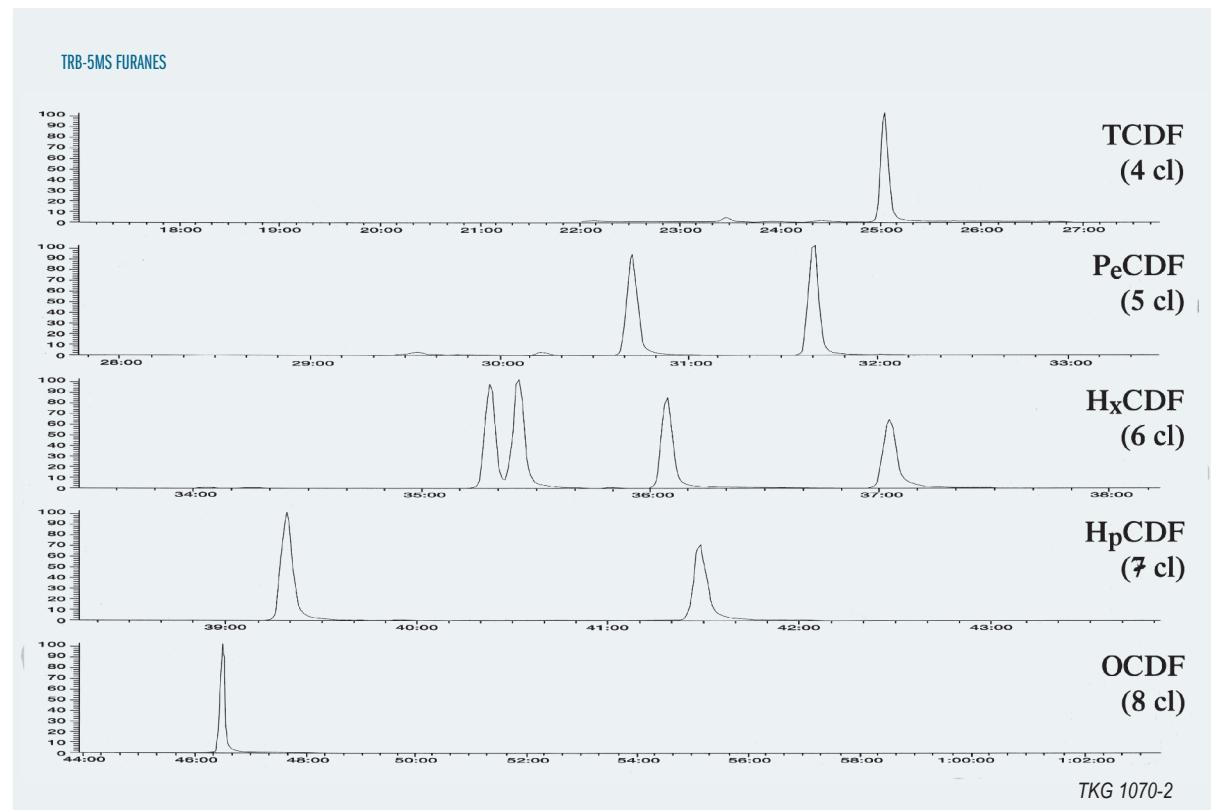
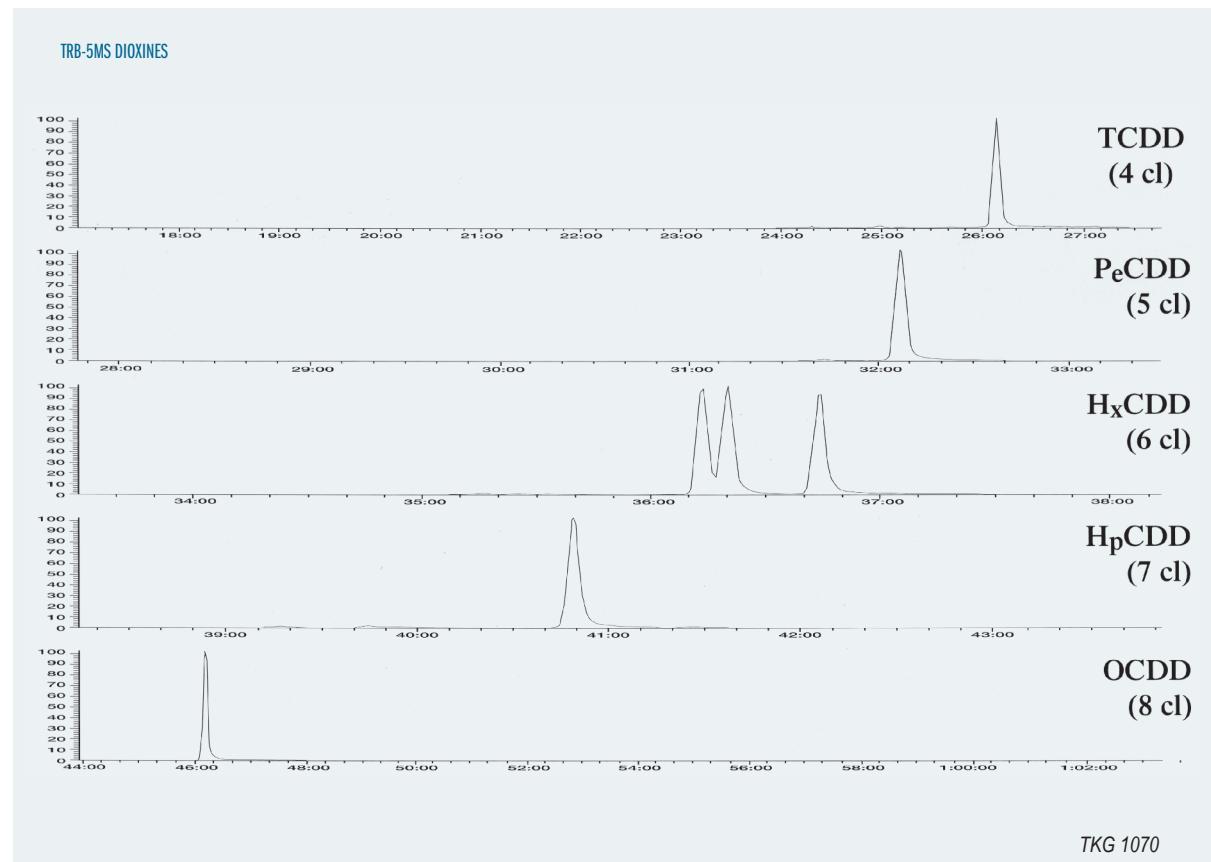
Column: TRB-5ms, P/N TR-520262  
 Dimensions: 60m x 0.25mm x 0.25 µm  
 Injection: 1 µl, splitless, 1', 300°C  
 Carrier gas: He, 250 kPa, Pcte.

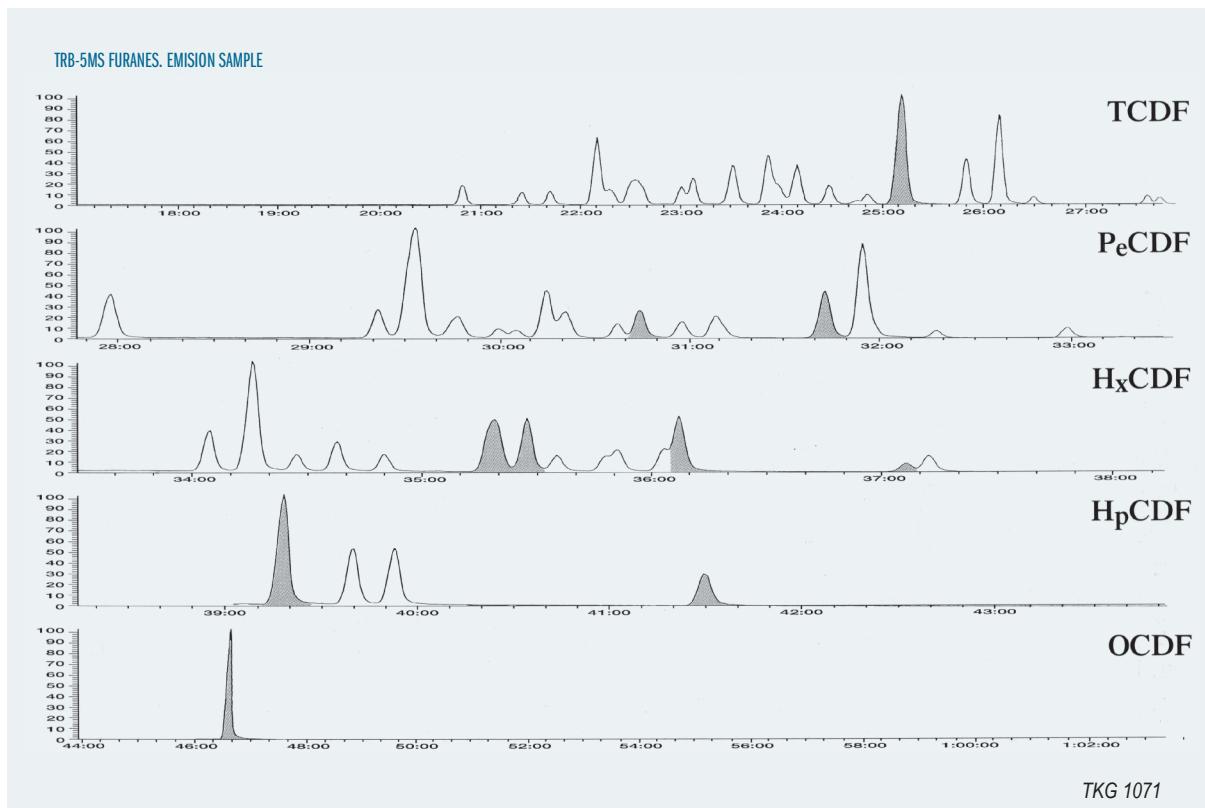
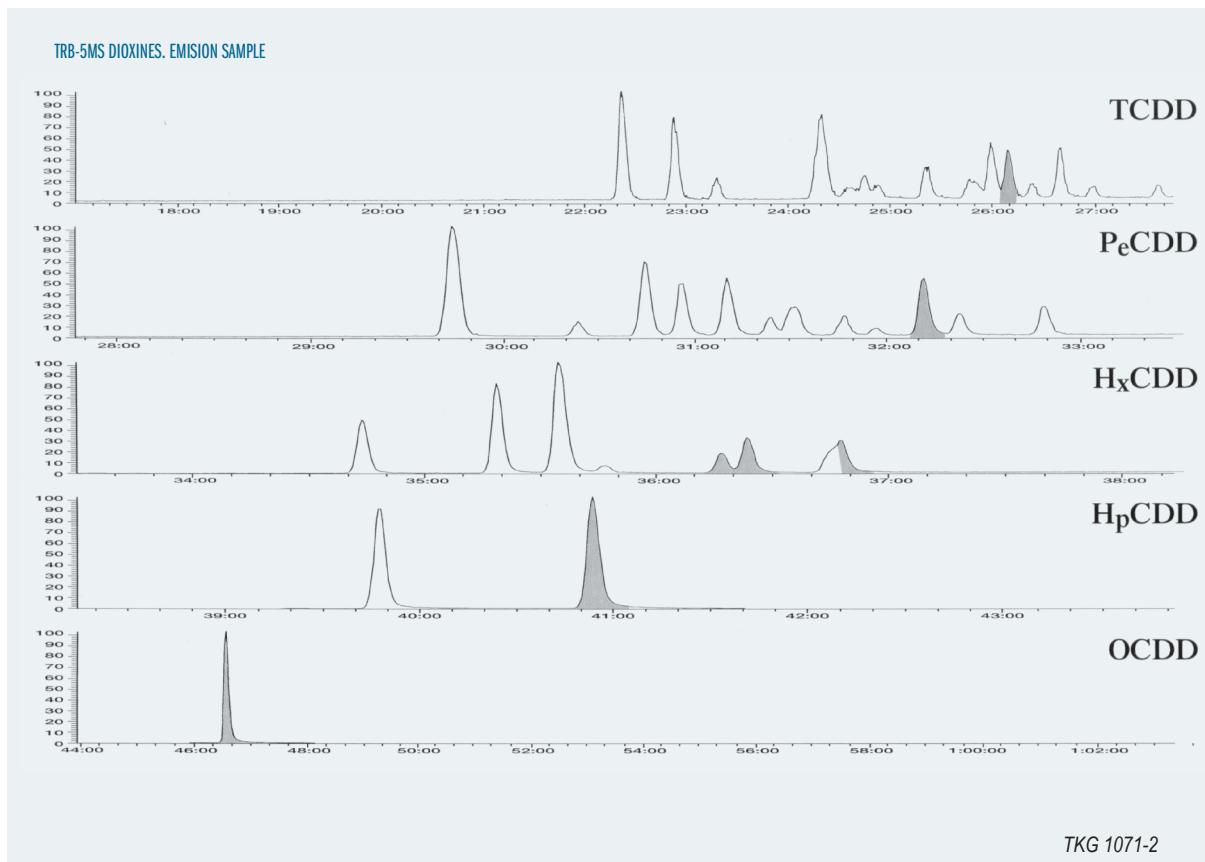
Oven program: 150°C to 200°C @ 30°C/min. to 235°C(10') @ 3°C/min. to 300°C  
 Detector: MS (SIR), 260°C

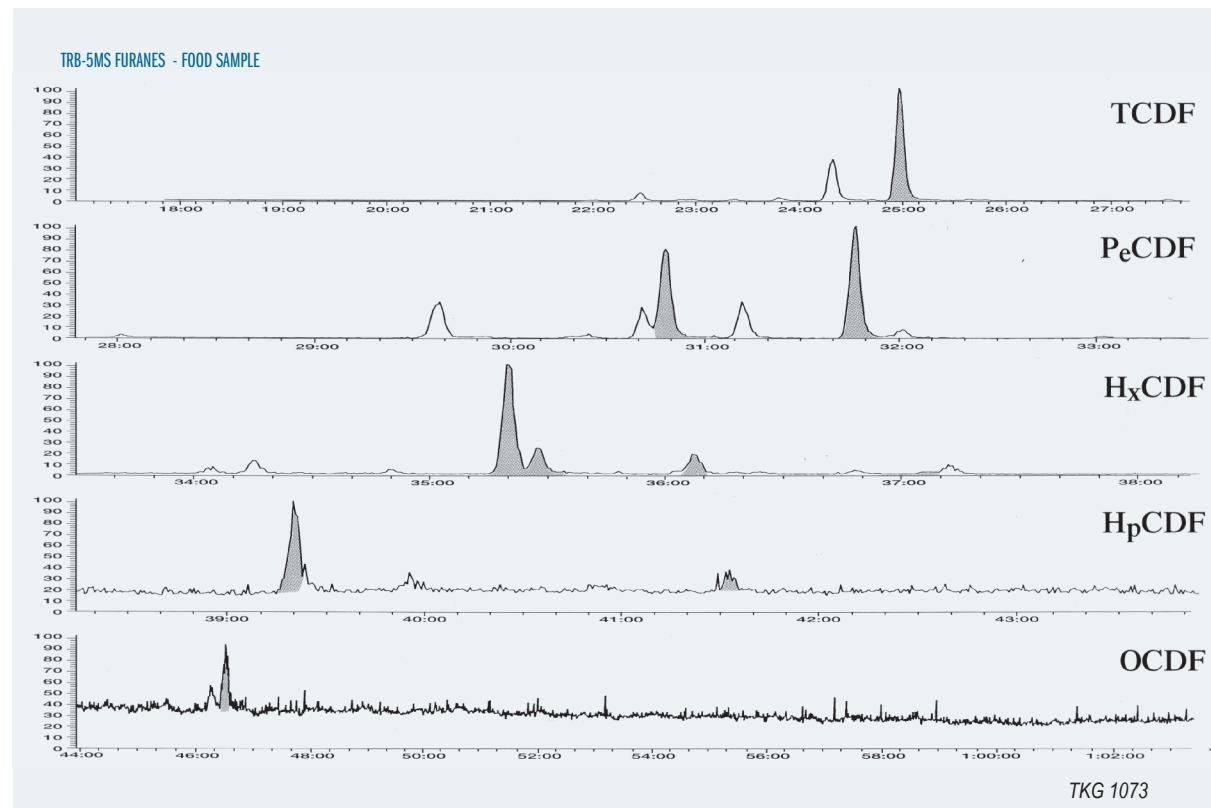
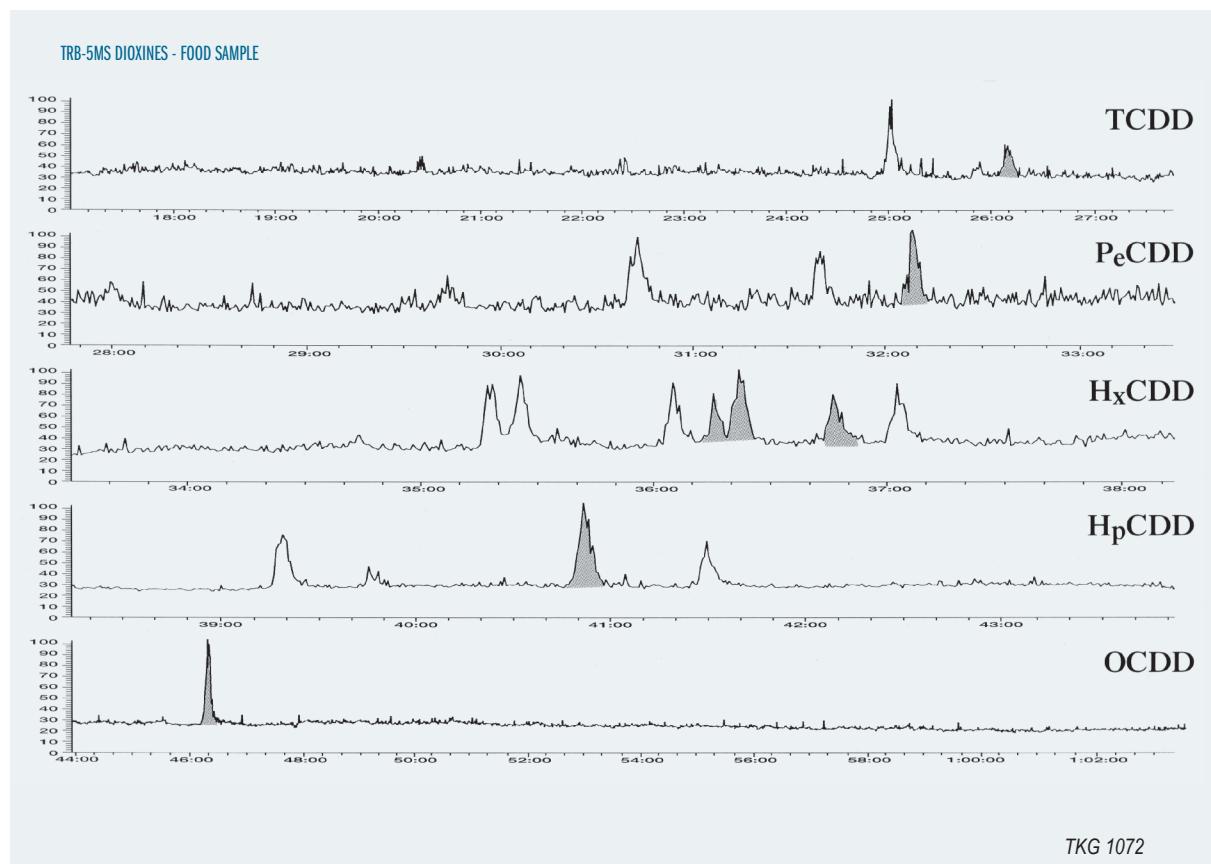
Sample: EPA 1613CS3 standard  
 Chromatogram provided by Jordi Diaz from Laboratorio Medioambiental IQS.

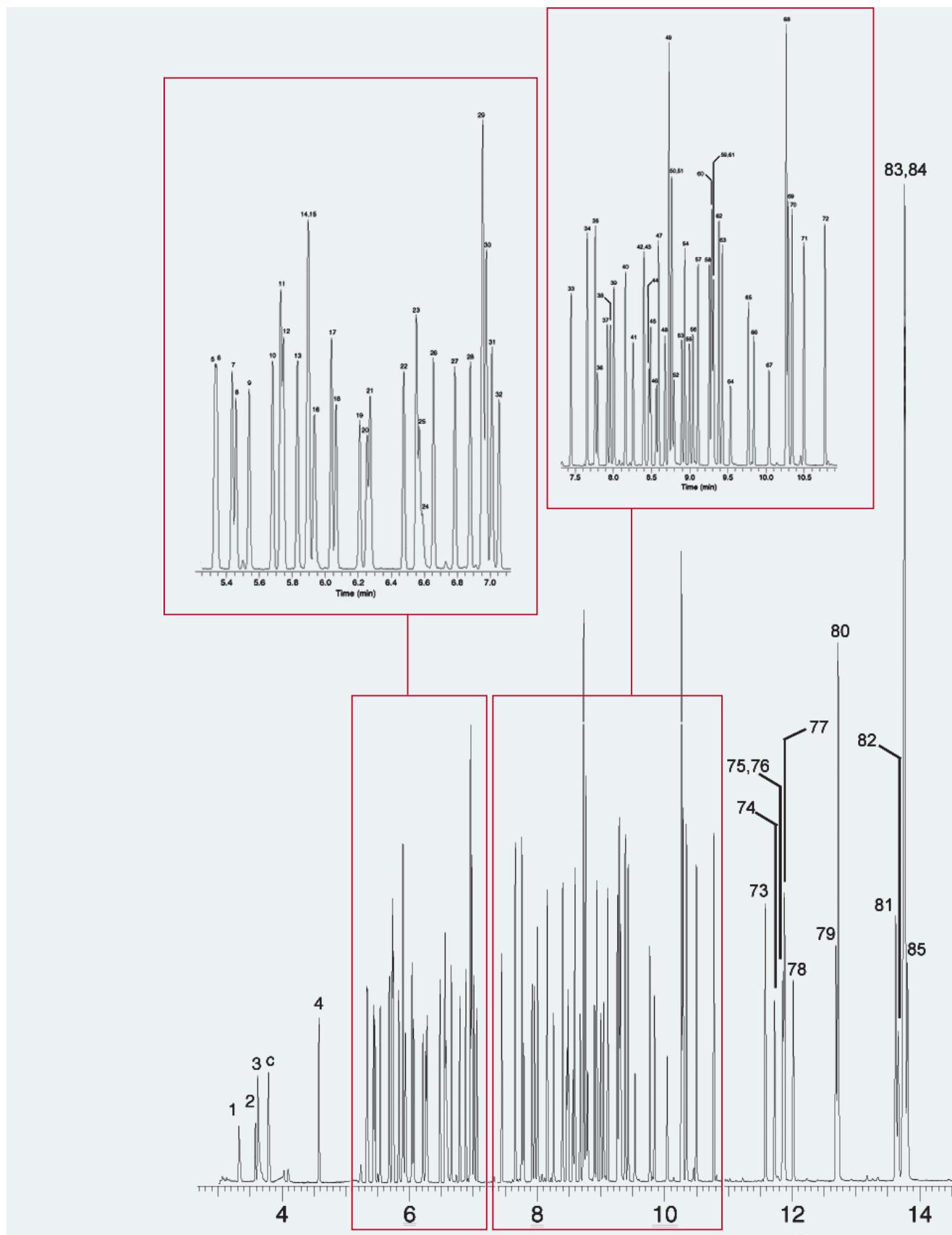
## SEPARATION OF ANALOGUES 2,3,7,8, SUBSTITUTED BY A PCDDs AND PCDFs STANDARD











**OPTIMUM RESOLUTION IN SEMIVOLATILE COMPOUNDS ANALYSIS**

Column: **Meta.X5**, 30m x 0.25mm x 0.5µm (P/N: TR-820532)

Inj.: Splitless w/Surge: pulse 25psi @ 0.30min, 40ml/min @ 0.25min

Inj. temp.: 250°C

Oven temp.: 35°C (1min) to 280°C @ 25°C/min to 320°C (5min) @ 6°C/min

Carrier gas: Helium, constant flow @ 1.2ml/min

Det.: MS

Transfer line temp.: 280°C

Ionization mode: EI

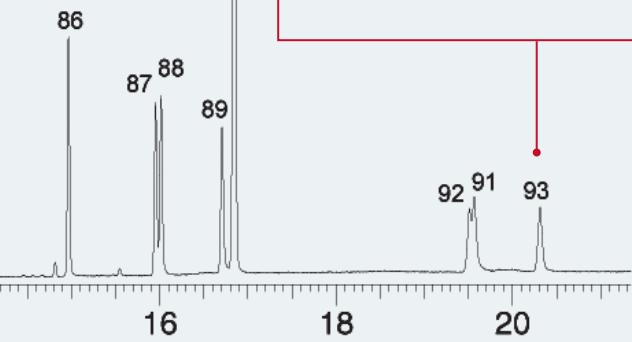
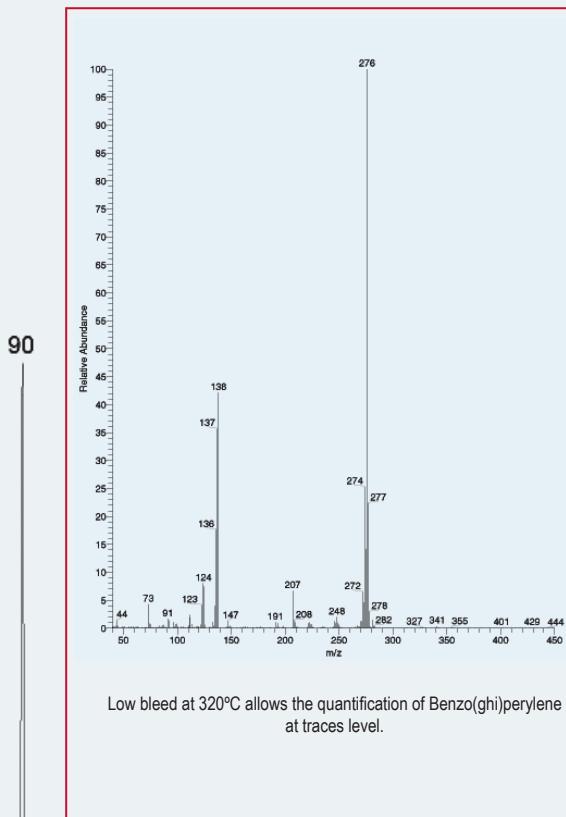
Scan range: 35-550amu

Sample: 1µl of 10ppm (IS 40ppm) Mix US EPA Method 8270

Liner: 4mm Drilled Uniliner (hole near bottom)

**Peak Name**

1. 1,4-dioxane
2. N-nitrosodimethylamine
3. pyridine
- c. toluene
4. 2-fluorophenol
5. phenol-d6
6. phenol
7. aniline
8. bis(2-chloroethyl)ether
9. 2-chlorophenol
10. 1,3-dichlorobenzene
11. 1,4-dichlorobenzene-d4
12. 1,4-dichlorobenzene
13. benzyl alcohol
14. 2-methylphenol
15. 1,2-dichlorobenzene
16. bis(2-chloroisopropyl)ether
17. 3-methylphenol/ 4-methylphenol
18. N-nitroso-di-n-propylamine
19. Hexachloroethane
20. nitrobenzene-d5
21. nitrobenzene
22. isophorone
23. 2,4-dimethylphenol
24. Benzoic acid
25. 2-nitrophenol
26. bis(2-chlorothoxy)methane
27. 2,4-dichlorophenol
28. 1,2,4-trichlorobenzene
29. naphthalene-d8
30. naphthalene
31. 4-chloroaniline
32. hexachlorobutadiene
33. 4-chloro-3-methylphenol
34. 2-methylphthalene
35. 1-methylnaphthalene
36. hexachlorocyclopentadiene
37. 2,4,6-trichlorophenol
38. 2,4,5-trichlorophenol
39. 2-fluorobiphenyl
40. 2-chloronaphthalene
41. 2-nitroaniline
42. 1,4-dinitrobenzene
43. dimethyl phthalate
44. 1,3-dinitrobenzene
45. 2,6-dinitrotoluene
46. 1,2-dinitrobenzene
47. acenaphthylene
48. 3-nitroaniline
49. acenaphthene-d10
50. 2,4-dinitrophenol
51. acenaphthene
52. 4-nitrophenol
53. 2,4-dinitrotoluene
54. dibenzofuran
55. 2,3,5,6-tetrachlorophenol
56. 2,3,4,6-tetrachlorophenol
57. diethyl phthalate
58. 4-chlorophenyl phenyl ether
59. 4-nitroaniline
60. fluorene
61. 4,6-dinitro-2-methylphenol
62. diphenylamine
63. azobenzene
64. 2,4,6-tribromophenol
65. 4-bromophenyl phenyl ether
66. hexachlorobenzene
67. pentachlorophenol
68. phenanthrene-d10
69. phenanthrene
70. anthracene
71. carbazole
72. di-n-butyl phthalate
73. fluoranthene
74. benzidine
75. pyrene-d10
76. 3,3'-dimethylbenzidine
77. pyrene
78. p-terphenyl-d14
79. benzyl butyl phthalate
80. bis(2-ethylhexyl)phthalate
81. bis(2-ethylhexyl)phthalate
82. 3,3'-dichlorobenzidine
83. benzo(a)anthracene
84. chrysene-d12
85. chrysene
86. di-n-octyl phthalate
87. benzo(b)fluoranthene
88. benzo(k)fluoranthene
89. benzo(a)pyrene
90. perylene-d12
91. dibeno(a,h)anthracene
92. indeno(1,2,3-cd)pyrene
93. benzo(ghi)perylene



**PESTICIDES ANALYSIS**

Column: **Meta X5** P/N TR-820232

Dimensions: 30m x 0.25mm x 0.25 µm

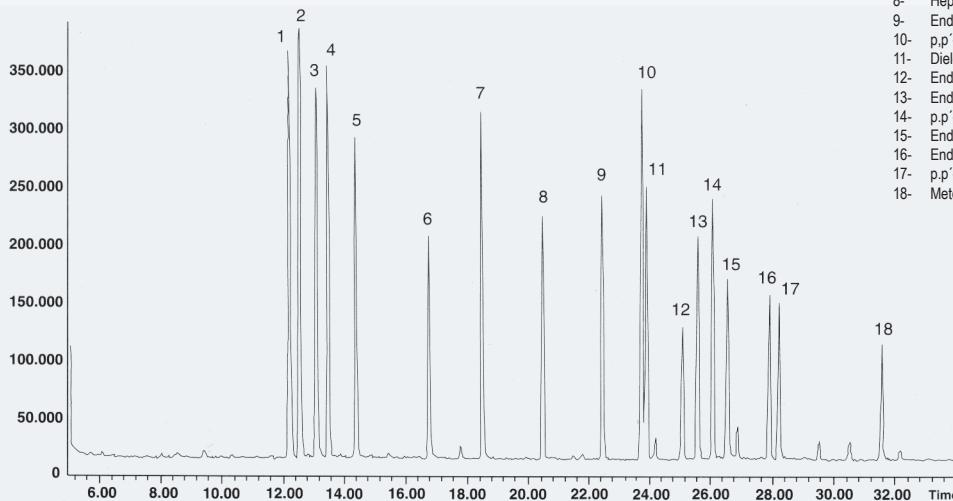
Injection: 1.0 µl standard, 10 ppm in Isooctane, splitless, 250°C

Carrier gas: He, constant pressure, 9 psi (62 kPa)

Oven program: 100°C (3.1min.) to 170°C @ 50°C/min. to 300°C(5.6min.) @ 5°C/min.

Detector: MSD @ 280°C, scan 50-500 amus

Chromatogram supplied by J. Diaz from Chromatography Department, IQS.



**Peak Name**

1-	α-Hexachlorocyclohexane
2-	Hexachlorobenzene
3-	γ-Hexachlorobenzene
4-	β-Hexachlorocyclohexane
5-	Heptachlor
6-	δ-Hexachlorocyclohexane
7-	Aldrin
8-	Heptachlor epoxide
9-	Endosulfan I
10-	p,p'-DDE
11-	Dieldrin
12-	Endrin
13-	Endosulfan II
14-	p,p'-DDD
15-	Endrin Aldehyde
16-	Endosulfan sulfate
17-	p,p'-DDT
18-	Metoxychlor

TKG 1078

**PURIFIER SLUDGE ANALYSIS**

Column: **Meta X5** P/N TR-820232

Dimensions: 30m x 0.25mm x 0.25 µm

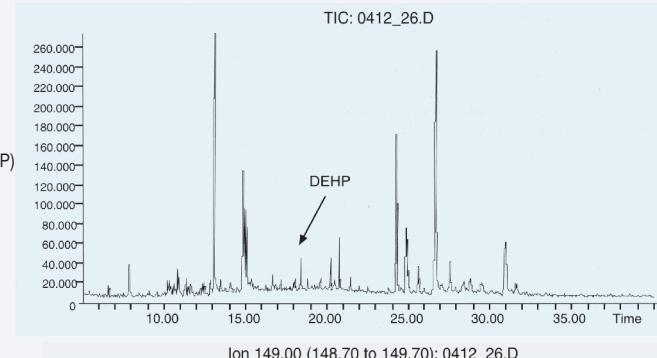
Injection: 2.0 µl standard (split 1:50), 280°C

Carrier gas: He, 9 psi (62 kPa)

Oven temperature: 120°C (1min.) to 300°C (21min.) @ 10°C/min.

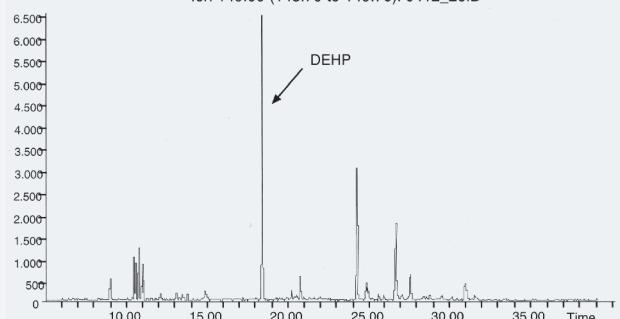
Detector: MS, full scan 50-550 amu, 280°C

Sample: Urban purifier sludge (250ppm di (2-ethylhexyl) phthalate, DEHP)



Ion 149.00 (148.70 to 149.70): 0412\_26.D

Chromatogram from B. Bagó, J. Diaz. Chromatography Dep. IQS.



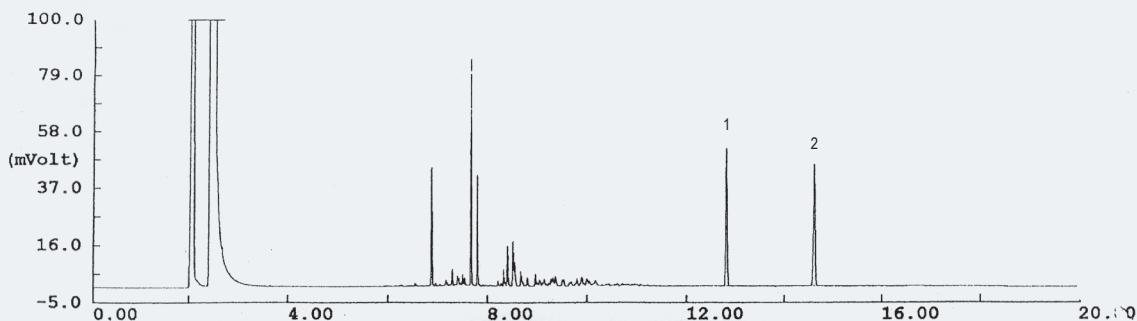
TKG 1080- TKG 1081

**SEPARATION OF PESTICIDES**

Column: **Meta .X5**, P/N TR-820232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL standard (600 mg/L), split 1:20, 200°C  
 Carrier gas: He, 1mL/min  
 Oven program: 90°C(1min) @ 20°C/min to 200°C @ 3°C/min to 220°C  
 Detector: ECD, 250°C

Chromatogram provided by AINIA

	Peak Name	RT (min)
1	Nonadecane (Internal Standard)	12.79
2	Chlorpiryphos	14.59



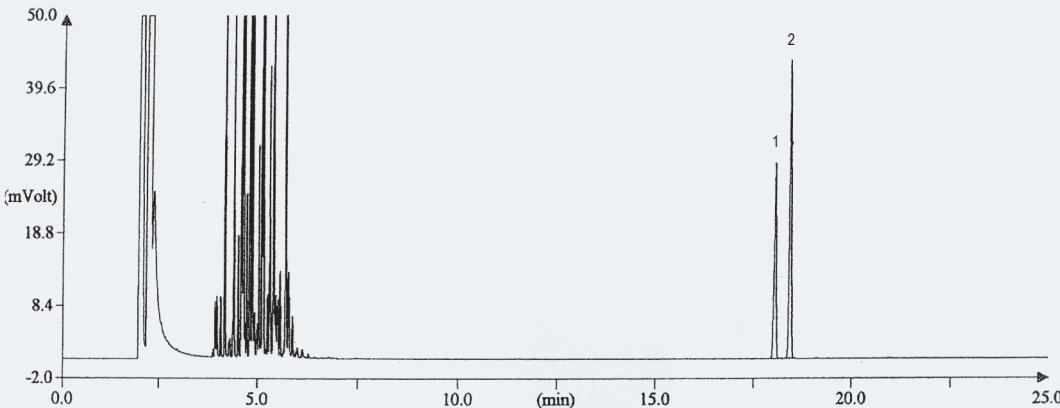
TKG 1084

**SEPARATION OF PESTICIDES**

Column: **Meta .X5**, P/N TR-820232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL standard (717 mg/L), split 1:20, 200°C  
 Carrier gas: He, 1mL/min  
 Oven program: 70°C(1min) @ 20°C/min to 150°C @ 3°C/min to 200°C  
 Detector: ECD, 250°C

	Peak Name	RT (min)
1	Methyl chlorpiryphos	18.07
2	Nonadecane (Internal Standard)	18.45

Chromatogram provided by AINIA



TKG 1085

## SEPARATION OF PESTICIDES

Column: Meta .X5, P/N TR-820232

Dimensions: 30m x 0.25mm x 0.25 µm

Injection: 1 µL standard (440 mg/L), split 1:20, 200°C

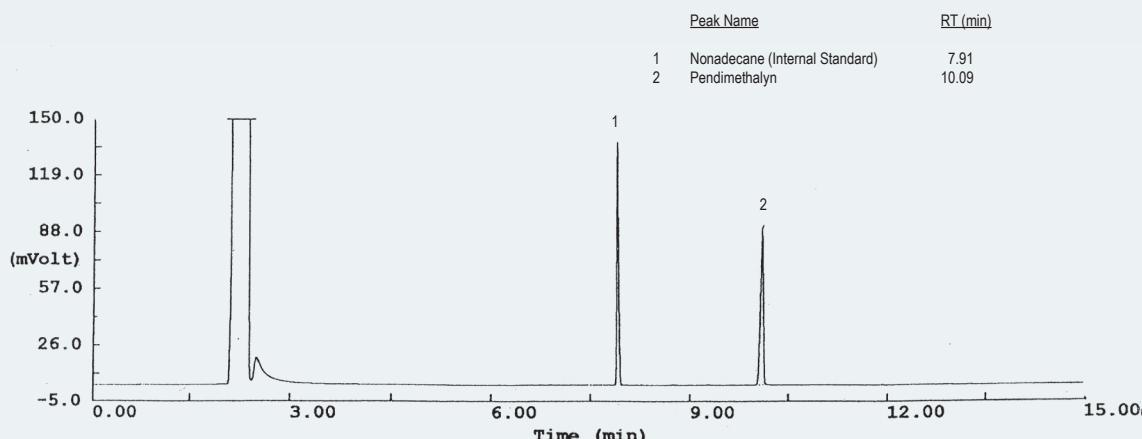
Carrier gas: He, 1mL/min

Oven program: 70°C(1min) @ 20°C/min to 150°C @ 3°C/min to 200°C

Detector: ECD, 250°C

Chromatogram provided by AINIA

TKG 1258



TKG 1086

## SEPARATION OF PESTICIDES

Column: Meta .X5, P/N TR-820232

Dimensions: 30m x 0.25mm x 0.25 µm

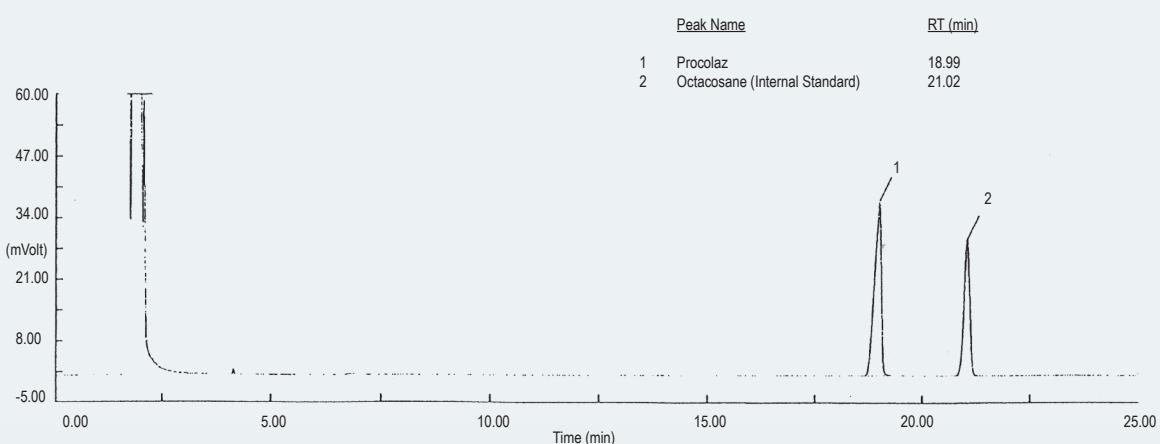
Injection: 1 µL standard (1950 mg/L), split 1:20, 200°C

Carrier gas: He, 1mL/min

Oven program: 70°C(1min) @ 20°C/min to 150°C @ 3°C/min to 200°C

Detector: ECD, 250°C

Chromatogram provided by AINIA



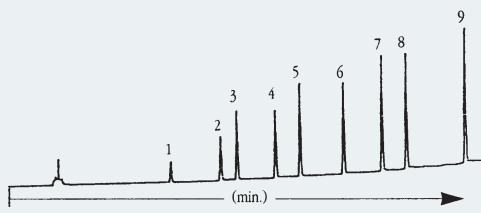
TKG 1087

**FREE ACIDS IN WATER**

Column: TRB-FFAP, P/N TR-151035  
 Dimensions: 30m x 0.53mm x 1.0  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$ , split  
 Carrier gas: He, 4 psi (27.56 KPa)  
 Oven temperature: 120°C @ 4°C/min to 220°C  
 Detector: FID, 275°C

**Peak Name**

- 1- Acetic acid
- 2- Propionic acid
- 3- Isobutyric acid
- 4- Butyric acid
- 5- Isovaleric acid
- 6- Valeric acid
- 7- Isocaproic acid
- 8- Caproic acid
- 9- Heptanoic acid



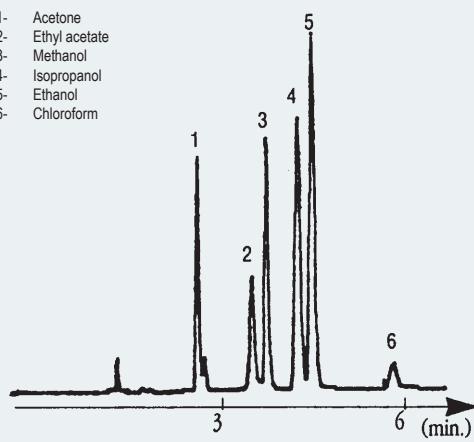
TKG 1148

**SOLVENTS IN WATER (1.00 ppm)**

Column: TRB-WAX, P/N TR-142065  
 Dimensions: 60m x 0.53mm x 2.0  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$ , split  
 Carrier gas: He, 14 psi (96.46 KPa)  
 Oven temperature: 60°C (Isothermal)  
 Detector: FID, 280°C

**Peak Name**

- 1- Acetone
- 2- Ethyl acetate
- 3- Methanol
- 4- Isopropanol
- 5- Ethanol
- 6- Chloroform



TKG 1158

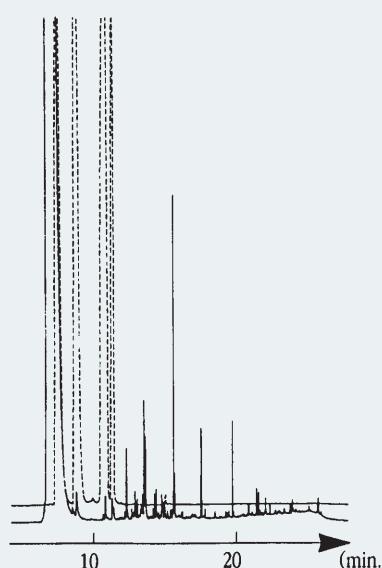
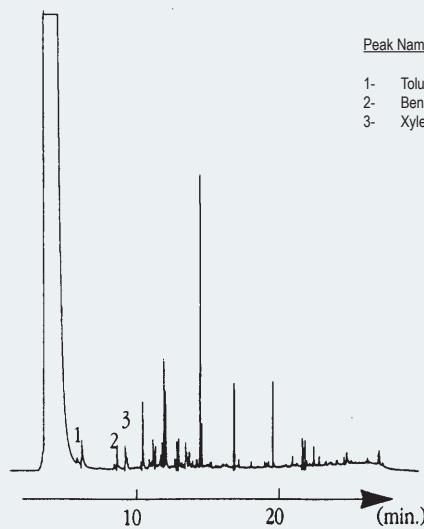
**ANALYSIS OF FIRE RESIDUES (PYROLYSIS)**

Column: TRB-5, P/N TR-120262  
 Dimensions: 60m x 0.25mm x 0.25  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$ , splitless  
 Carrier gas: He, 1.8 mL/min  
 Oven temperature: 150°C @ 2°C/min to 225°C  
 Detector: FID, 300°C

Chromatogram provided by Montse Elias and Jordi Codina  
 from Laboratori General d'Assaigs i Investigacions

**Peak Name**

- 1- Toluene
- 2- Benzene
- 3- Xylene

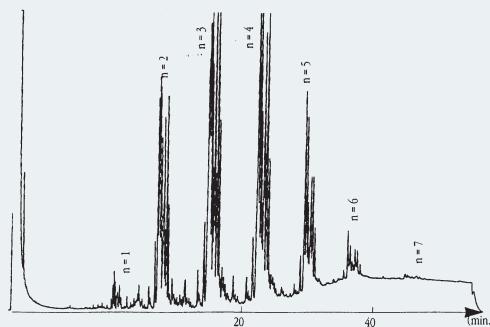


TKG 1150

## ANALYSIS OF NONYLPHENOLS

Column: TRB-5, P/N TR-120262  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL, split  
 Carrier gas: H<sub>2</sub>, 50 cm/s (110°C)  
 Oven temperature: 110°C @ 20°C/min to 220°C(1min) @ 4°C/min to 300°C  
 Detector: FID, 310°C

*Chromatogram provided by Dr. Caixach from Laboratori Espectrometria Masses, CSIC, Barcelona.*

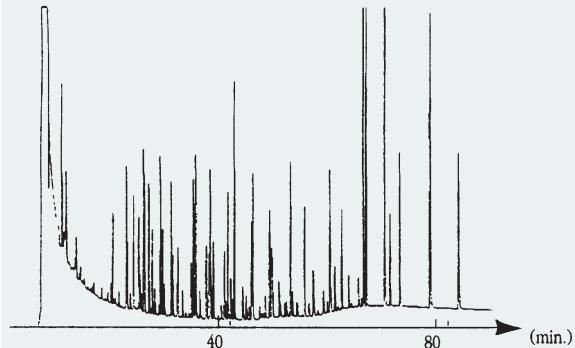


TKG 1151

## ANALYSIS OF AROCLORS

Column: TRB-5, P/N TR-122168  
 Dimensions: 60m x 0.22mm x 0.20 µm  
 Injection: splitless  
 Carrier gas: H<sub>2</sub>, 150 KPa  
 Oven temperature: 80°C(3.1min) @ 50°C/min to 190°C(5min) @ 1°C/min to 230°C(4min) @ 4°C/min to 260°C  
 Detector: ECD, 350°C

*Chromatogram provided by C. Rodriguez and L. Comellas from Institut Químic de Sarrià, Barcelona.*



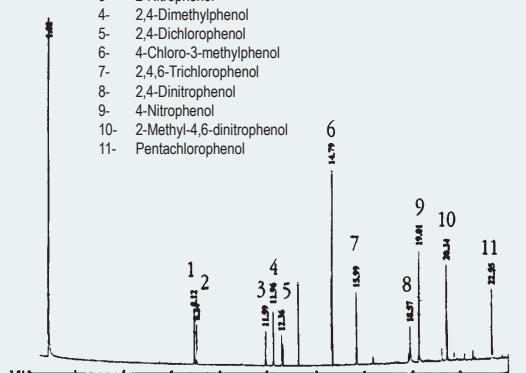
TKG 1152

## PHENOLS EPA 604

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL, split, 2 to 6 ng/comp, 250°C  
 Carrier gas: H<sub>2</sub>, 12 psi (82.68 KPa)  
 Oven temperature: 80°C(4min) @ 8°C/min to 250°C  
 Detector: FID, 280°C

### Peak Name

- 1- Phenol
- 2- Chorophenol
- 3- 2-Nitrophenol
- 4- 2,4-Dimethylphenol
- 5- 2,4-Dichlorophenol
- 6- 4-Chloro-3-methylphenol
- 7- 2,4,6-Trichlorophenol
- 8- 2,4-Dinitrophenol
- 9- 4-Nitrophenol
- 10- 2-Methyl-4,6-dinitrophenol
- 11- Pentachlorophenol



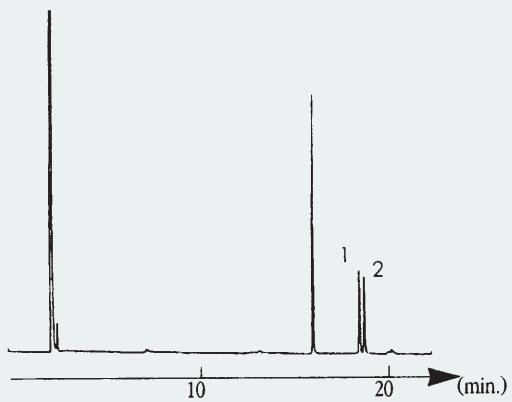
TKG 1153

## ANALYSIS OF PESTICIDES

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL, split  
 Carrier gas: He, 14 psi (96.46 KPa)  
 Oven temperature: 150°C @ 5°C/min to 265°C  
 Detector: FID, 325°C

### Peak Name

- 1- Captan
- 2- Folpet

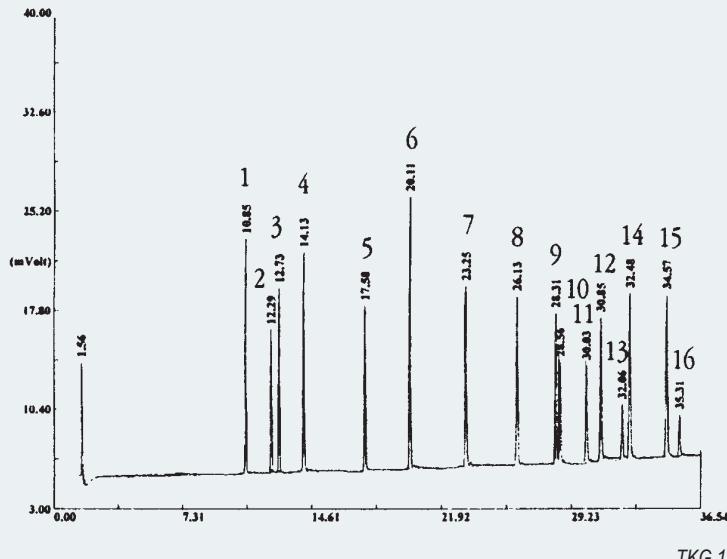


TKG 1155

**ORGANOCHLORINATED PESTICIDES EPA 608**

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 0.8 µL pesticides standard (40-400 pg), split, 230°C  
 Carrier gas: H<sub>2</sub>, 42 cm/s (150°C)  
 Oven temperature: 150°C @ 2°C/min to 225°C  
 Detector: FID, 300°C

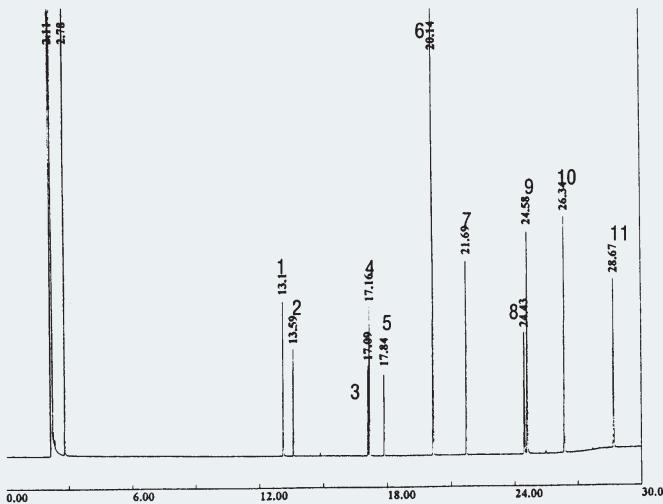
Peak Name
1- α-BHC
2- β-BHC
3- γ-BHC
4- δ-BHC
5- heptachlor
6- aldrin
7- heptachlor epoxide
8- endosulfan I
9- dieldrin
10- 4,4'-DDE
11- endrin
12- endosulfan II
13- 4,4'-DDD
14- endrin aldehyde
15- endosulfan sulfate
16- 4,4'-DDT



TKG 1149

**SEPARATION OF PHENOLS EPA 604**

Column: TRB-5, P/N TR-120469  
 Dimensions: 60m x 0.20mm x 0.4 µm  
 Injection: 1 µL standard phenols EPA 604, split  
 Carrier gas: H<sub>2</sub>, 38.5 psi (265.27 KPa)  
 Oven temperature: 50°C(4min) @ 8°C/min to 250°C(5min)  
 Detector: FID, 280°C



Peak Name

1-	Phenol
2-	2-Chlorophenol
3-	2-Nitrophenol
4-	2,4-Dimethylphenol
5-	2,4-Dichlorophenol
6-	4-Chloro-3-methylphenol
7-	2,4,6-Trichlorophenol
8-	2,4-Dinitrophenol
9-	4-Nitrophenol
10-	2-Methyl-4,6-dinitrophenol
11-	Pentachlorophenol

TKG 1159

**AROCLOR 1254 IN ISOCTANE (10 PPM)**

Column: TRB-5MS, P/N TR-520262

Size: 60m x 0.25mm x 0.25 $\mu$ m

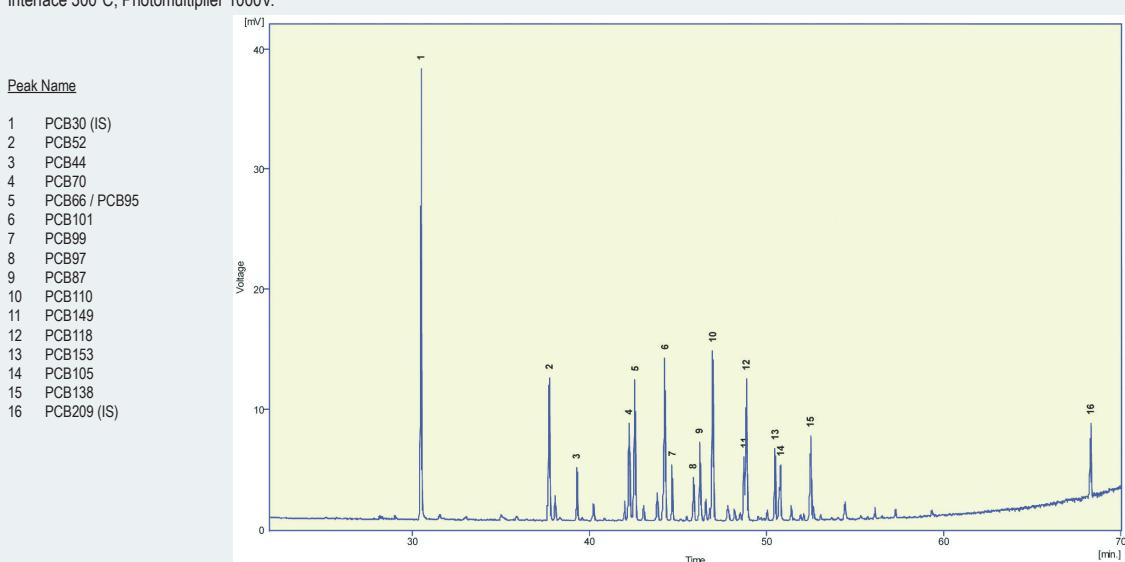
Injection: splitless 60s, 270°C

Sample: 1  $\mu$ L Aroclors 1242, 1254 and 1260 standards in isoctane (10ppm), (1 ppm PCB30 and PCB209 internal standards)

Carrier Gas: He, 1mL/min

Program temperature: 70°C (1min) @ 30°C/min to 130°C @ 2.5°C/min to 300°C (15min)

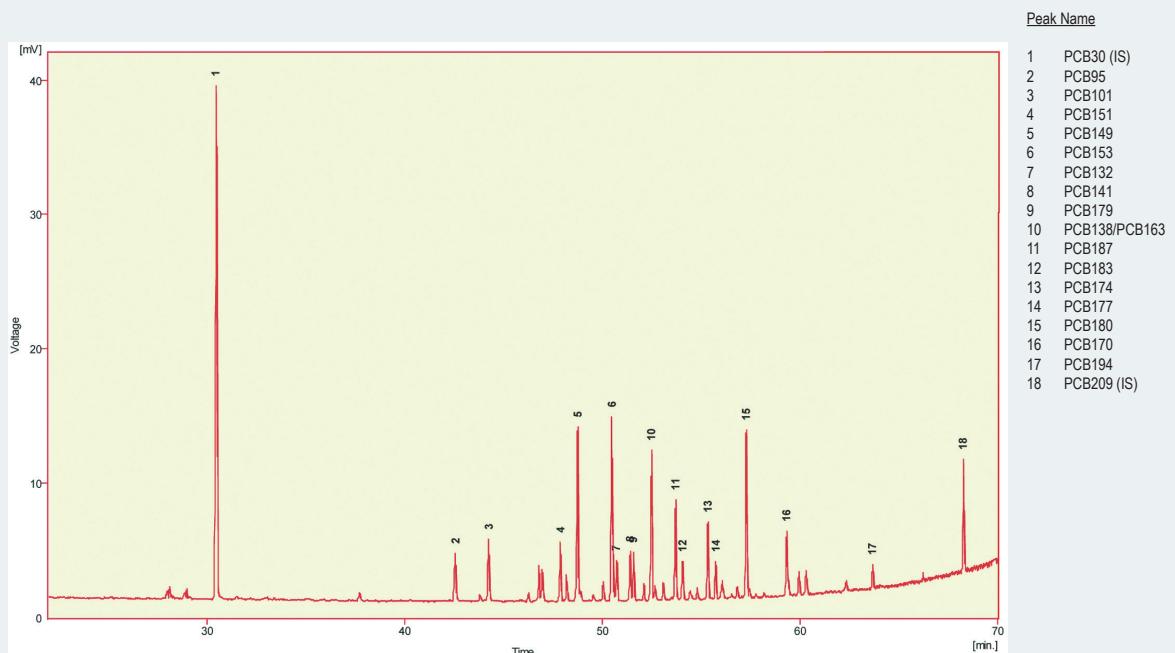
Detector: MS KONIK-TECH, Modo EI+ (70 eV), SIM m/z 186, 222, 292, 326, 360, 394, 430, 464, 498 (50 ms), Source 140°C, Interface 300°C, Photomultiplier 1000V.



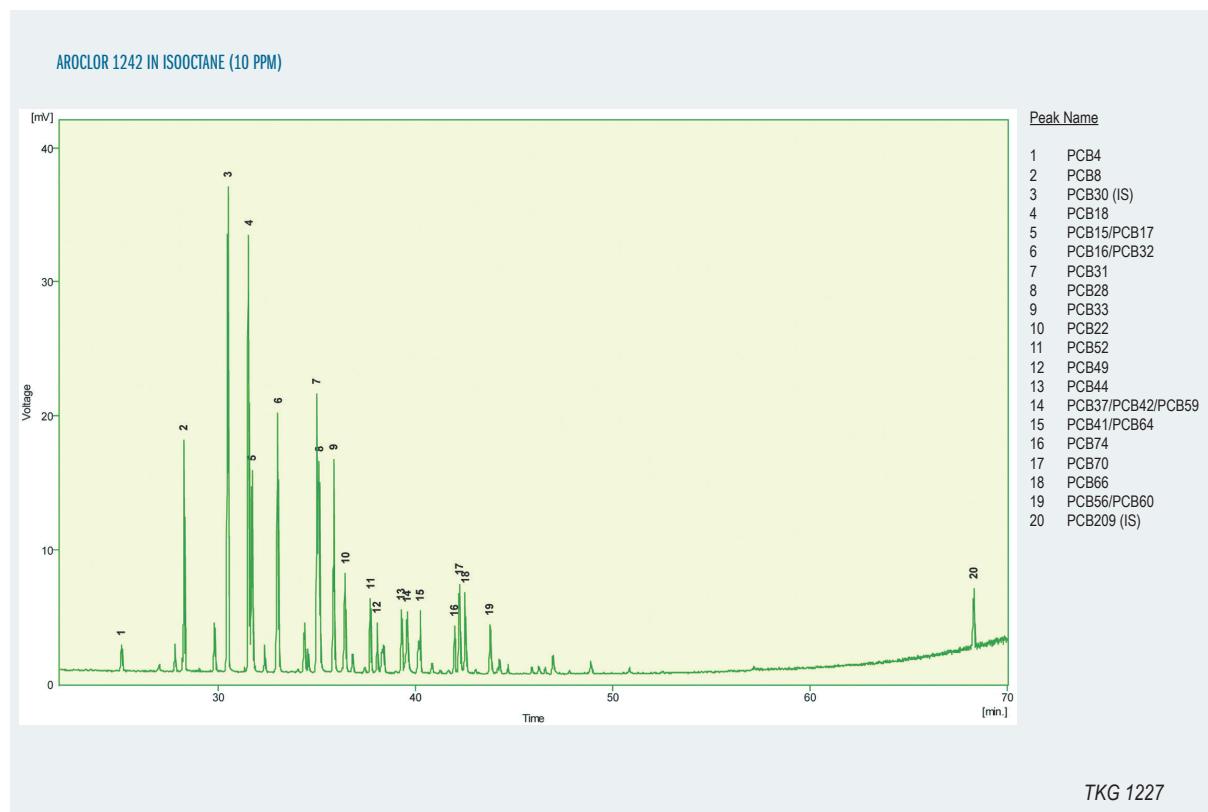
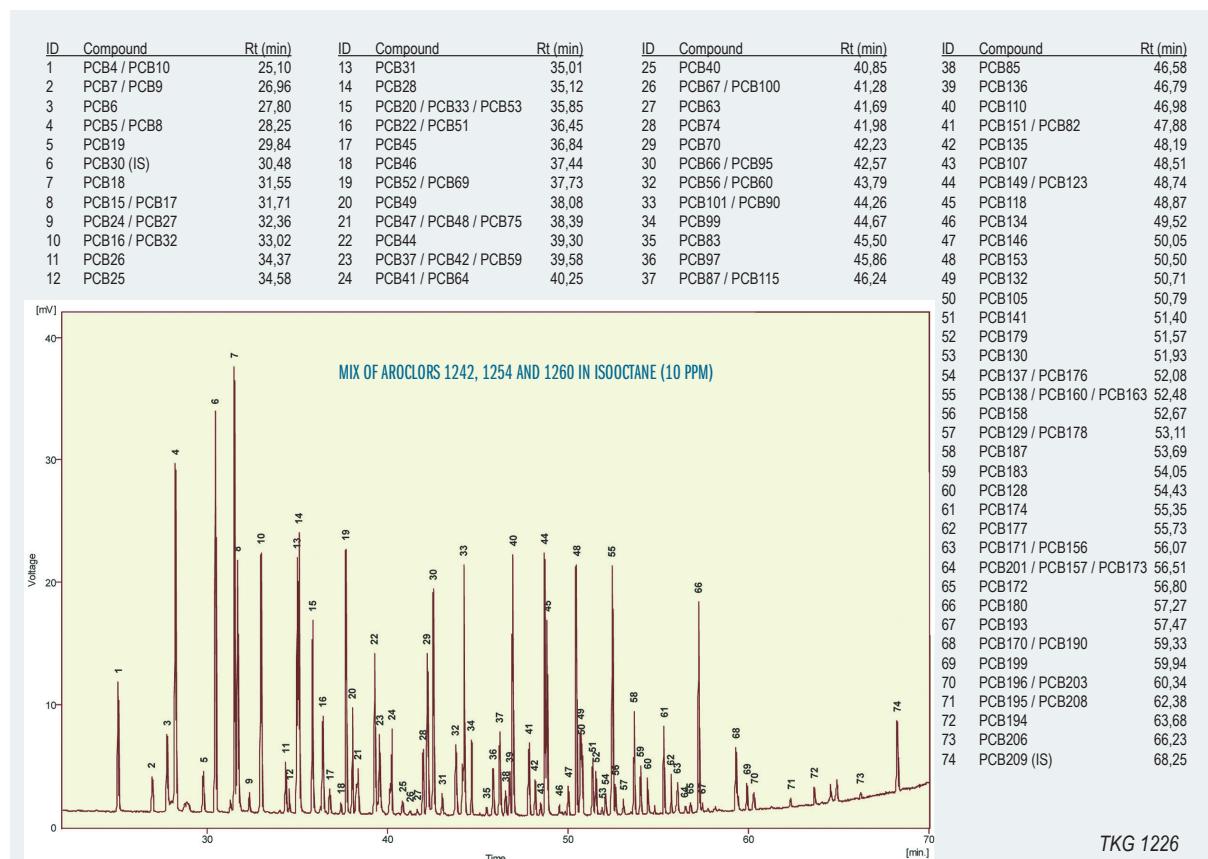
Chromatogram provided by José Antonio Muñoz from KONIK-TECH, S.A

TKG 1224

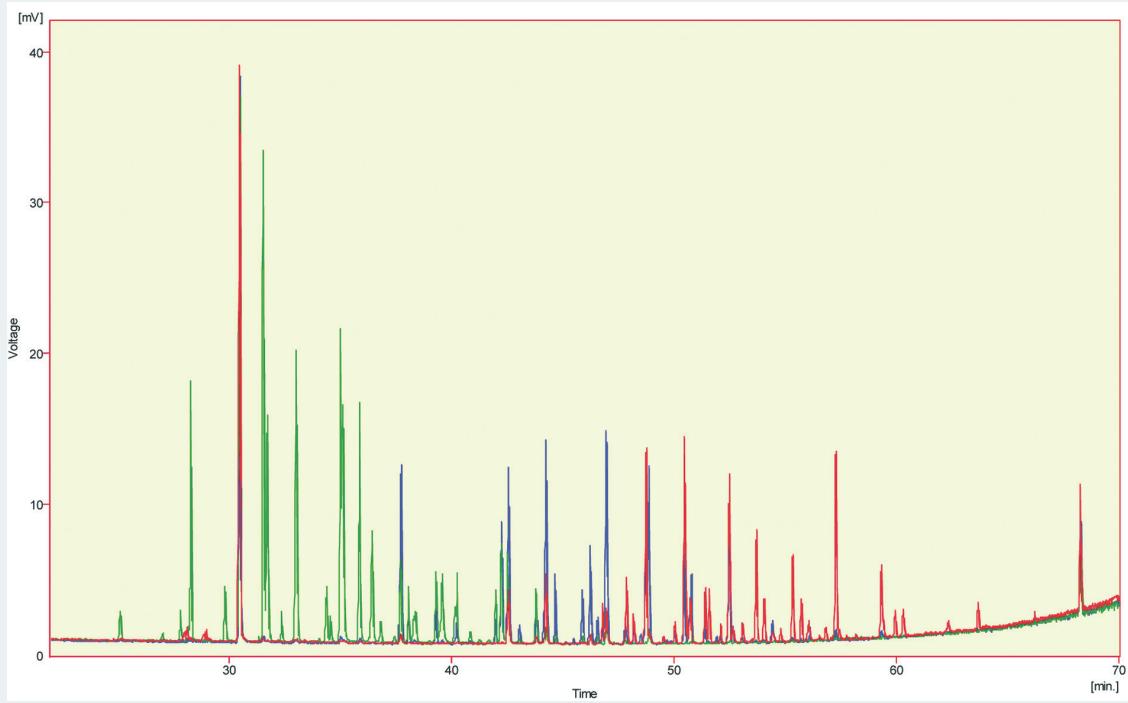
**AROCLOR 1260 IN ISOCTANE (10 PPM)**



TKG 1225



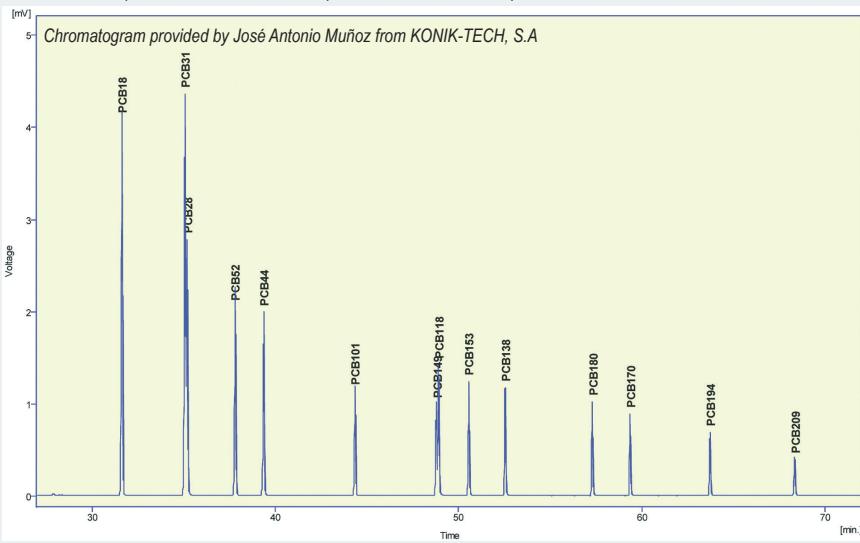
SUPERIMPOSED INDIVIDUAL AROCLORS 1242 (GREEN), 1254 (BLUE), 1260 (RED) IN ISOCTANE (10 PPM)



TKG 1223

### PCBs

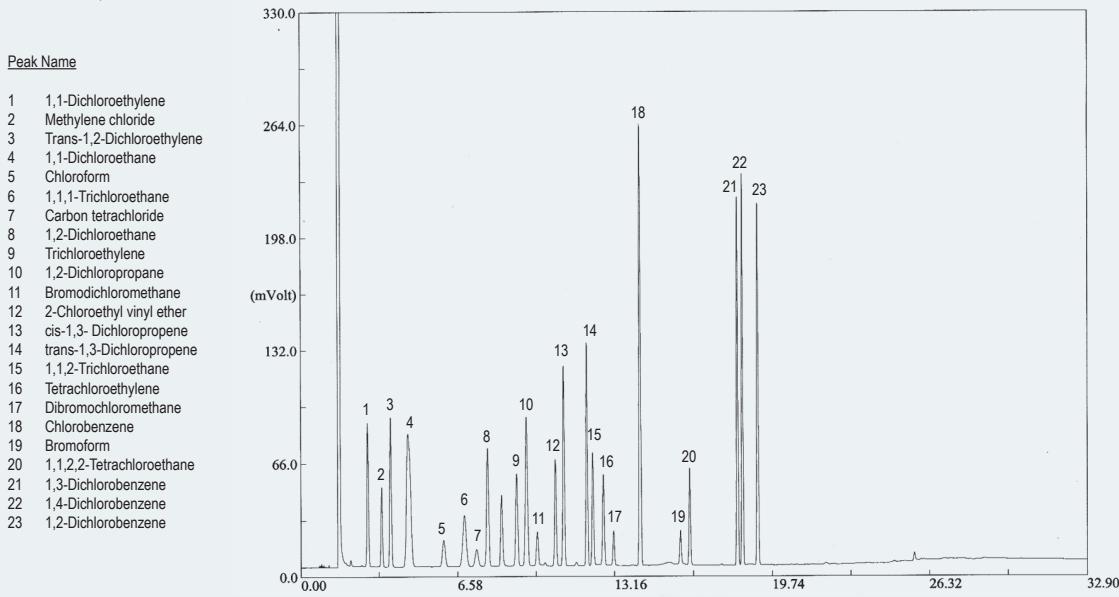
Column: TRB-5MS, P/N TR-520262  
Size: 60m x 0.25mm x 0.25 $\mu$ m  
Injection: 1  $\mu$ L standard mixture of 14 PCBs in isoctane (2ppm), splitless 60s, 270°C  
Carrier Gas: He, 1mL/min  
Program temperature: 70°C (1min) @ 30°C/min a 130°C @ 2.5°C/min a 300°C (15min)  
Detector: MS KONIK-TECH, Mode EI+ (70 eV), SIM m/z 186, 222, 292, 326, 360, 394, 430, 464, 498 (50 ms), Source Temperature 140°C, Interface temperature 300°C, Photomultiplier 1000V.



TKG 1222

EPA 601 PURGEABLE HALOCARBONS MIX

Column: Meta. VOC, P/N TR-943035  
 Size: 30m x 0.53mm x 3.0 $\mu$ m  
 Injection: 0.5 $\mu$ L EPA 601 purgeable halocarbons mix + 2-chloroethyl vinyl ether (2000 ng/ $\mu$ L), split 1:50, 280°C  
 Carrier gas: He, constant flow 6 mL/min  
 Oven Temperature: 40°C(6min) @ 8°C/min a 200°C(5min)  
 Detector: FID, 280°C



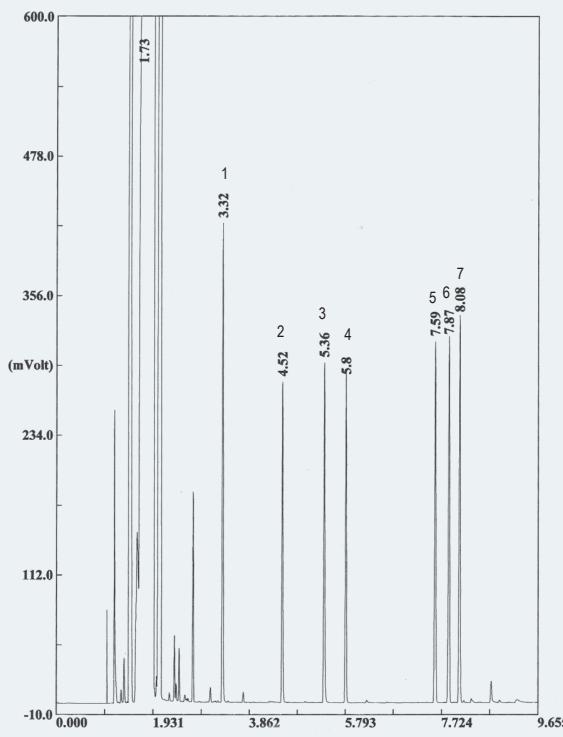
TKG 1205

ANALYSIS OF PYRIDINES

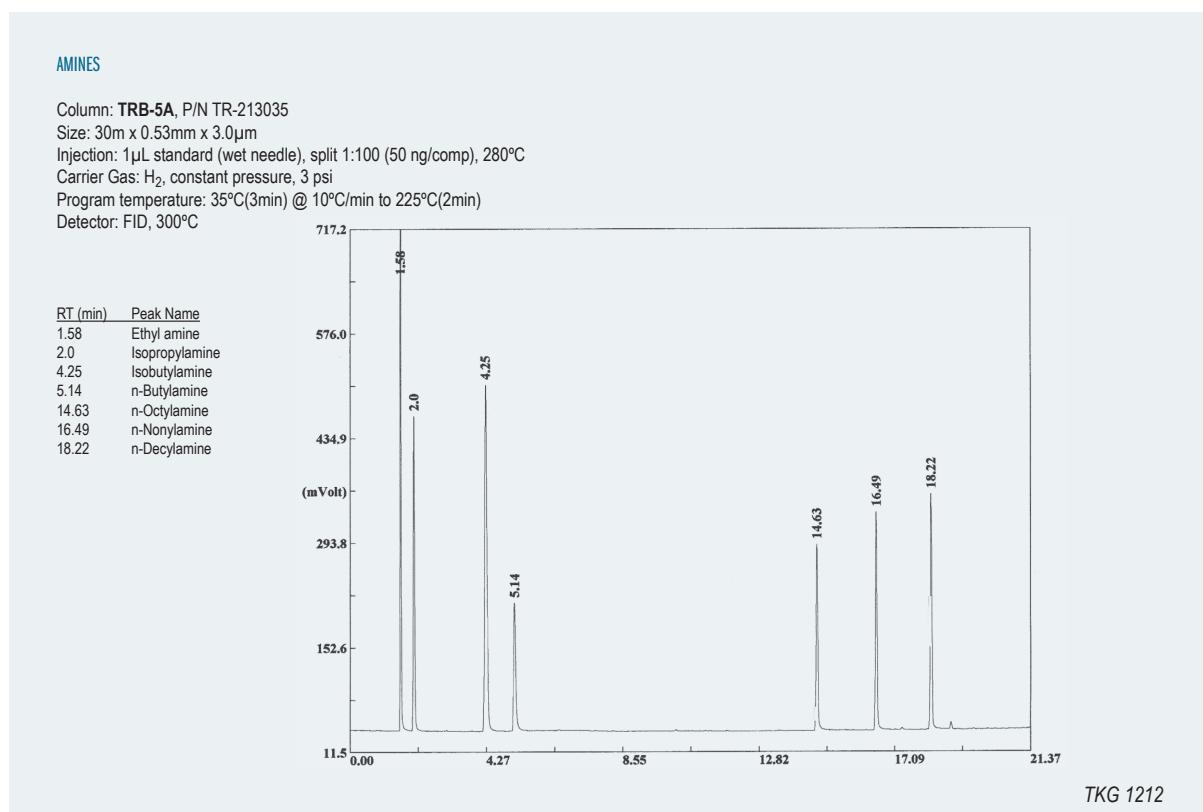
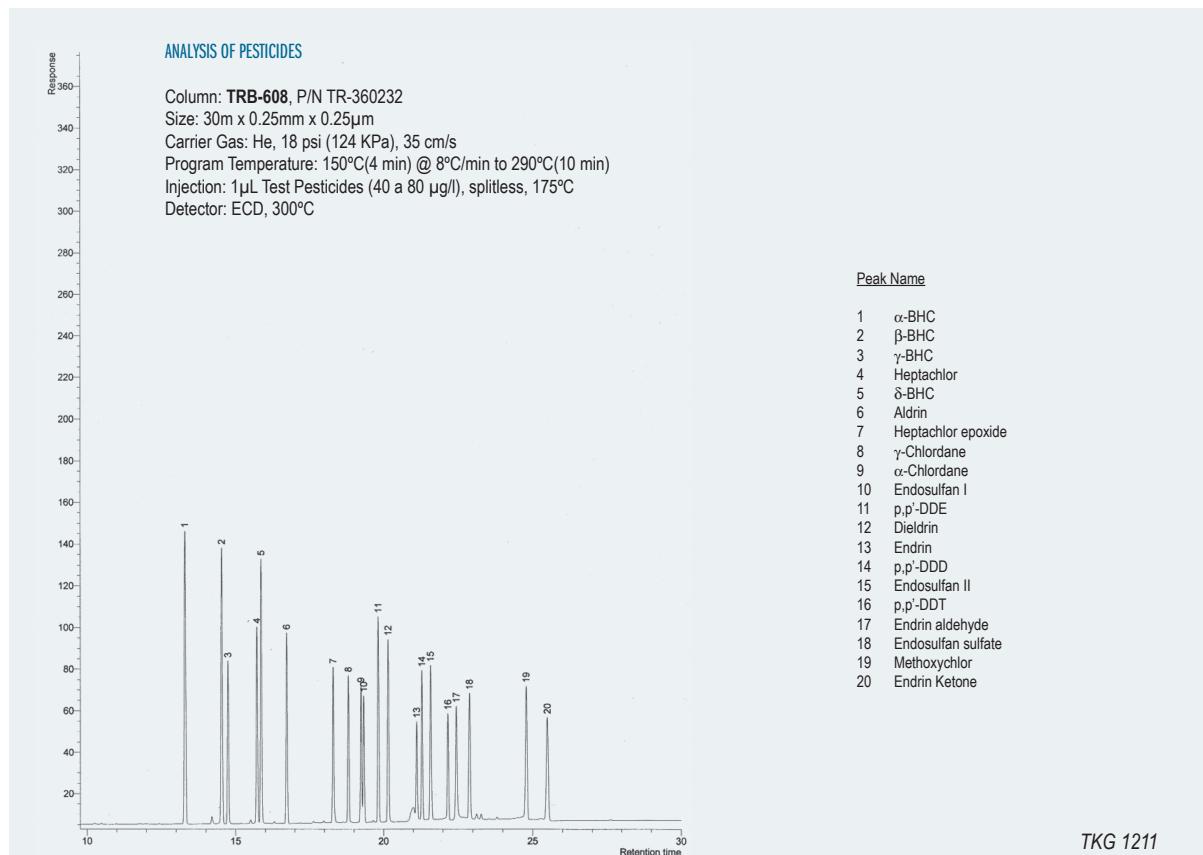
Column: TRB-5A, P/N TR-210533  
 Size: 30m x 0.32mm x 0.5 $\mu$ m  
 Injection: 1 $\mu$ L patrón, split 1:100 (50 ng/comp), 280°C  
 Carrier gas: H<sub>2</sub>, constant pressure 7 psi  
 Oven temperature: 50°C(2min) @ 10°C/min to 180°C(2min)  
 Detector: FID, 280°C

Peak Name

1	Pyridine
2	2-Picoline
3	3-Picoline
4	2,6-Lutidine
5	3,5-Lutidine
6	2,4,6-Collidine
7	3,4-Lutidine



TKG 1206



#### SEPARATION OF PHTALATES

Column: Meta.X5, 30m x 0.25mm x 0.25 $\mu$ m (P/N: TR-820232)

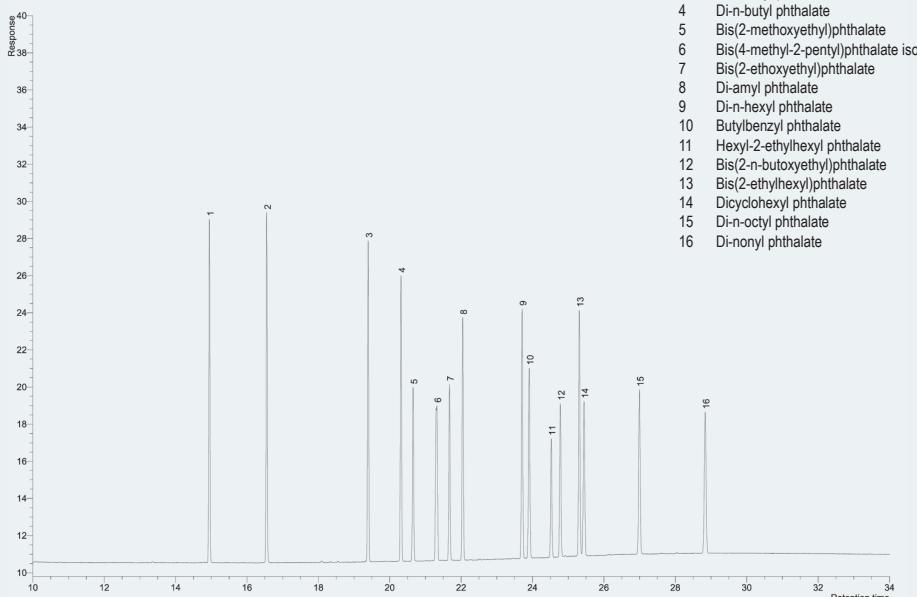
Carrier gas: Helium, 12psi, constant pressure mode

Injection: 250°C, split ratio 35:1

Oven temperature: 40°C (1min) to 325°C @ 12°C/min

Detector: FID, 330°C

Sample: 1 $\mu$ l Phthalate Ester Mix 1000 $\mu$ g/ml each compound



TKG 1243

#### SEPARATION OF PHTALATES

Column: Meta.X5, 30m x 0.25mm x 0.25 $\mu$ m (P/N: TR-820232)

Injection: Splitless w/Surge: pulse 20psi @ 0.30min, 25ml/min @ 1min

Injection temp.: 300°C

Oven temperature: 80°C (2min) to 280°C (8min) @ 20°C/min

Carrier gas: Helium, constant flow @ 1.5ml/min

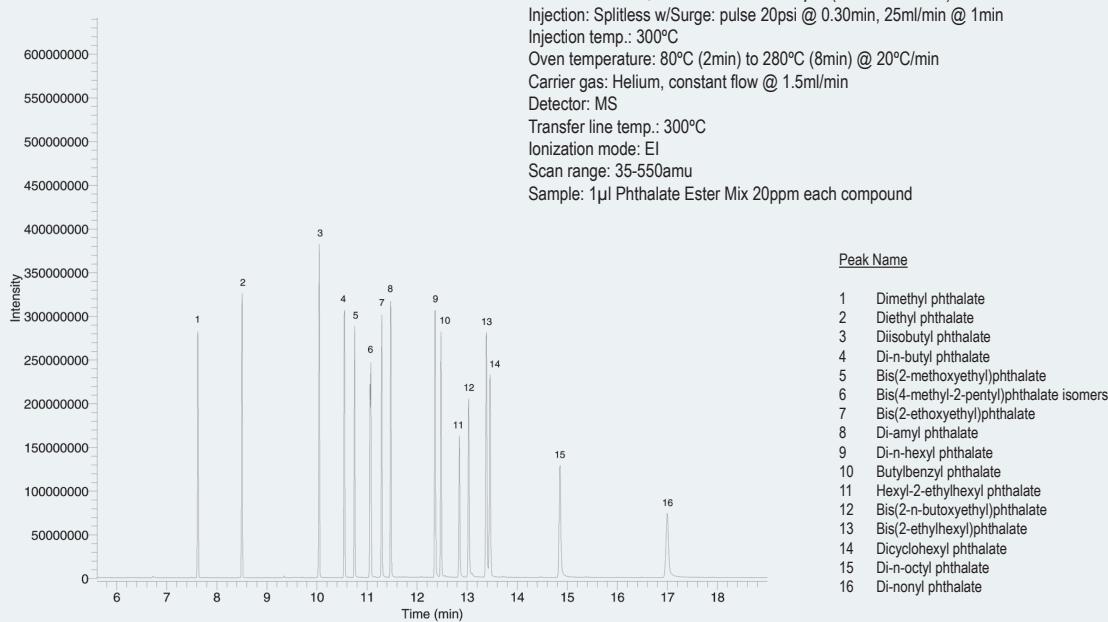
Detector: MS

Transfer line temp.: 300°C

Ionization mode: EI

Scan range: 35-550amu

Sample: 1 $\mu$ l Phthalate Ester Mix 20ppm each compound



TKG 1244

**SEPARATION OF AROMATIC HYDROCARBONS**

Column: **SupraWax-280**, 20m x 0.18mm x 0.18 $\mu$ m (P/N: TR-830984)

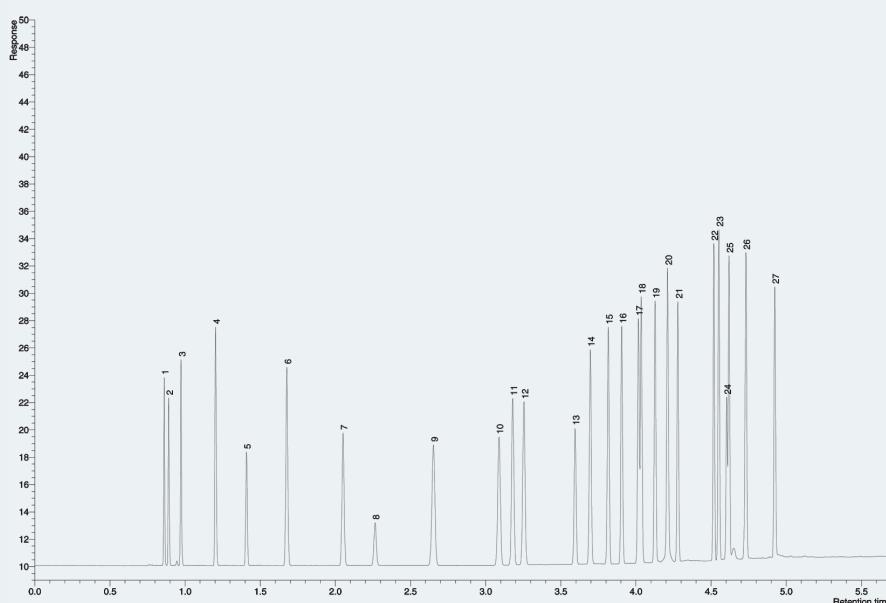
Carrier gas: Helium, 33.1psi, constant pressure mode

Injection: 250°C, split ratio 150:1

Oven temperature: 60°C (3min) to 140°C (1min) @ 50°C/min

Detector: FID, 250°C

Sample: 25ng on-column each compound



Peak Name

1	heptane
2	cyclohexane
3	octane
4	nonane
5	benzene
6	decane
7	toluene
8	1,4-dioxane
9	undecane
10	ethylbenzene
11	p-xylene
12	m-xylene
13	cumene
14	dodecane
15	o-xylene
16	propylbenzene
17	p-ethyltoluene
18	m-ethyltoluene
19	t-butylbenzene
20	s-butylbenzene
21	styrene
22	tridecane
23	diethylbenzeneisomer
24	diethylbenzeneisomer
25	n-butylbenzene
26	$\alpha$ -methylstyrene
27	phenylacetylene

TKG 1245

**SEPARATION OF AROMATIC HYDROCARBONS**

Column: **SupraWax-280**, 60m x 0.32mm x 0.5 $\mu$ m (P/N: TR-830563)

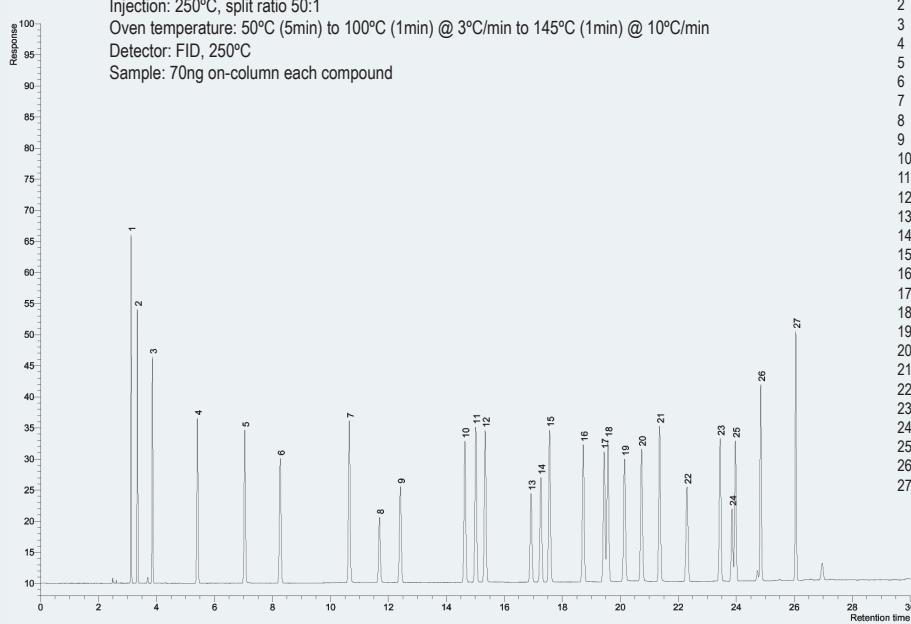
Carrier gas: Helium, 25psi, constant pressure mode

Injection: 250°C, split ratio 50:1

Oven temperature: 50°C (5min) to 100°C (1min) @ 3°C/min to 145°C (1min) @ 10°C/min

Detector: FID, 250°C

Sample: 70ng on-column each compound

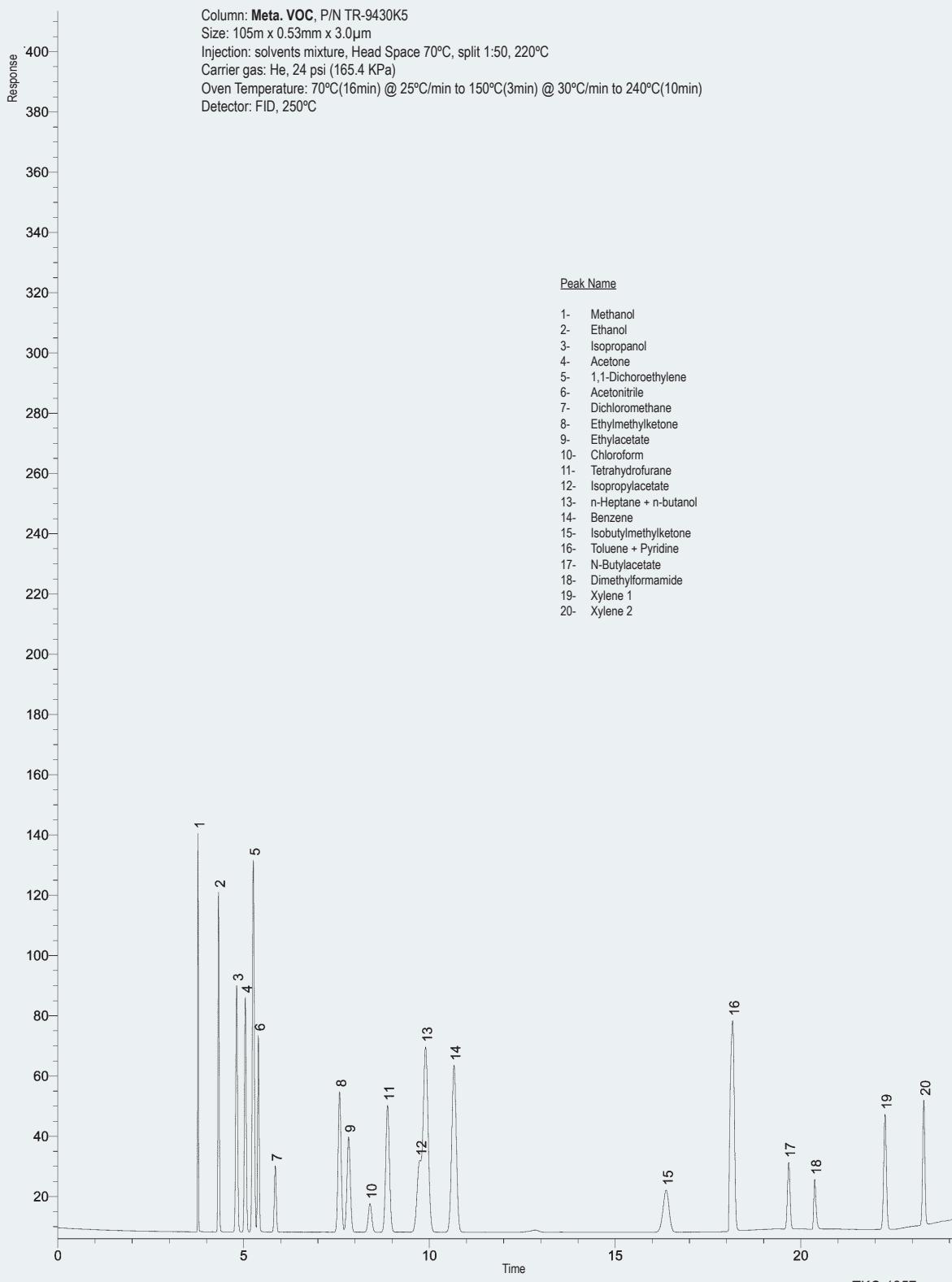


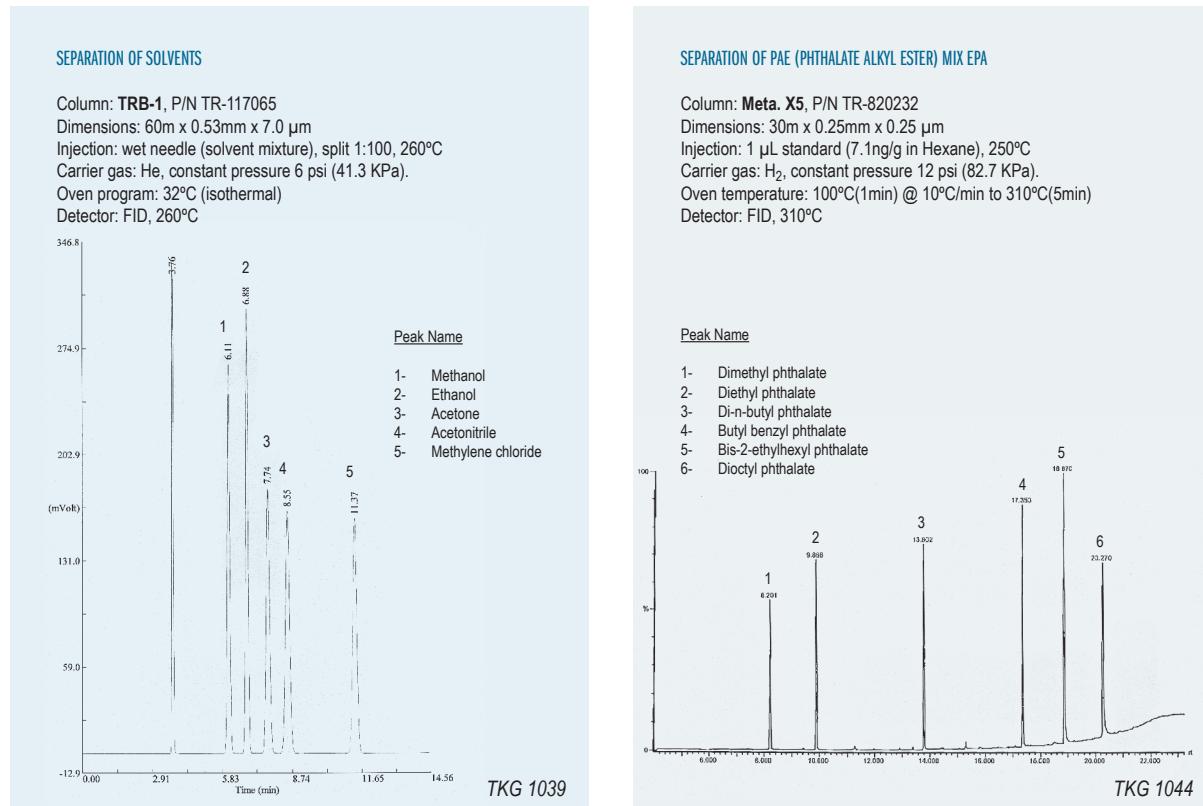
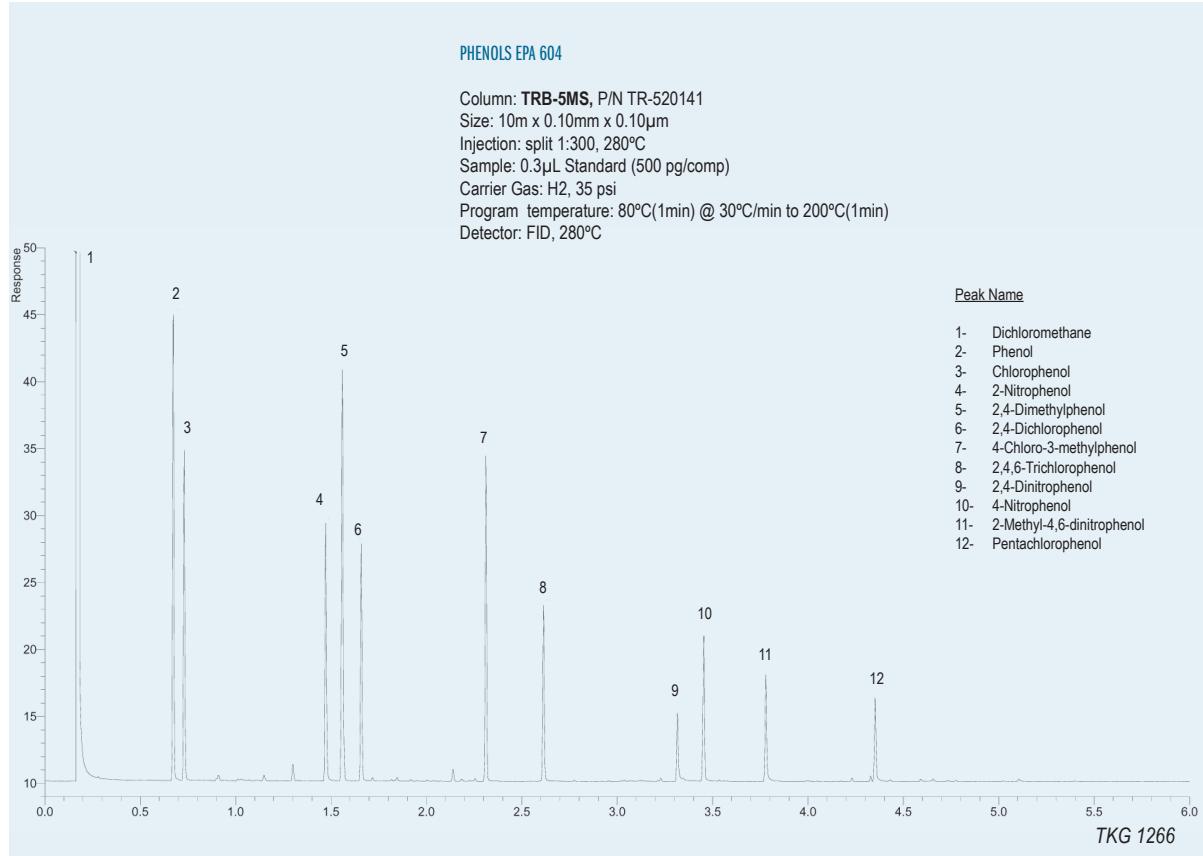
Peak Name

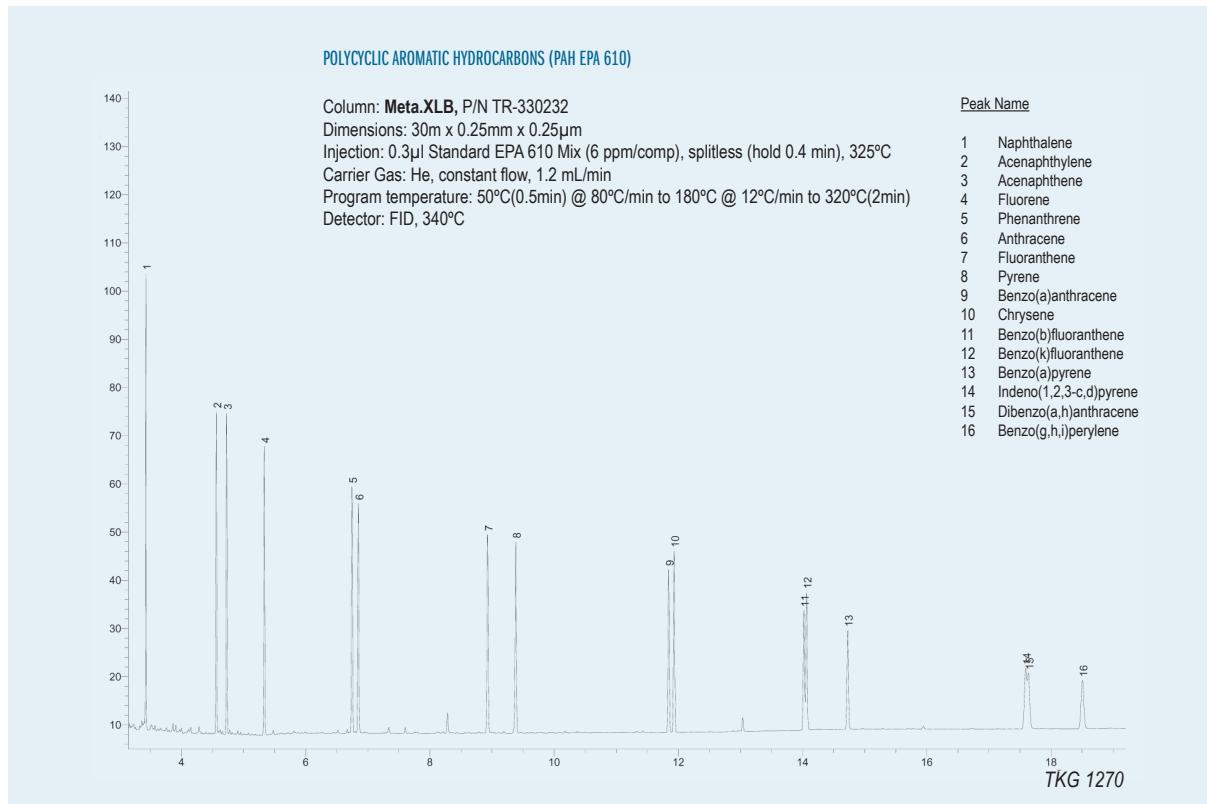
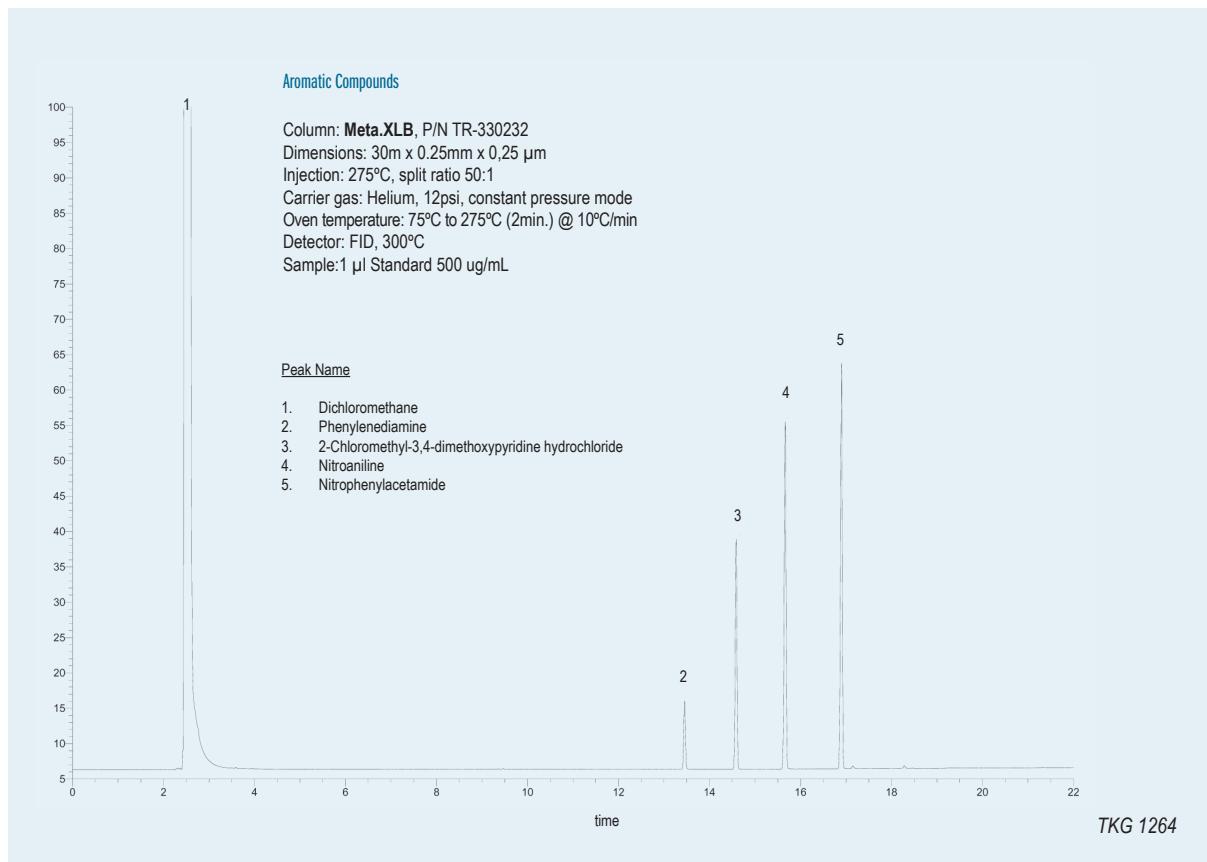
1	heptane
2	cyclohexane
3	octane
4	nonane
5	benzene
6	decane
7	toluene
8	1,4-dioxane
9	undecane
10	ethylbenzene
11	p-xylene
12	m-xylene
13	cumene
14	dodecane
15	o-xylene
16	propylbenzene
17	p-ethyltoluene
18	m-ethyltoluene
19	t-butylbenzene
20	s-butylbenzene
21	styrene
22	tridecane
23	diethylbenzeneisomer
24	diethylbenzeneisomer
25	n-butylbenzene
26	$\alpha$ -methylstyrene
27	phenylacetylene

TKG 1246

SEPARATION OF SOLVENTS







**CLP PESTICIDES (EPA 8081)**

Column: **Meta.XLB**, P/N TR-330232

Dimensions: 30m x 0.25mm x 0.25 $\mu$ m

Injection: 0.5 $\mu$ l Standard (12-120 ppb, surrogates 50ppb), splitless 30s, 250°C

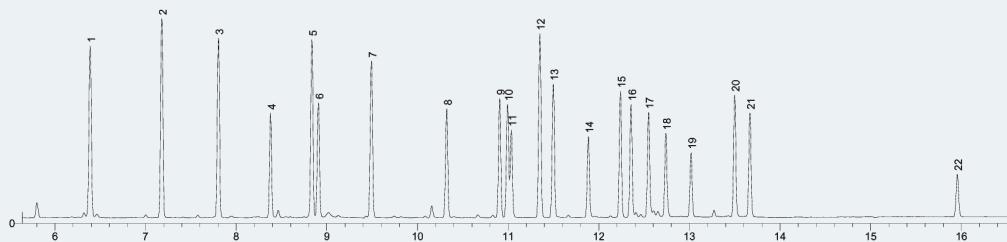
Carrier Gas: He, 30psi (206.7 KPa), 45cm/s at 110°C

Program temperature: 110°C(0.5min) @ 25°C/min to 150°C @ 12°C/min to 260°C @ 15°C/min to 320°C(2min)

Detector: ECD, 330°C

**Peak Name**

1	2,4,5,6-Tetrachloro-m-xylene (sur.)
2	$\alpha$ -BCH
3	$\gamma$ -BHC
4	$\beta$ -BHC
5	$\delta$ -BHC
6	Heptachlor
7	Aldrin
8	Heptachlor epoxide
9	$\gamma$ -Chlordane
10	$\alpha$ -Chlordane
11	Endosulfan I
12	4,4'-DDE
13	Dieldrin
14	Endrin
15	4,4'-DDD
16	Endosulfan II
17	Endrin aldehyde
18	4,4'-DDT
19	Endosulfan sulfate
20	Methoxychlor
21	Endrin ketone
22	Decachlorobiphenyl (sur.)



TKG 1269

**CLP PESTICIDES (EPA 8081)**

Column: **Meta.XLB**, P/N TR-330533

Dimensions: 30m x 0.32mm x 0.50 $\mu$ m

Injection: 0.3 $\mu$ l Standard (30 pg/compound), splitless 30s, 250°C

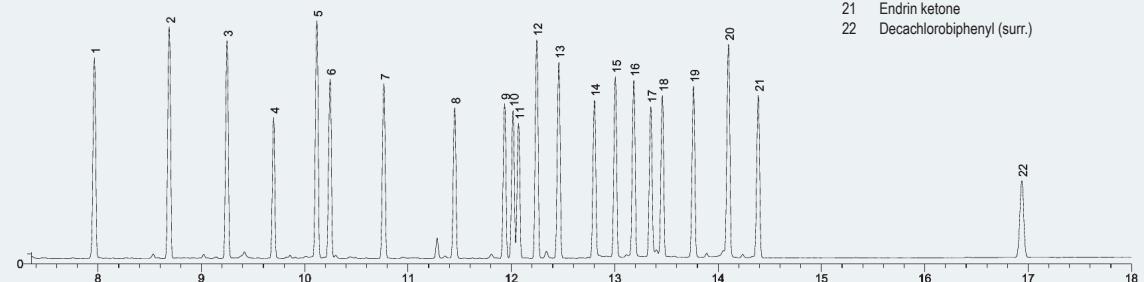
Carrier Gas: He, 18psi (124 KPa), 43 cm/s at 110°C

Program temperature: 110°C(0.5min) @ 15°C/min to 320°C(2min)

Detector: ECD, 340°C (make up N2 30mL/min)

**Peak Name**

1	2,4,5,6-Tetrachloro-m-xylene (sur.)
2	$\alpha$ -BCH
3	$\gamma$ -BHC
4	$\beta$ -BHC
5	$\delta$ -BHC
6	Heptachlor
7	Aldrin
8	Heptachlor epoxide
9	$\gamma$ -Chlordane
10	$\alpha$ -Chlordane
11	Endosulfan I
12	4,4'-DDE
13	Dieldrin
14	Endrin
15	4,4'-DDD
16	Endosulfan II
17	Endrin aldehyde
18	4,4'-DDT
19	Endosulfan sulfate
20	Methoxychlor
21	Endrin ketone
22	Decachlorobiphenyl (sur.)



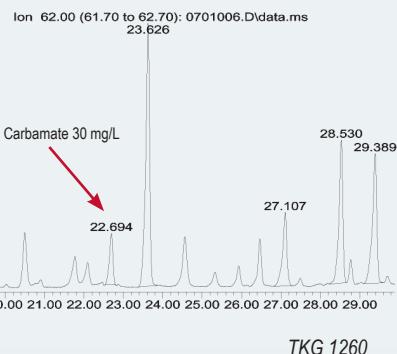
TKG 1271

#### ETHYL CARBAMATE IN WINE

Column: **SupraWax-280**, 20m x 0.18mm x 0.18 $\mu$ m (P/N: TR-830984)  
 Carrier gas: Helium, 1mL/min  
 Injection: 1 $\mu$ L, split (30ppb of Ethyl Carbamate), 180°C  
 Oven temp.: 40°C (0.75min) to 60°C @ 10°C/min to 150°C @ 3°C/min  
 to 220°C(4.25min) @ 30°C/min  
 Detector: MS (SIM, m/z 62, 74 and 89), transfer line 220°C

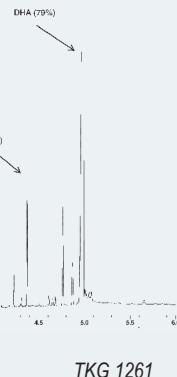
*Chromatogram provided by Joan Garcia, INCAVI (Vilafranca del Penedés, Barcelona)*

Abundance



#### TUNA OIL WITH ADDED DHA

Column: **SupraWax-280**, 15m x 0.10mm x 0.10 $\mu$ m (P/N: TR-830111)  
 Injection: 1 $\mu$ L Methylated sample, 280°C, split 100:1  
 Carrier Gas: H<sub>2</sub>, 45 psi (310.05 KPa)  
 Oven: 100°C (0.5min) @ 50°C/min to 280°C (2min)  
 Detector: FID, 280°C

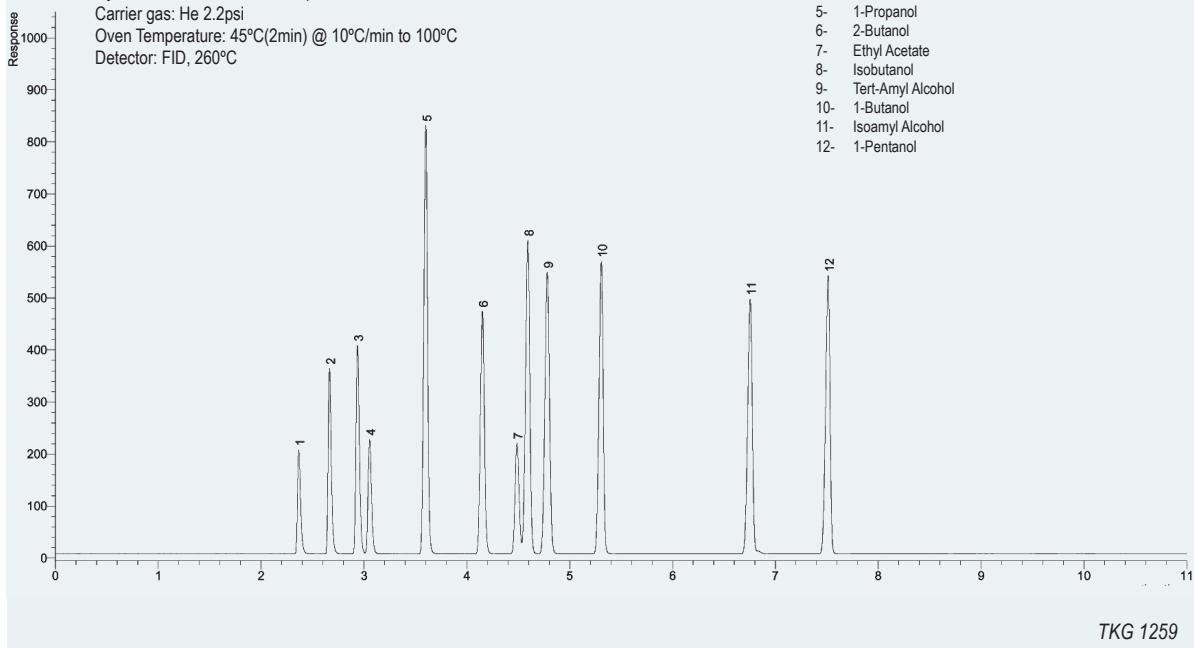


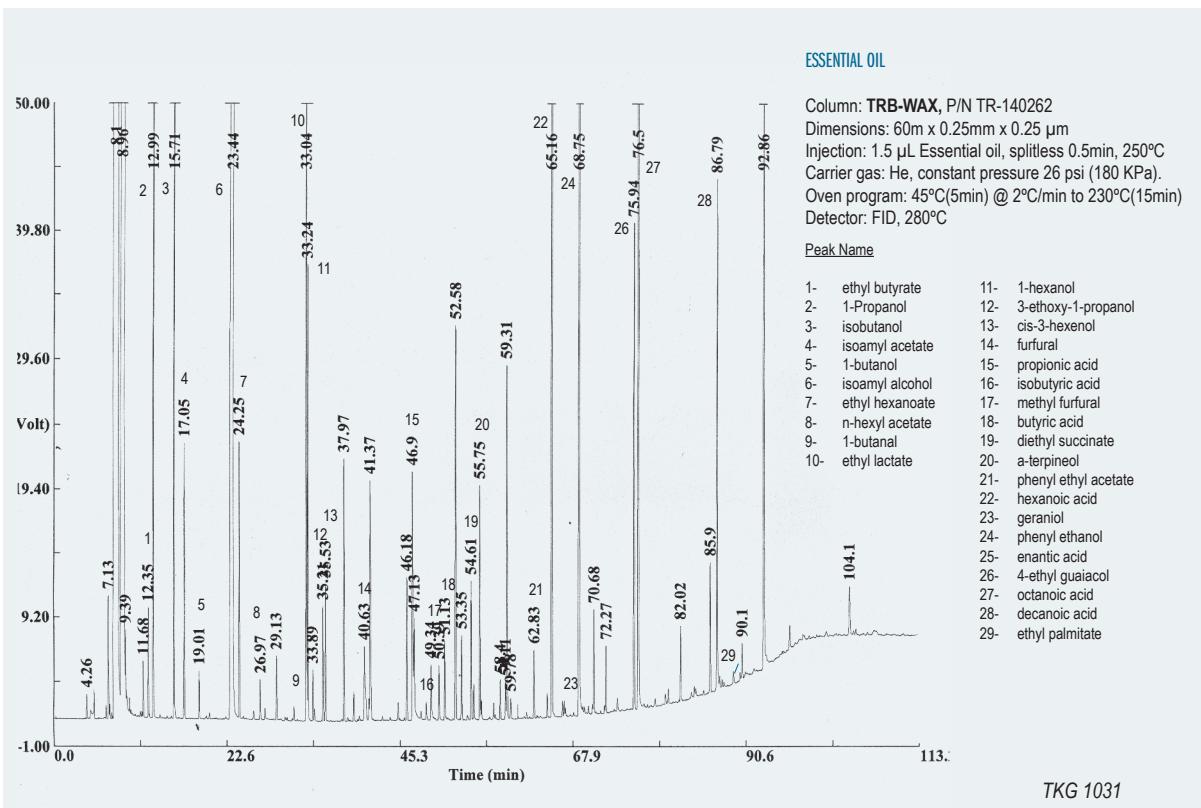
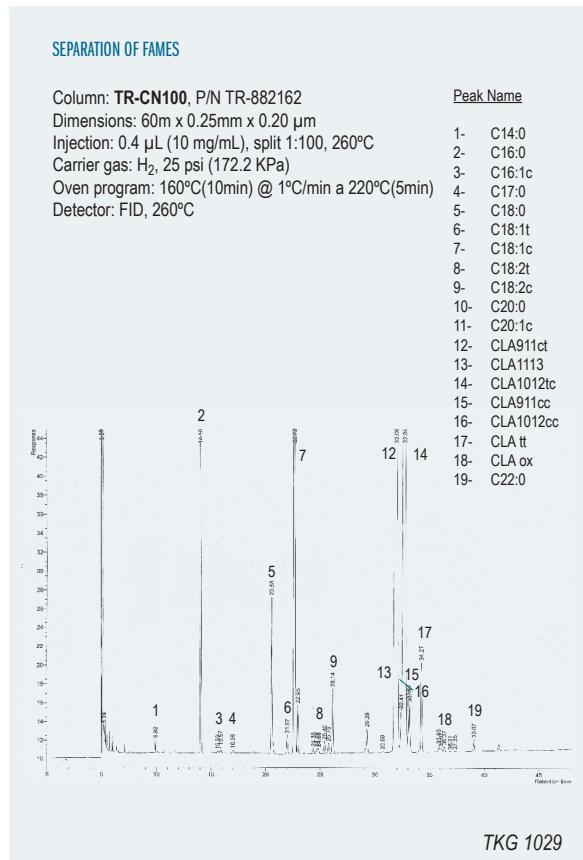
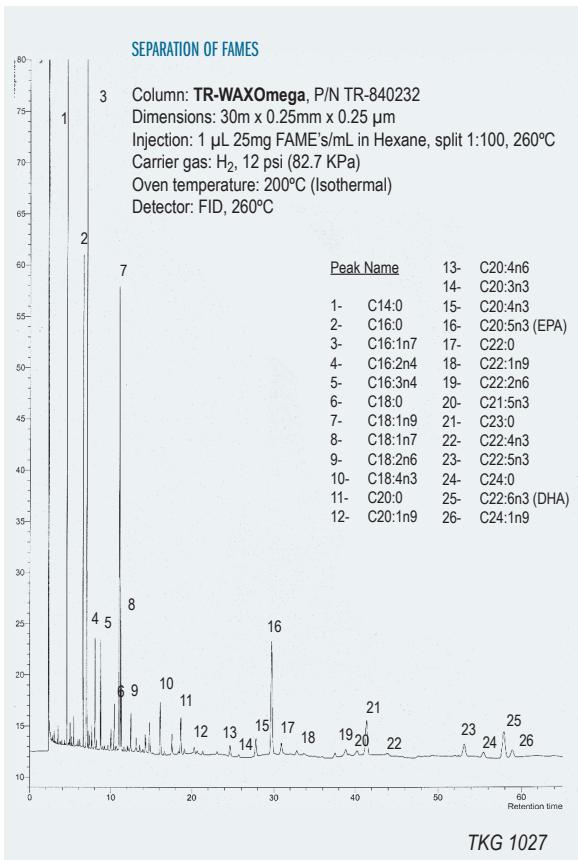
#### ALCOHOLS

Column: **TRB-20**, P/N TR-201235  
 Dimensions: 30m x 0.53mm x 1.2 $\mu$ m  
 Injection: wed needle, 260°C, split 1:100  
 Carrier gas: He 2.2psi  
 Oven Temperature: 45°C(2min) @ 10°C/min to 100°C  
 Detector: FID, 260°C

#### Peak Name

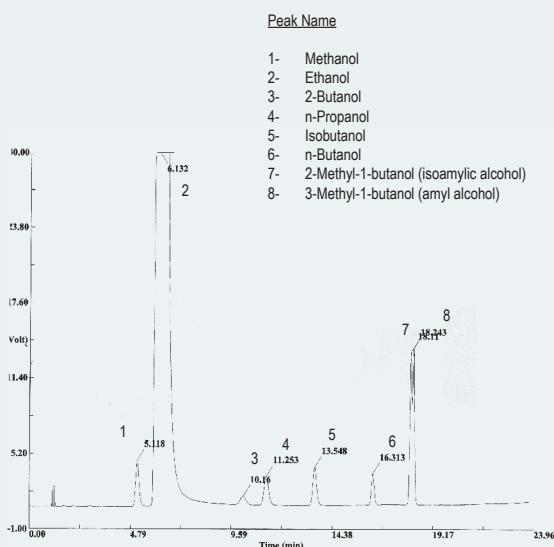
- |     |                   |
|-----|-------------------|
| 1-  | Methanol          |
| 2-  | Ethanol           |
| 3-  | 2-Propanol        |
| 4-  | Acetone           |
| 5-  | 1-Propanol        |
| 6-  | 2-Butanol         |
| 7-  | Ethyl Acetate     |
| 8-  | Isobutanol        |
| 9-  | Tert-Amyl Alcohol |
| 10- | 1-Butanol         |
| 11- | Isoamyl Alcohol   |
| 12- | 1-Pentanol        |





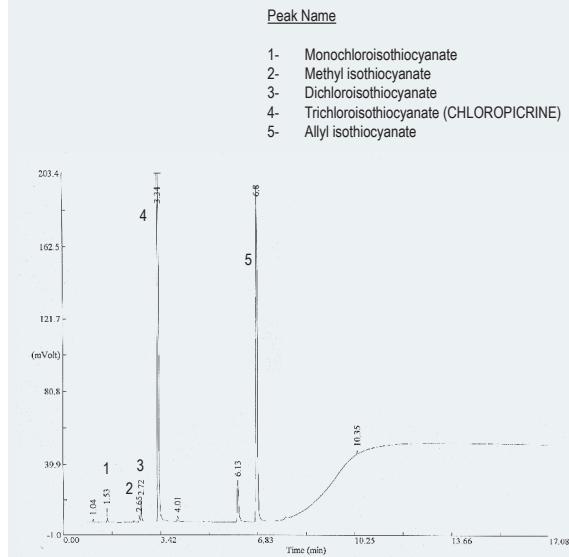
### SEPARATION OF ALCOHOLS

Column: **Meta .WAX**, P/N TR-811035  
 Dimensions: 30m x 0.53mm x 1.0  $\mu$ m  
 Injection: 1  $\mu$ L standard, split 1:4, 200°C  
 Carrier gas: He, 3 psi (20.7 KPa)  
 Oven temperature: 40°C(10min) @ 6°C/min to 125°C(5min)  
 Detector: FID, 200°C

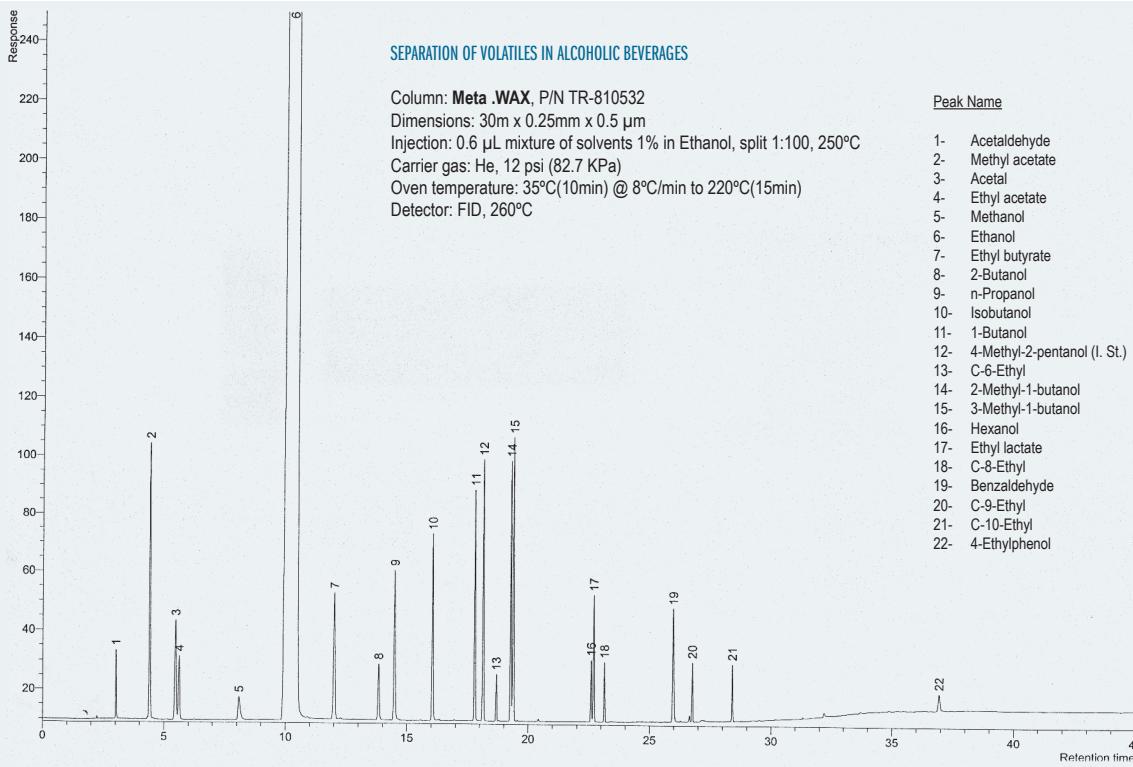


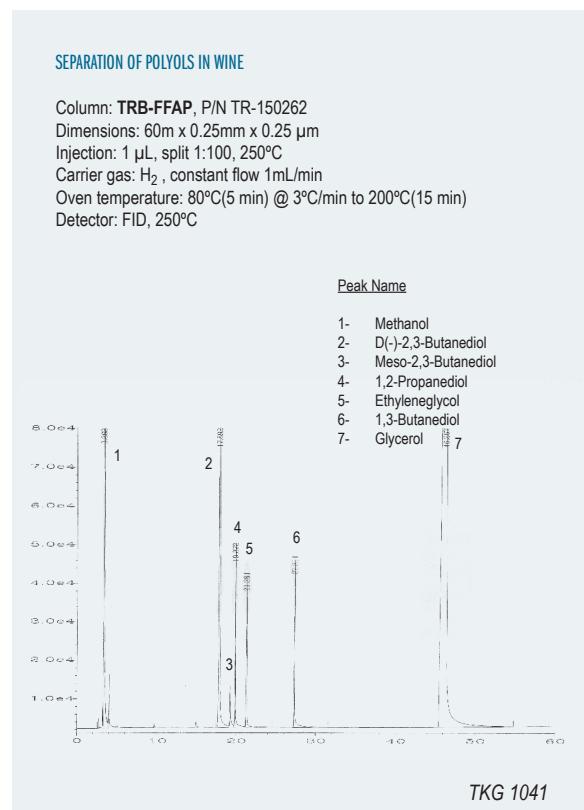
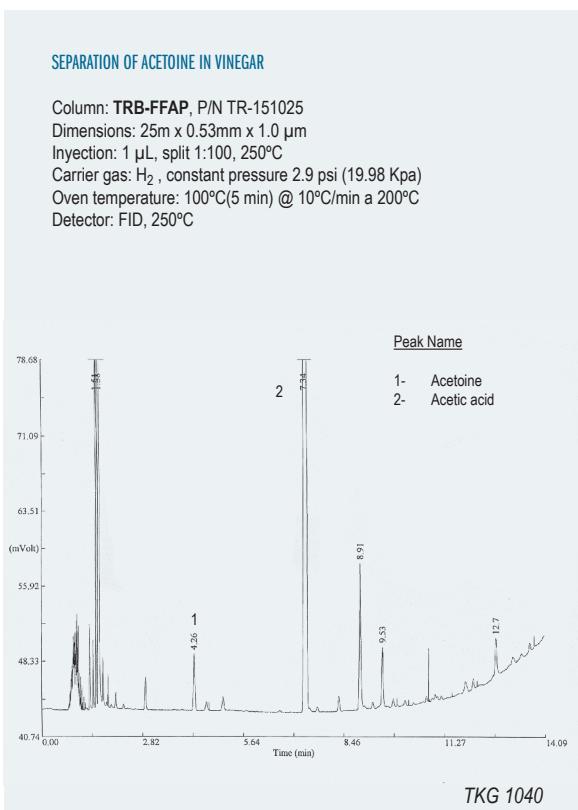
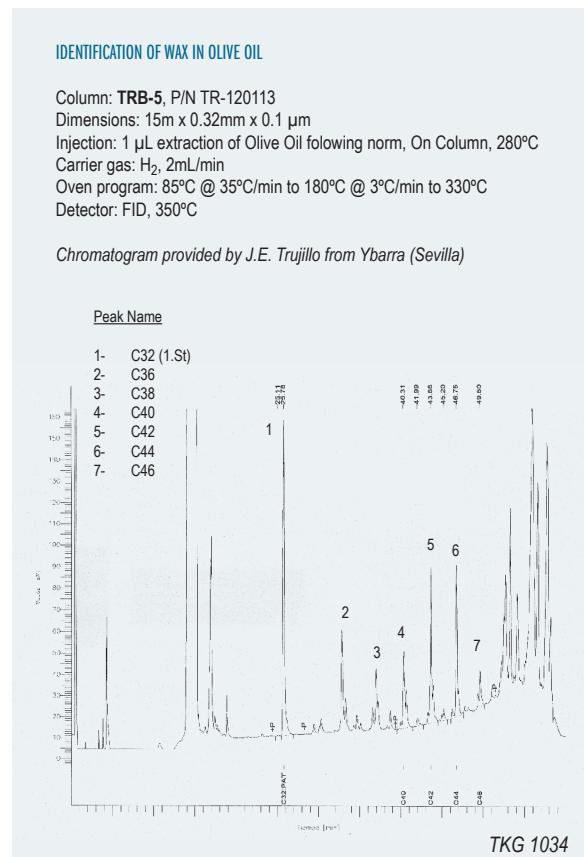
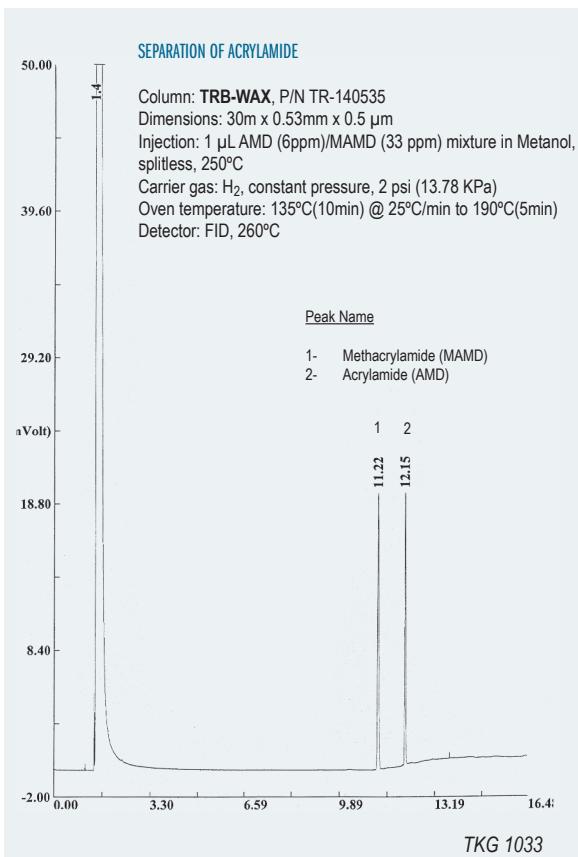
### ANALYSIS OF CHLOROPICRINE IN WINES

Column: **TRB-5**, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25  $\mu$ m  
 Injection: 1  $\mu$ L standard (5mg/L), 200°C  
 Carrier gas: H<sub>2</sub>, 12 psi (82.7 KPa)  
 Oven temperature: 43°C(7min) @ 30°C/min to 120°C(10min)  
 Detector: ECD, 300°C



Response





#### ANALYSIS OF RAPSEED OIL (FAST CHROMATOGRAPHY)

Column: TRB-WAX, P/N TR-142181

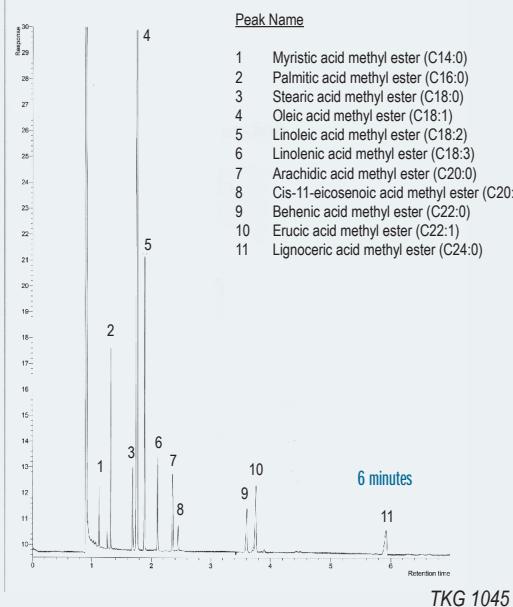
Dimensions: 20m x 0.10mm x 0.2 µm

Injection: 0.7 µL Rapeseed oil, split 1:500, 280°C

Carrier gas: H<sub>2</sub>, constant pressure, 54 psi (372 KPa), 41.15 cm/s

Oven temperature: 205°C (Isothermal)

Detector: FID, 280°C



#### ANALYSIS OF RAPSEED OIL

Column: TRB-WAX, P/N TR-140232

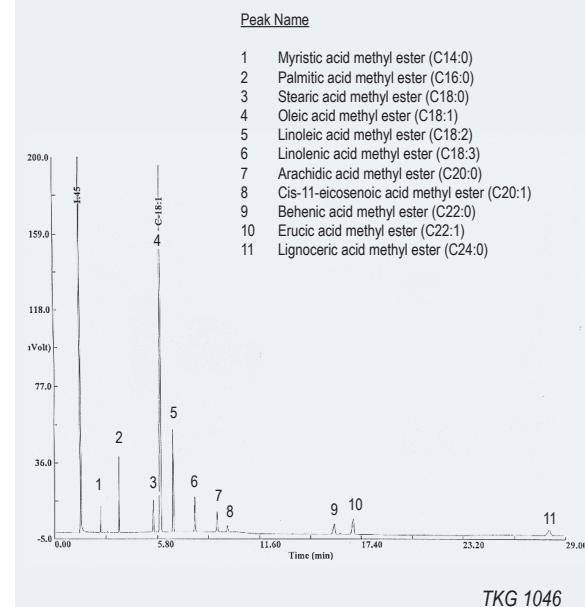
Dimensions: 30m x 0.25mm x 0.25 µm

Injection: 1 µL Rapeseed oil, split 1:50, 280°C

Carrier gas: H<sub>2</sub>, 36.23 cm/s

Oven temperature: 205°C (Isothermal)

Detector: FID, 280°C



#### ALCOHOLS AND TERPENIC ACIDS (OLIVE OIL)

Column: TRB-35, P/N TR-351332

Dimensions: 30m x 0.25mm x 0.15 µm

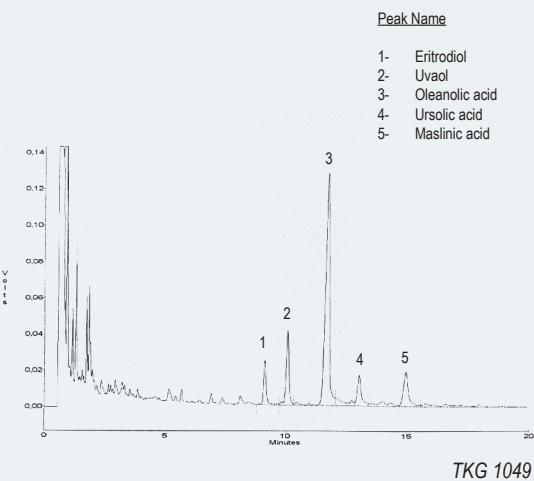
Injection: 1 µL extract of leaf of Olive Tree, split 1:20, 300°C

Carrier gas: H<sub>2</sub>, constant pressure 12 psi (82.7 KPa).

Oven temperature: 275°C

Detector: FID, 300°C

Chromatogram provided by Angeles Guinda from Instituto de la Grasa, CSIC.



#### ANALYSIS BERGAMOL

Column: Meta.WAX, P/N TR-810532

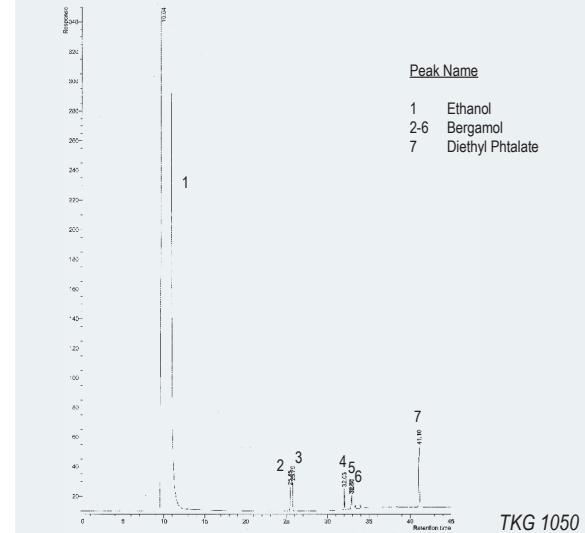
Dimensions: 30m x 0.25mm x 0.5 µm

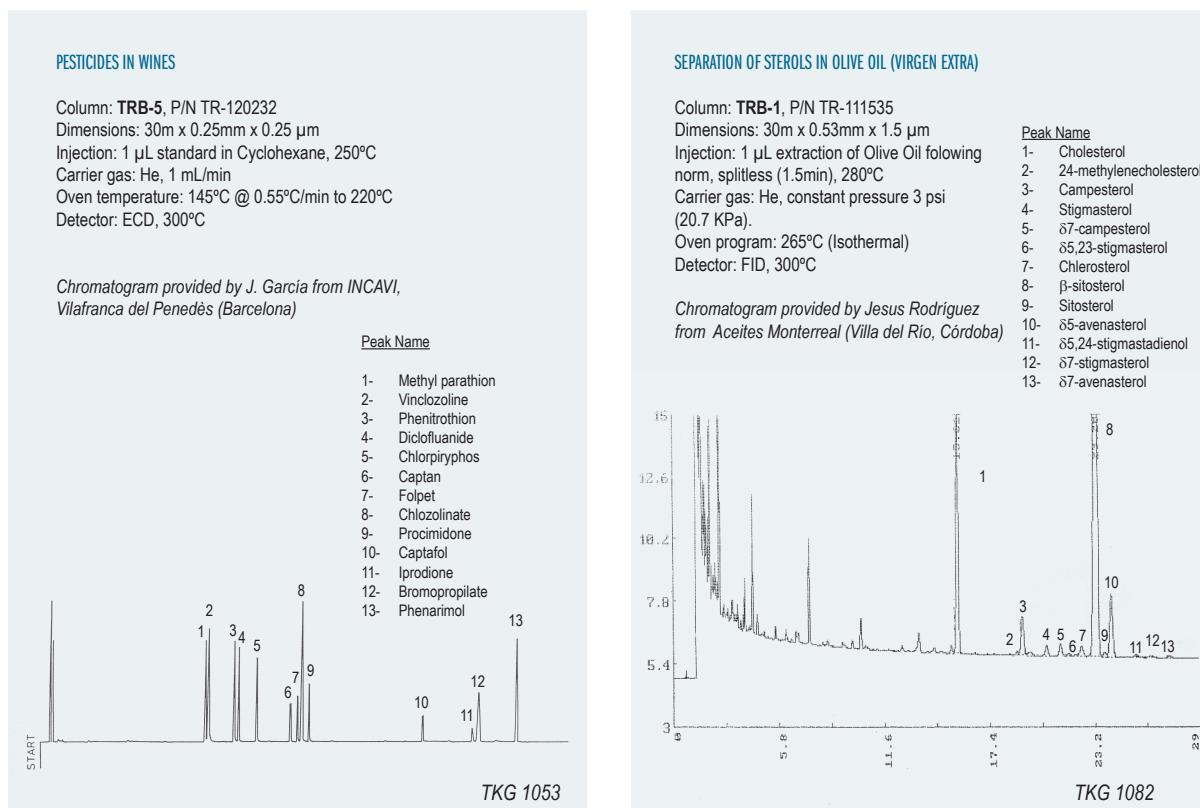
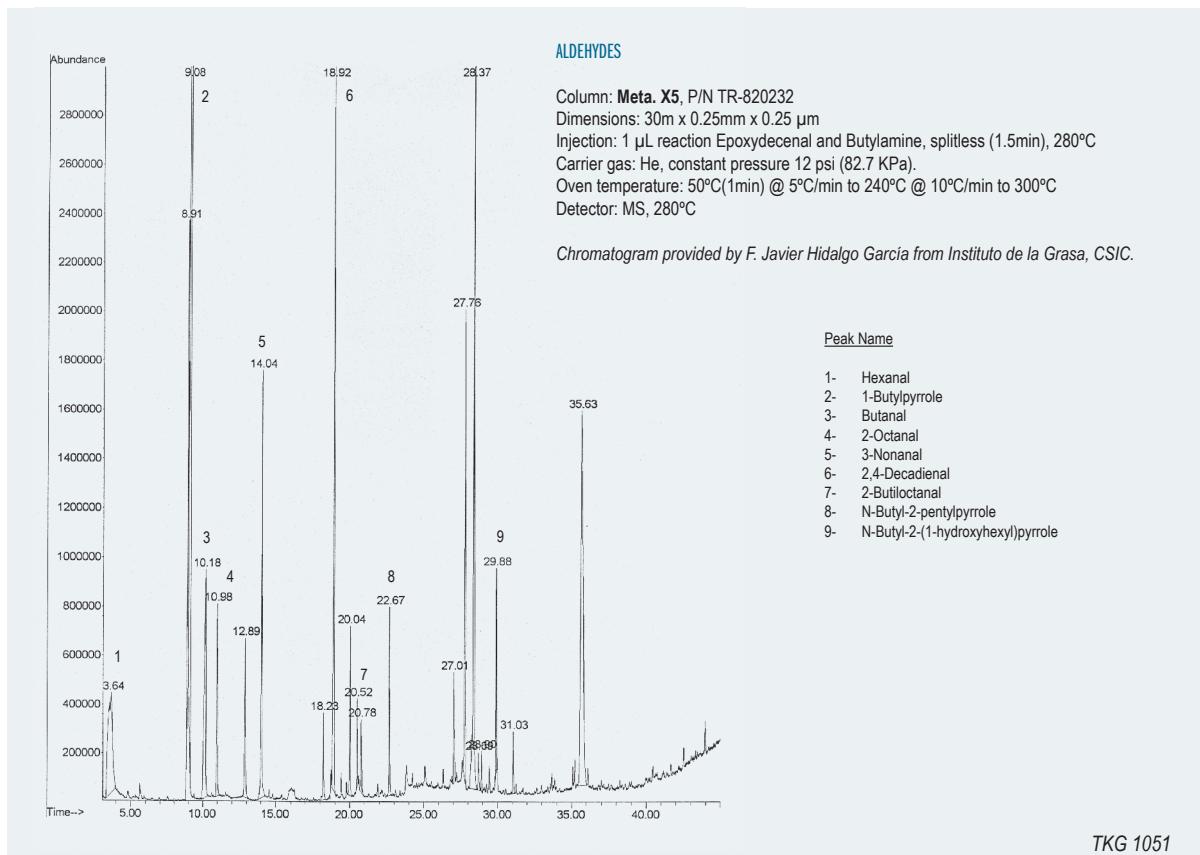
Injection: 1 µL standard 0.3% v/v Bergamol/Diethyl Phthalate in Ethanol, split 1:50, 260°C

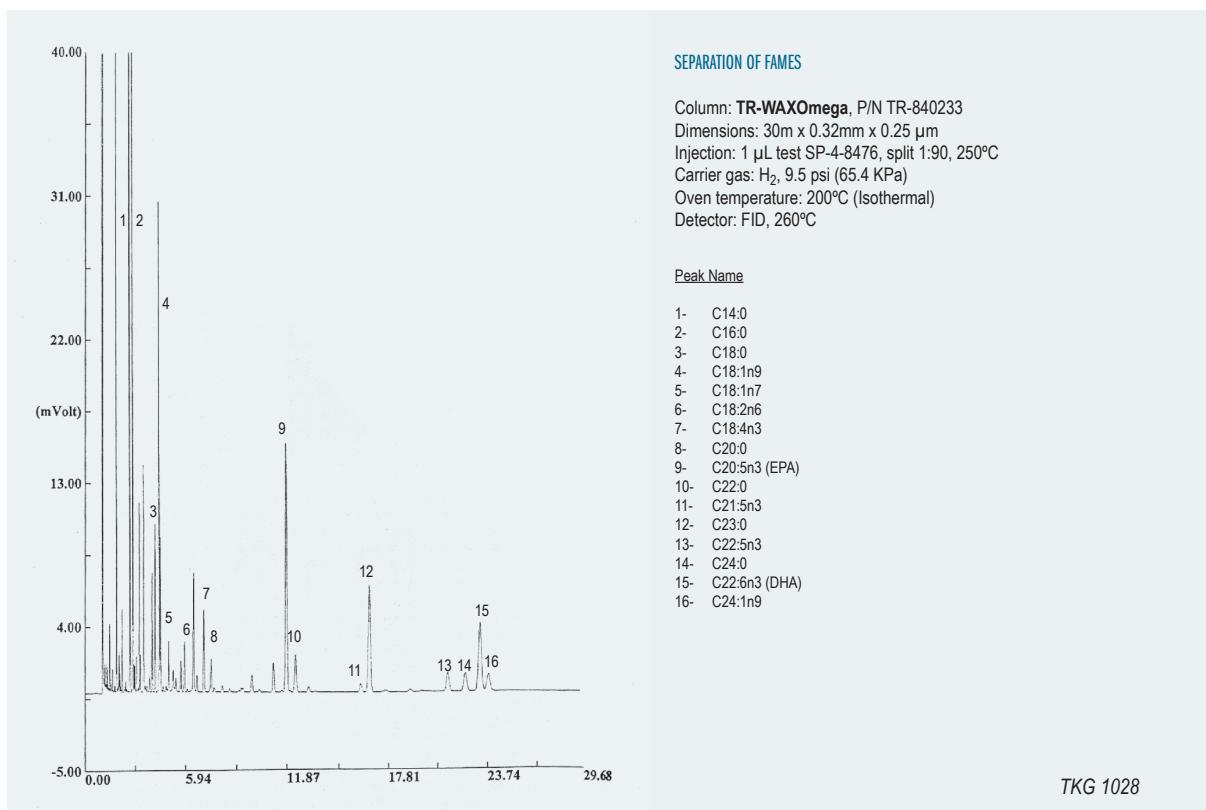
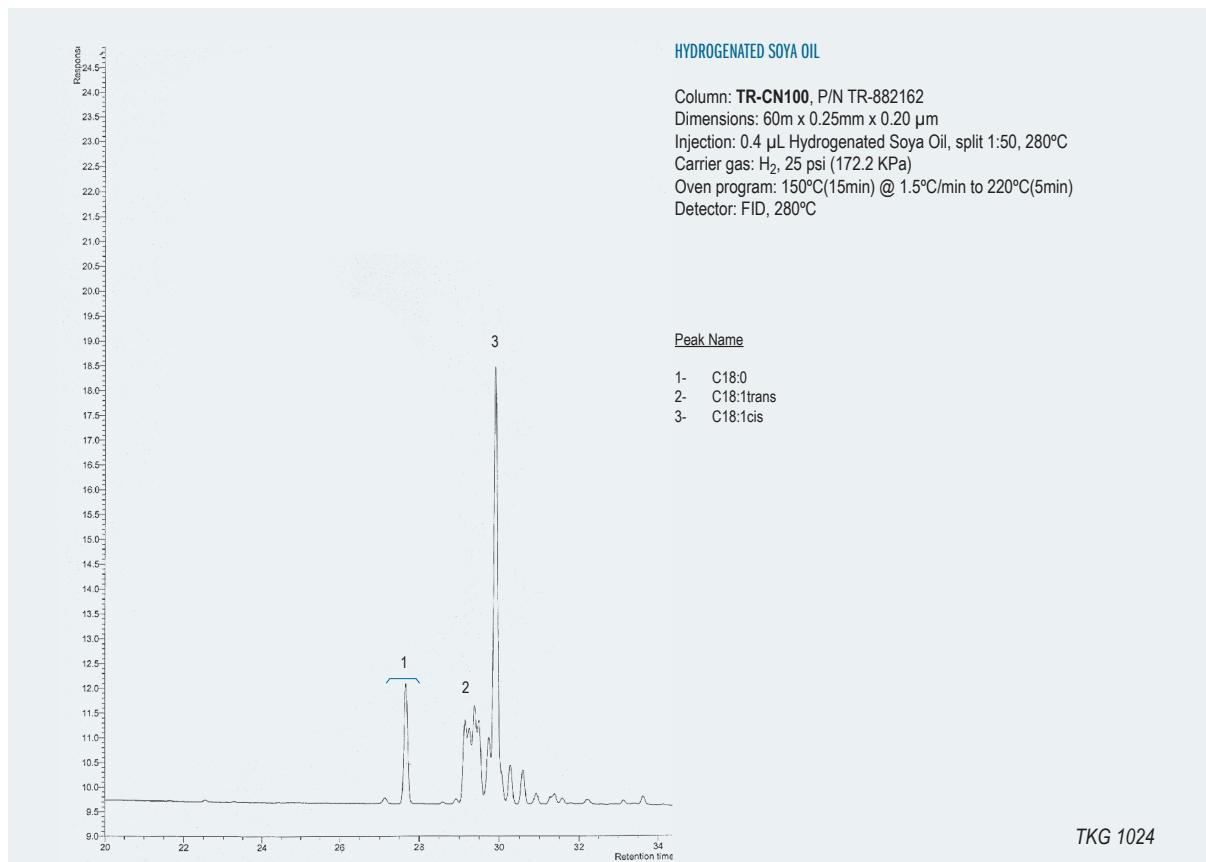
Carrier gas: H<sub>2</sub>, 12 psi (82.7 KPa).

Oven temperature: 35°C(10min) @ 8°C/min to 220°C(20min)

Detector: FID, 260°C





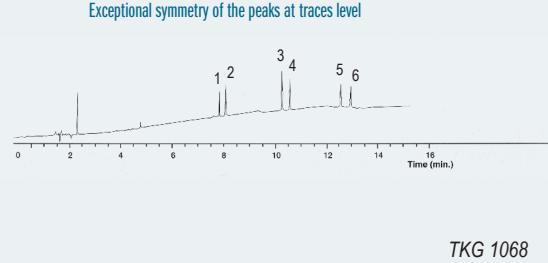


## PHENOLS-ANISOL IN WINE

Column: **TR-5MS** P/N TR-520232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 280°C, 1 µL (St 100 ppb), split (30:1)  
 Carrier gas: H<sub>2</sub>, 1.2 ml/min. 17 psi (117 kPa) to 80°C  
 Oven temperature: 80°C to 120°C (5min) @ 10°C/min.  
 Detector: ECD, 330°C

### Peak Name

- 1- Trichlorophenol
- 2- Trichloroanisole
- 3- Tetrachlorophenol
- 4- Tetrachloroanisole
- 5- Pentachlorophenol
- 6- Pentachloroanisole

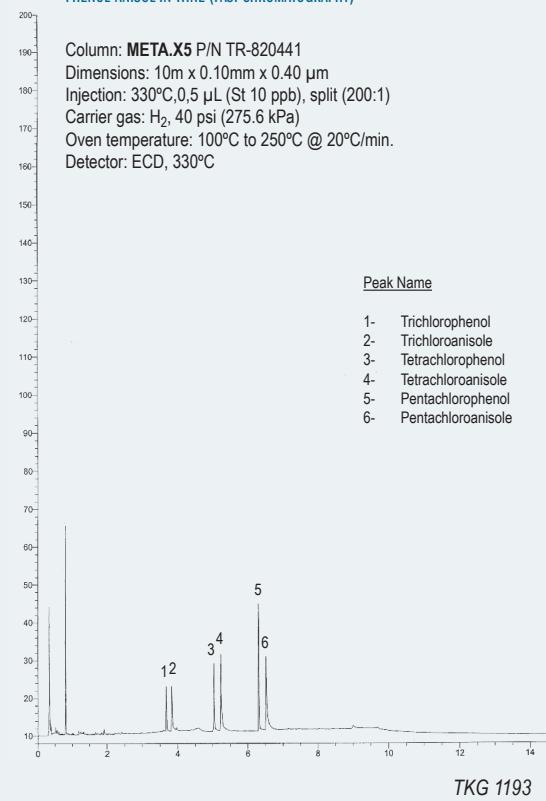


## PHENOL-ANISOL IN WINE (FAST CHROMATOGRAPHY)

Column: **META.X5** P/N TR-820441  
 Dimensions: 10m x 0.10mm x 0.40 µm  
 Injection: 330°C, 0.5 µL (St 10 ppb), split (200:1)  
 Carrier gas: H<sub>2</sub>, 40 psi (275.6 kPa)  
 Oven temperature: 100°C to 250°C @ 20°C/min.  
 Detector: ECD, 330°C

### Peak Name

- 1- Trichlorophenol
- 2- Trichloroanisole
- 3- Tetrachlorophenol
- 4- Tetrachloroanisole
- 5- Pentachlorophenol
- 6- Pentachloroanisole



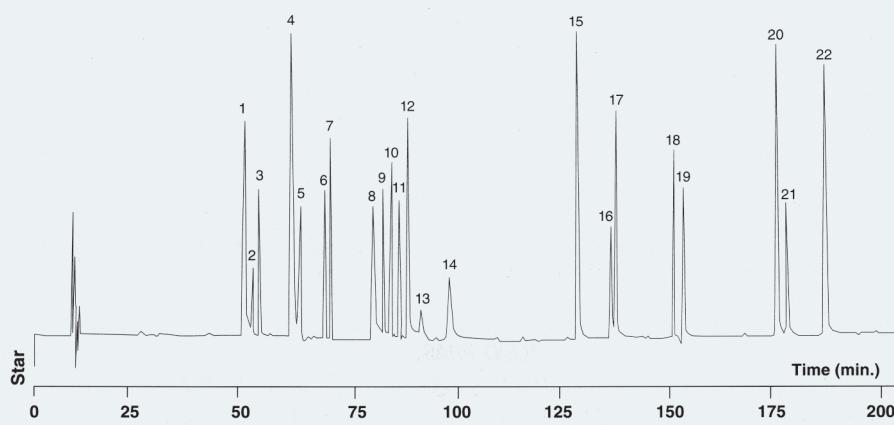
## PHYTOSANITARY ANALYSIS IN WINE

Column: **Meta.X5** P/N TR-820232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 2.0 µL split (1:100), 250°C  
 Carrier gas: He, 1 ml/min.  
 Oven temperature: 140°C to 180°C @ 0.4°C/min. to 270°C(15min.) @1°C/min.  
 Detector: ECD, 300°C, make up Argon/methane (95/5)  
 Sample: Phytosanitary standard INCAMI, (70-680 µg/L of each component)

Chromatogram supplied by M. Jaldo, J. García (Incavi) and J. Marco (Torres, S.A.)

### Peak Name

- 1- Methylchlorpyrifos
- 2- Methylparathion
- 3- Vinclozoline
- 4- Fenitrothion
- 5- Dichlofuanide
- 6- Malathion
- 7- Chlorpyrifos
- 8- Captan
- 9- Penconazol
- 10- Folpet
- 11- Chlozolinate
- 12- Triadimenol + Procimidione
- 13- Triadimenol
- 14- Hexaconazol
- 15- Captafol
- 16- Iprodione
- 17- Bromopropylate
- 18- Fenarimol
- 19- Cyproconazole
- 20- Fenvalerate
- 21- Fenvalerate
- 22- Azoxystrobin

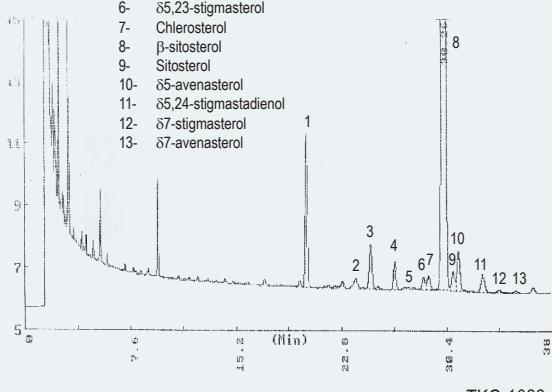


### SEPARATION OF STEROLS IN OLIVE OIL (ORUJO)

Column: TRB-1, P/N TR-111535  
 Dimensions: 30m x 0.53mm x 1.5  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$  extraction of Olive Oil following norm, splitless (1.5min), 280°C  
 Carrier gas: He, constant pressure 3 psi (20.7 KPa).  
 Oven program: 265°C (Isothermal)  
 Detector: FID, 300°C

Chromatogram provided by Jesus Rodriguez from Aceites Monterreal  
 (Villa del Rio, Córdoba)

Peak Name
1- Cholesterol
2- 24-methylenecholesterol
3- Campesterol
4- Stigmastanol
5- $\delta^5$ -campesterol
6- $\delta^5,23$ -stigmasterol
7- Chlorosterol
8- $\beta$ -sitosterol
9- Sitosterol
10- $\delta^5$ -avenasterol
11- $\delta^5,24$ -stigmastadienol
12- $\delta^7$ -stigmastanol
13- $\delta^7$ -avenasterol

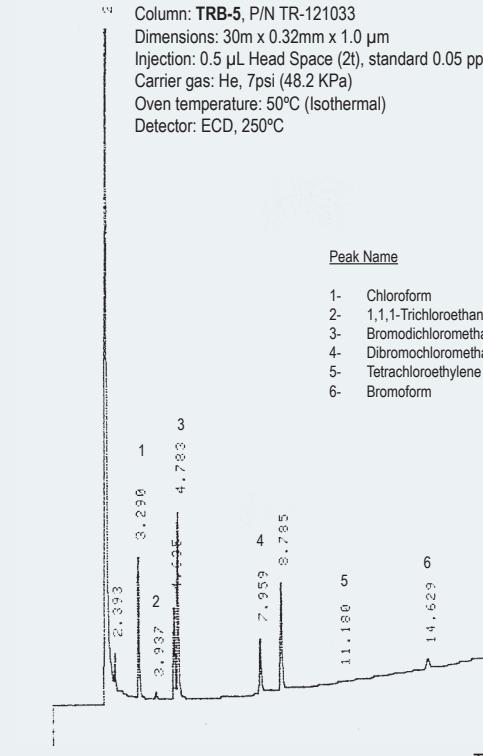


TKG 1083

### CHLORINATED SOLVENTS IN OLIVE OIL

Column: TRB-5, P/N TR-121033  
 Dimensions: 30m x 0.32mm x 1.0  $\mu\text{m}$   
 Injection: 0.5  $\mu\text{L}$  Head Space (2t), standard 0.05 ppm, 150°C  
 Carrier gas: He, 7psi (48.2 KPa)  
 Oven temperature: 50°C (Isothermal)  
 Detector: ECD, 250°C

Peak Name
1- Chloroform
2- 1,1,1-Trichloroethane
3- Bromodichloromethane
4- Dibromochloromethane
5- Tetrachloroethylene
6- Bromoform

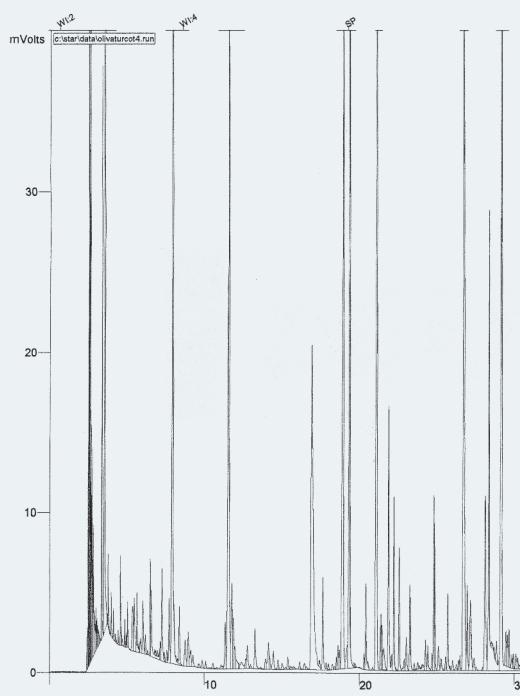


TKG 1092

### ANALYSIS OF VOLATILES IN OLIVE OIL

Column: TRB-WAX, P/N TR-140262  
 Dimensions: 60m x 0.25mm x 0.25  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$  Olive oil, SPME (SP-57329-U), 260°C  
 Carrier gas: H<sub>2</sub>, 1.5mL/min  
 Oven temperature: 40°C @ 2°C/min to 200°C  
 Detector: FID, 280°C

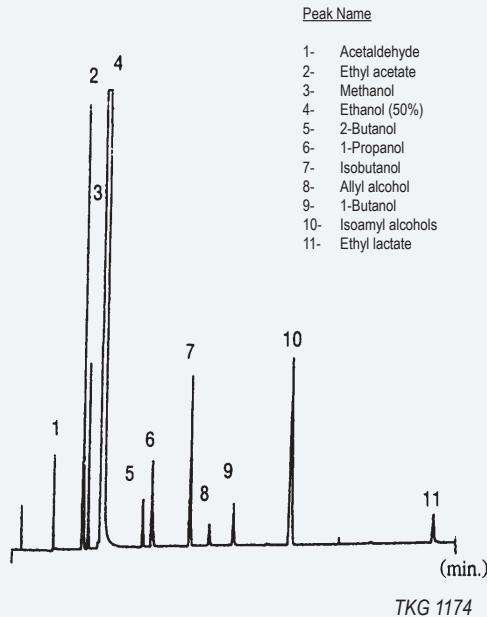
Chromatogram provided by Departamento de Caracterización  
 y Calidad de los Alimentos, CSIC (Sevilla)



TKG 1091

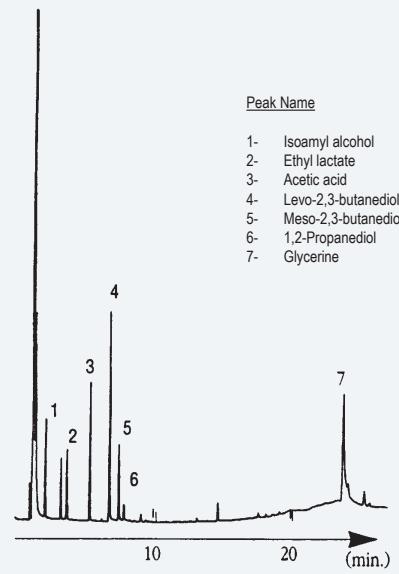
## SEPARATION OF VOLATILES IN ALCOHOLIC BEVERAGES

Column: TRB-WAX, P/N TR-141035  
 Dimensions: 30m x 0.53mm x 1.0 µm  
 Injection: 1 µL, split  
 Carrier gas: He, 5 psi (34.5 KPa)  
 Oven temperature: 40°C @ 2°C/min to 150°C  
 Detector: FID, 225°C



## ANALYSIS OF GLYCOLS IN WINE

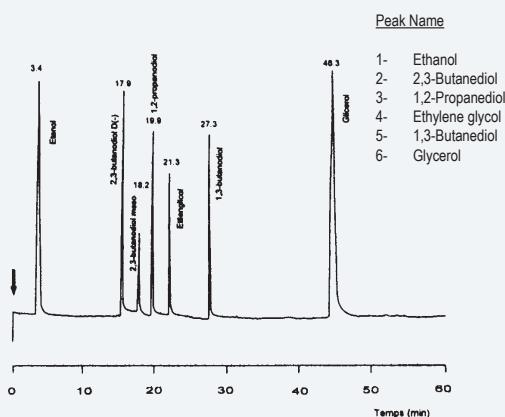
Column: TRB-FFAP, P/N TR-151035  
 Dimensions: 30m x 0.53mm x 1.0 µm  
 Injection: 1 µL, split  
 Carrier gas: He, 4 psi (27.6 KPa)  
 Oven temperature: 100°C @ 5°C/min to 200°C(10 min)  
 Detector: FID, 275°C



## ANALYSIS OF POLYOLS IN WINE

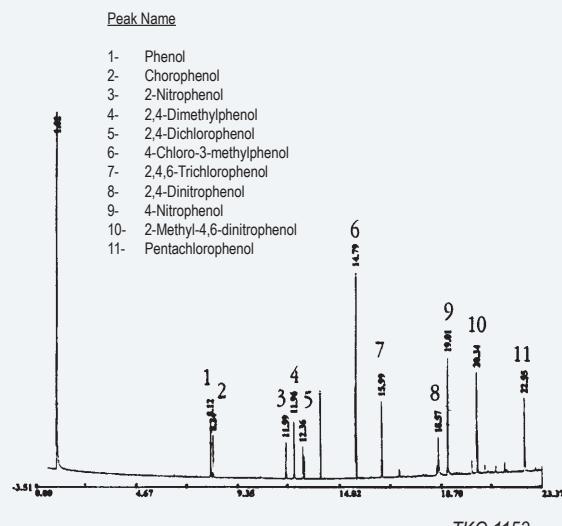
Column: TRB-FFAP, P/N TR-150262  
 Dimensions: 60m x 0.25mm x 0.25 µm  
 Dimension: 1 µL, split (100:1), glycols standard, 205°C  
 Carrier gas: H<sub>2</sub>, 1 mL/min (80°C)  
 Oven temperature: 100°C @ 5°C/min to 200°C(10 min)  
 Detector: FID, 275°C

*Chromatogram provided by R. Franquet and J. Garcia from INCAVI, Vilafranca del Penedès (Barcelona)*



## PHENOLS EPA 604

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Dimension: 1 µL, split, 2 to 6 ng/comp, 250°C  
 Carrier gas: H<sub>2</sub>, 12 psi (82.68 KPa)  
 Oven temperature: 80°C(4min) @ 8°C/min to 250°C  
 Detector: FID, 280°C



#### SEPARATION OF FAMES

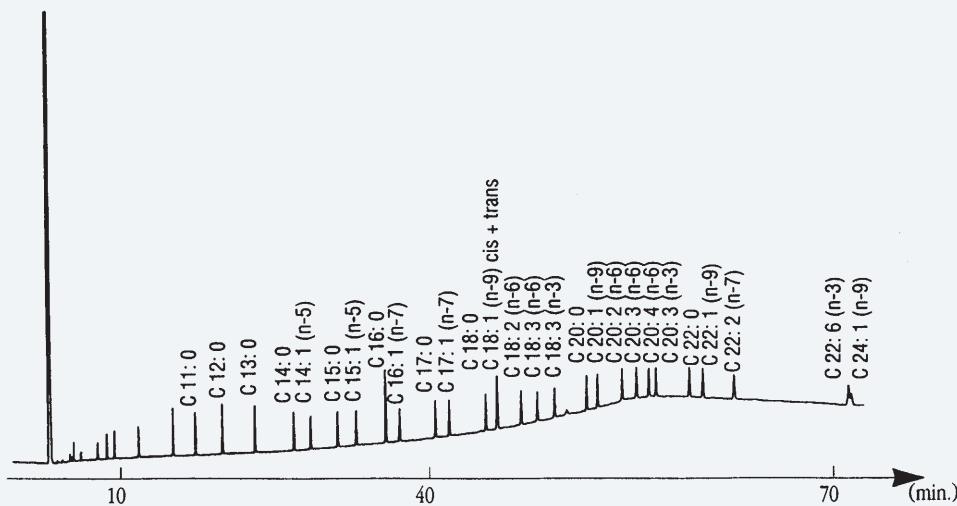
Column: TR-WAX, P/N TR-140262  
Dimensions: 60m x 0.25mm x 0.25 µm

Injection: 1 µL, split

Carrier gas: He, 26 psi (179.1 KPa)

Oven temperature: 60°C @ 30°C/min to 150°C @ 2°C/min to 240°C

Detector: FID, 275°C



TKG 1177

#### SEPARATION OF METHYL ESTERS (RAPESSED OIL)

Column: TRB-WAX, P/N TR-141035

Dimensions: 30m x 0.53mm x 1.0 µm

Injection: 1 µL, split

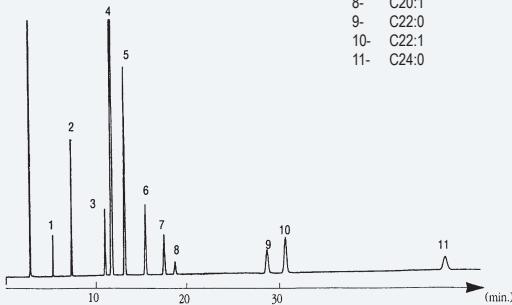
Carrier gas: He, 4psi (27.6 KPa)

Oven temperature: 220°C (Isothermal)

Detector: FID, 280°C

#### Peak Name

- 1- C14:0
- 2- C16:0
- 3- C18:0
- 4- C18:1
- 5- C18:2
- 6- C18:3
- 7- C20:0
- 8- C20:1
- 9- C22:0
- 10- C22:1
- 11- C24:0



TKG 1179

#### FLAVORS IN WINE

Column: TRB-WAX, P/N TR-142168

Dimensions: 60m x 0.22mm x 0.20 µm

Injection: 1 µL, split

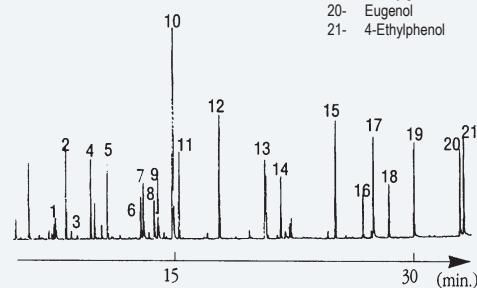
Carrier gas: He, 1 mL/min

Oven temperature: 45°C @ 5°C/min to 230°C

Detector: FID, 250°C

Chromatogram provided by M. Creixell, R. Franquet and J. Garcia from INCAVI, Vilafranca del Penedès, Barcelona.

Peak Name
1- 2-Butanol
2- Ethyl isovalerate
3- 1-Butanol
4- Ethyl caproate
5- n-Hexyl acetate
6- Ethyl lactate
7- 1-Hexanol
8- 3-Ethoxy-1-propanol
9- cis-3-hexen-1-ol
10- 2-Octanol (l. St.)
11- Ethyl caprylate
12- Benzaldehyde
13- Ethyl caprate
14- $\gamma$ -Butyrolactone
15- 2-Phenylethanol acetate
16- Trans- $\beta$ -methyl- $\gamma$ -octalactone
17- 2-Phenylethanol
18- Cis- $\beta$ -methyl- $\gamma$ -octalactone
19- 4-Ethylguaiacol
20- Eugenol
21- 4-Ethylphenol

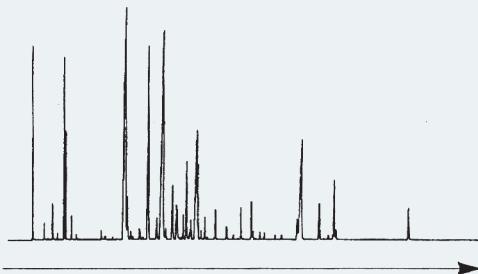


TKG 1180

## LAVENDER FLAVOR

Column: TRB-WAX, P/N TR-140232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL, split  
 Carrier gas: He, 90 KPa  
 Oven temperature: 80°C @ 4°C/min to 230°C(20 min)  
 Detector: FID, 260°C

*Chromatogram provided by C. Ibañez from Lucta, S.A, Barcelona.*

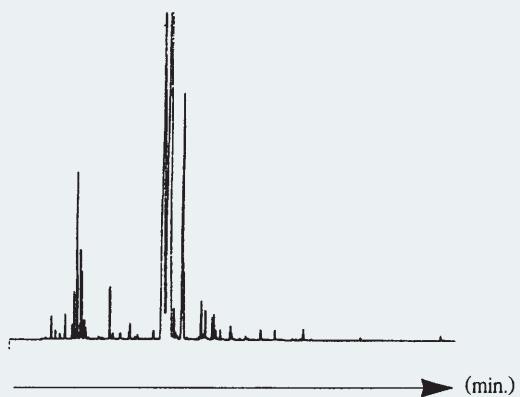


TKG 1181

## FLAVORS (LAVENDER, ESSENTIAL OIL)

Column: TRB-WAX, P/N TR-140232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: 1 µL, split  
 Carrier gas: He, 90 KPa  
 Oven temperature: 80°C @ 4°C/min to 230°C(20 min)  
 Detector: FID, 260°C

*Chromatogram provided by C. Ibañez from Lucta, S.A, Barcelona.*

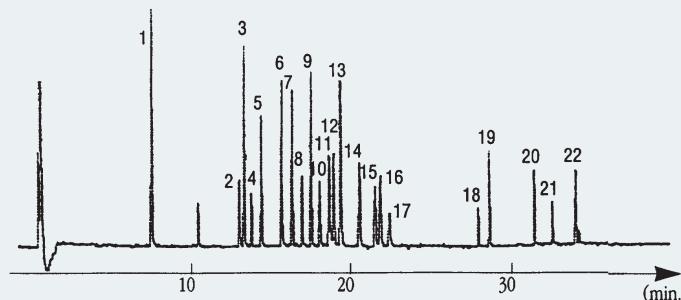


TKG 1182

## ANALYSIS OF PESTICIDES

Column: TRB-5, P/N TR-120232  
 Dimensions: 30m x 0.25mm x 0.25 µm  
 Injection: split  
 Carrier gas: He  
 Oven temperature: 125°C(1 min) @ 8°C/min to 200°C(10 min) @ 20°C/min to 270°C(15 min)  
 Detector: FPD, 280°C

*Chromatogram provided by E. Casado from Laboratorio de Plagicidas of Centro Nacional de Alimentación y Nutrición, Madrid.*



### Peak Name

- 1- Metacryphos
- 2- Dioxyathan
- 3- Fonofos
- 4- Diazinon
- 5- Etrinilos
- 6- Methyl parathion
- 7- Fenclorphos
- 8- Fenitrothion
- 9- Malathion
- 10- Ethyl parathion
- 11- Ruylene
- 12- Methyl bromophos
- 13- Ethyl pirimiphos
- 14- Isofenphos
- 15- Medifathion
- 16- Ethyl bromophos
- 17- Gardona
- 18- Ethion
- 19- Trithion
- 20- Fosalon
- 21- Cumaphos

TKG 1183

#### STEROLS ANALYSIS (REFINED OLIVE OIL)

Column: TRB-STEROL, P/N TR-182238

Dimensions: 30m x 0.22mm x 0.22 µm

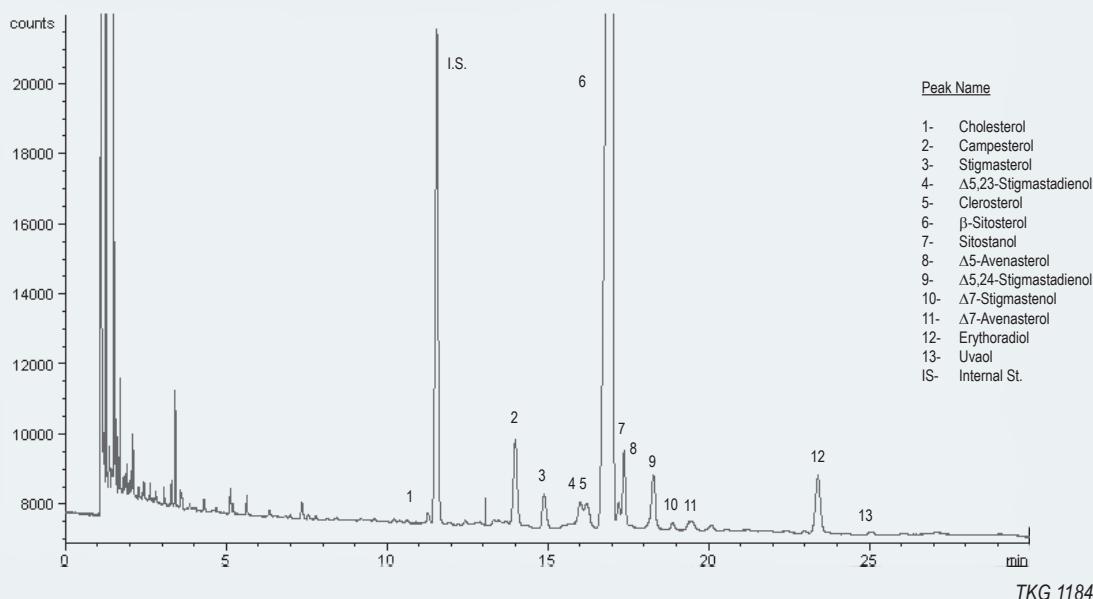
Injection: split

Carrier gas: H<sub>2</sub>, 20 psi (137.8 KPa)

Oven temperature: 275°C (isothermal)

Detector: FID, 300°C

Chromatogram provided by Dr. Manuel León from Instituto de la Grasa, Sevilla



#### ANALYSIS OF CIS-TRANS ISOMERS

Column: TR-CN100, P/N TR-882133

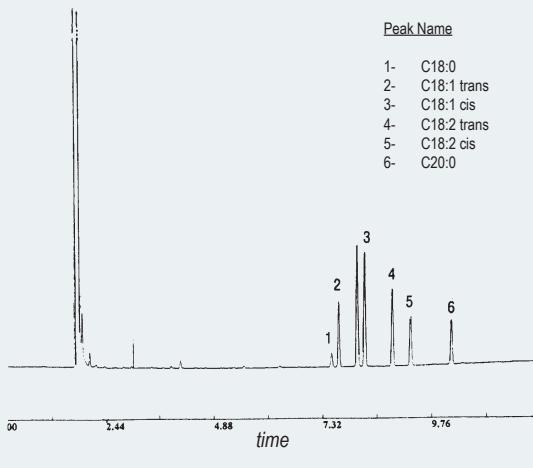
Dimensions: 30m x 0.32mm x 0.20mm

Injection: 1 µL isomers standard, split

Carrier gas: H<sub>2</sub>, 4.5 psi (31 KPa)

Oven temperature: 140°C @ 4°C/min to 190°C

Detector: FID, 250°C



#### ANALYSIS OF METHYL ESTERS

Column: TR-CN100, P/N TR-882135

Dimensions: 30m x 0.53mm x 0.20 µm

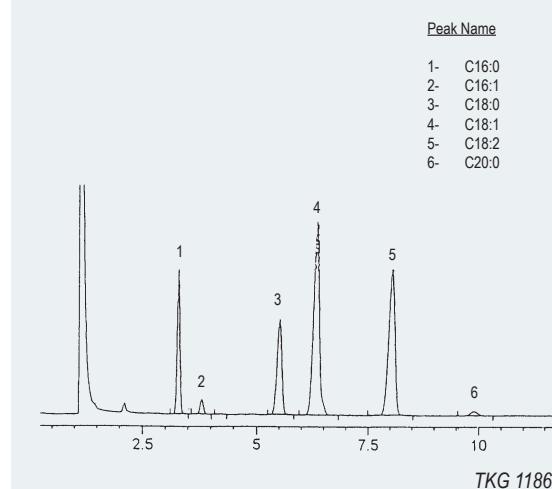
Injection: 2 µL FAMES standard, split

Carrier gas: He, 20 KPa

Oven temperature: 130°C(5 min) @ 3°C/min to 160°C

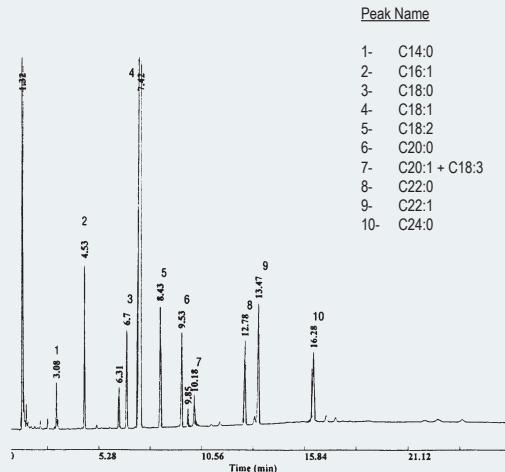
Detector: FID, 250°C

Chromatogram provided by Dr. R. Garcés from Instituto de la Grasa, Sevilla.



## ANALYSIS OF METHYL ESTERS

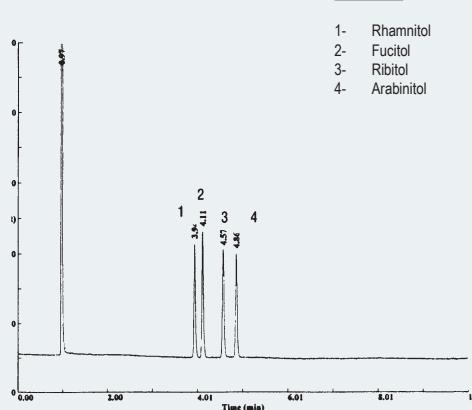
Column: TR-CN100, P/N TR-882113  
 Dimensions: 15m x 0.32mm x 0.20  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$  FAMES standard, split  
 Carrier gas: H<sub>2</sub>, 2.4 psi (16.6 KPa)  
 Oven temperature: 140°C @ 3°C/min to 185°C  
 Detector: FID, 250°C



TKG 1187

## SEPARATION OF SUGARS (AS ALDITOL ACETATES)

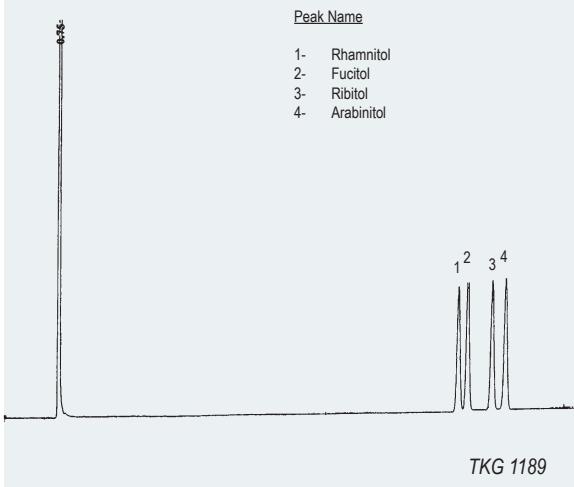
Column: TRB-225, P/N TR-250232  
 Dimensions: 30m x 0.25mm x 0.25  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$  Sugars standard, split  
 Carrier gas: H<sub>2</sub>, 11 psi (75.8 KPa)  
 Oven temperature: 220°C (Isothermal)  
 Detector: FID, 250°C



TKG 1188

## SEPARATION OF SUGARS (AS ALDITOL ACETATES)

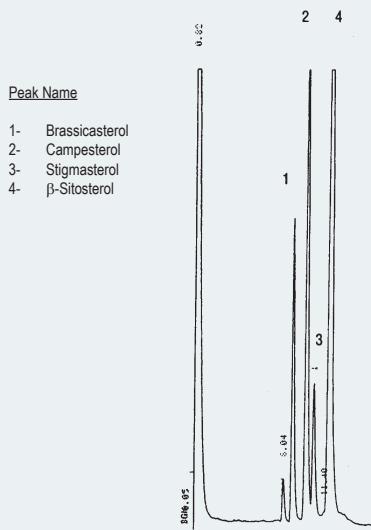
Column: TRB-1701, P/N TR-130212  
 Dimensions: 15m x 0.25mm x 0.25  $\mu\text{m}$   
 Injection: 1  $\mu\text{L}$  Sugars standard, split  
 Carrier gas: H<sub>2</sub>, 6 psi (41.3 KPa)  
 Oven temperature: 180°C @ 4°C/min to 215°C  
 Detector: FID, 250°C



TKG 1189

## SEPARATION OF STEROLS

Column: TRB-5, P/N TR-120535  
 Dimensions: 30m x 0.53mm x 0.50  $\mu\text{m}$   
 Injection: 0.1  $\mu\text{L}$  Sterols standard, direct injection  
 Carrier gas: H<sub>2</sub>, 4 psi (27.6 KPa)  
 Oven temperature: 275°C (Isothermal)  
 Detector: FID, 300°C



TKG 1190

**SEPARATION OF VOLATILES IN ALCOHOLIC BEVERAGES**

Column: TRB-WAX, P/N TR-141035

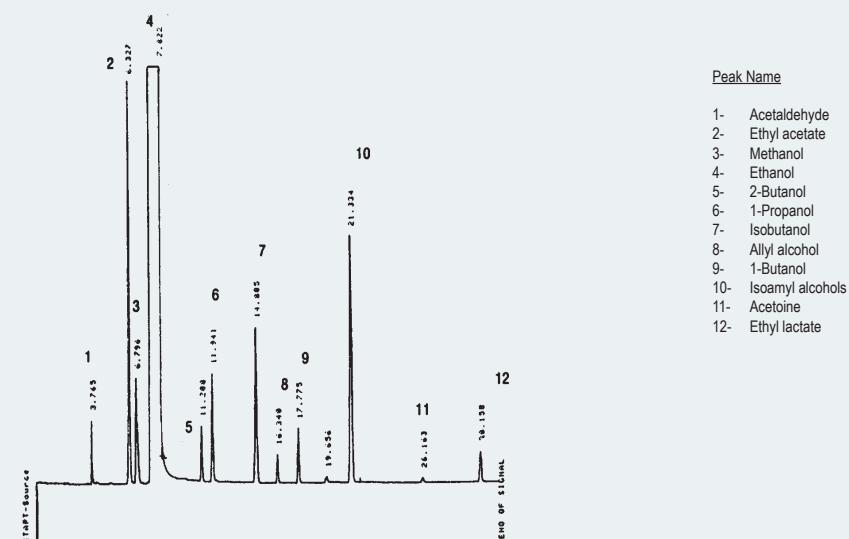
Dimensions: 30m x 0.53mm x 1.0  $\mu\text{m}$

Injection: 0.3  $\mu\text{L}$  standard, direct injection (injector of packed columns)

Carrier gas: N<sub>2</sub>, 4.5 mL/min

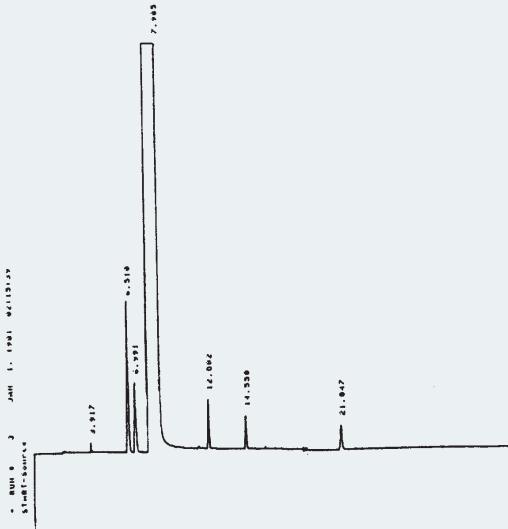
Oven temperature: 40°C @ 2°C/min to 110°C

Detector: FID, 250°C



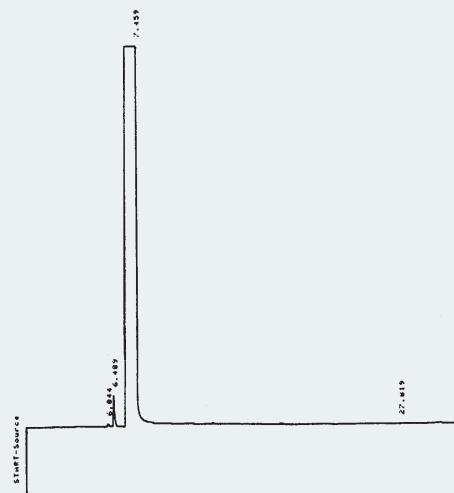
TKG 1191-A

Distilled alcohol

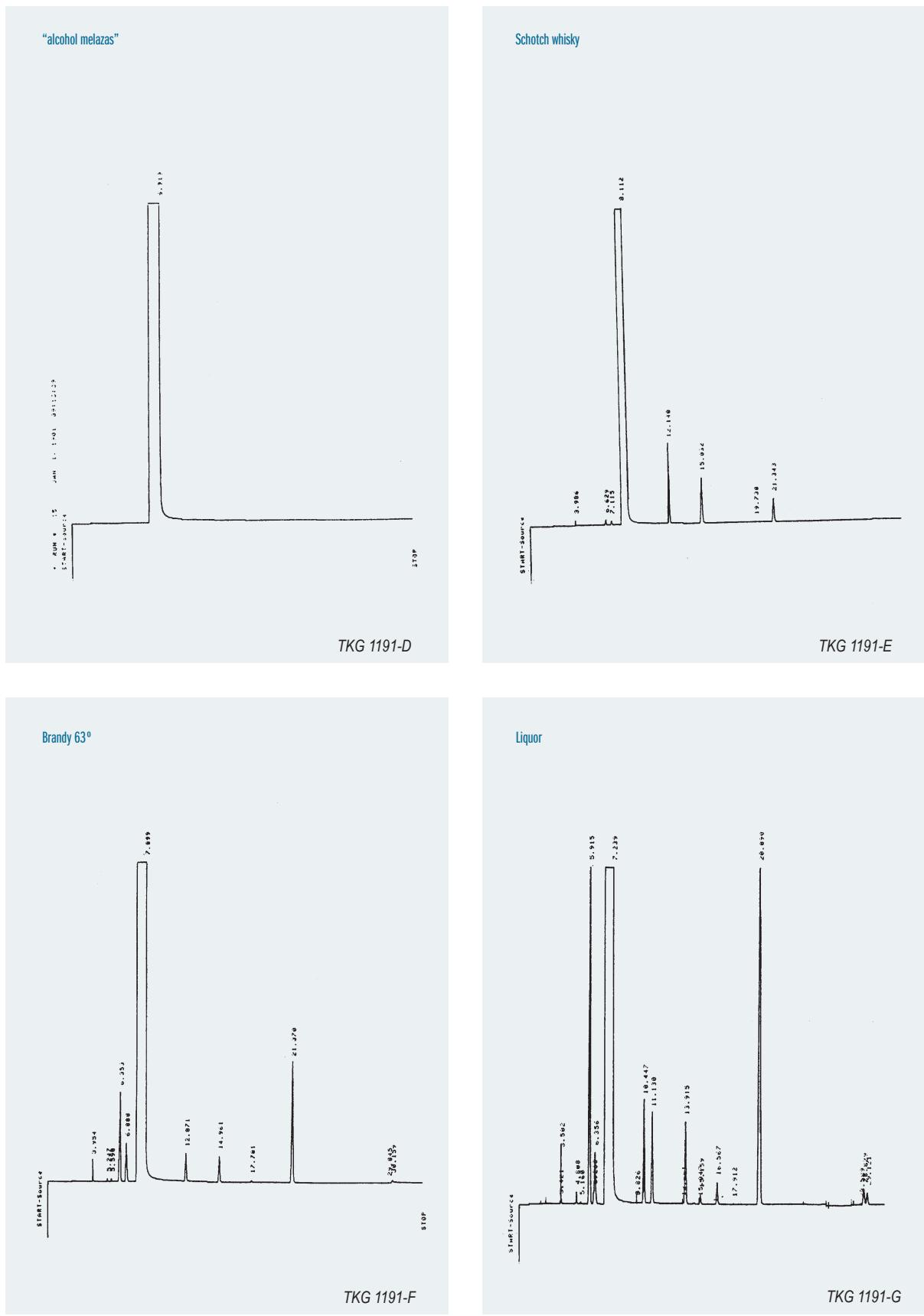


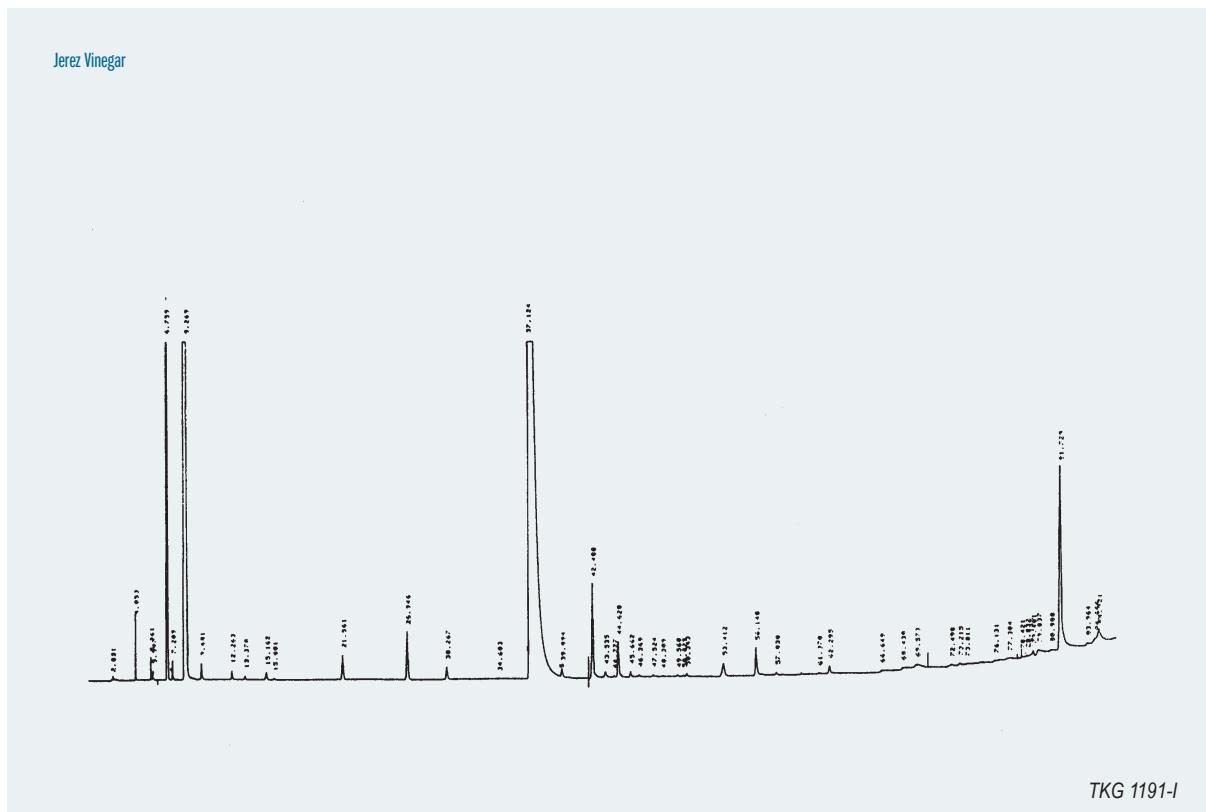
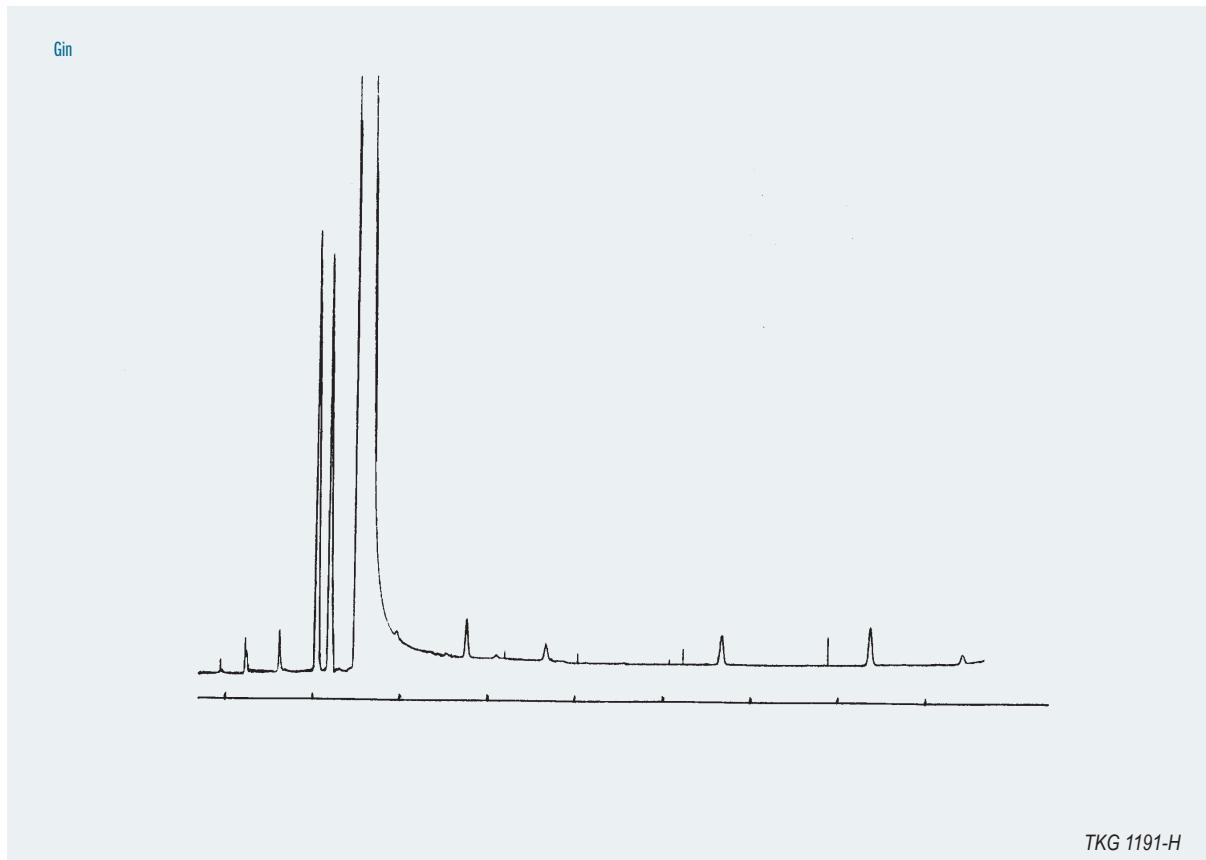
TKG 1191-B

Rectified alcohol

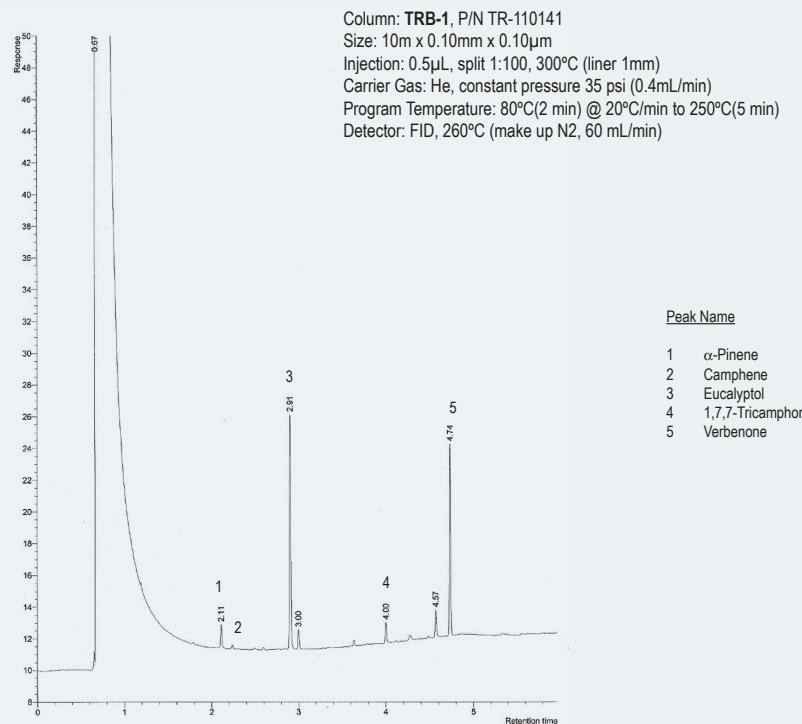


TKG 1191-C





**EXTRACT OF ROSEMARY IN N-PENTANE**

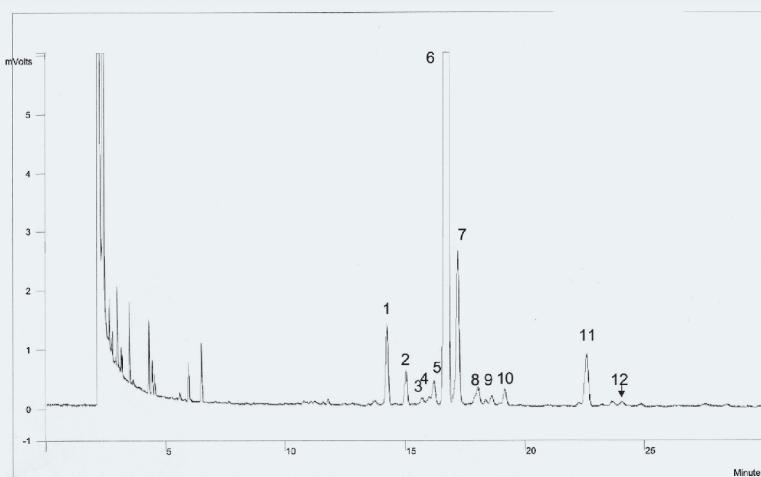


TKG 1196

**STEROLS IN OLIVE OIL**

Column: TRB-STEROL, P/N TR-180738  
 Size: 30m x 0.22mm x 0.12 $\mu$ m  
 Injection: 1  $\mu$ L olive oil in diethyl ether (extraction following norm), split 1:30, 250°C  
 Carrier Gas: H<sub>2</sub>, constant flow 1.6 mL/min  
 Oven Temperature: 285°C  
 Detector: FID, 320°C

Peak Name
1 Campesterol
2 Estigmasterol
3 $\Delta$ 7-Campesterol
4 $\Delta$ 5,23-Estigmastadienol
5 Clerosterol
6 $\beta$ -Sitosterol
7 $\Delta$ 5-Avenasterol
8 $\Delta$ 5,24-Estigmastadienol
9 $\Delta$ 7-Estigmastenol
10 $\Delta$ 7-Avenasterol
11 Eritrodiol
12 Uvaol



Chromatogram provided by Dr. Manuel León, Instituto de la Grasa (Sevilla).

TKG 1197

### TRIGLYCERIDES IN MILKY FAT

Column: TRB-1ht SimDist, P/N TR-6113A5 INOX

Size: 5m x 0.53mm x 0.15μm

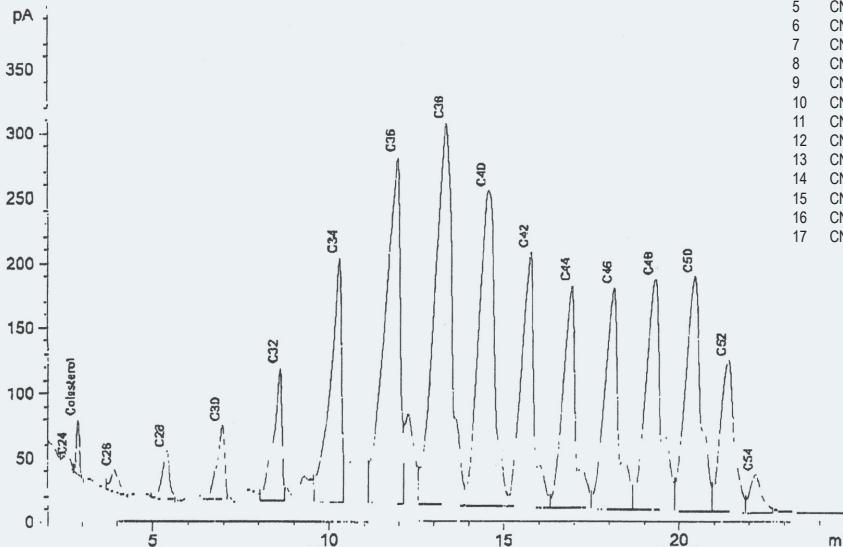
Injection: 1 μL triglycerides of milky fat standard BCR, 370°C, split

Carrier Gas: He, 15 psi

Program Temperature: 200°C(1 min) @ 6°C/min to 350°C(5 min)

Detector: FID, 370°C (N2 make up)

Chromatogram provided by Pablo Ramos Balbona , Reny Picot (Navia, Asturias)



Peak Name

1	CN24
2	Cholesterol
3	CN26
4	CN28
5	CN30
6	CN32
7	CN34
8	CN36
9	CN38
10	CN40
11	CN42
12	CN44
13	CN46
14	CN48
15	CN50
16	CN52
17	CN54

TKG 1230

### ALLERGENS IN COSMETICS

Column: TRB-WAX, P/N TR-140232

Size: 30m x 0.25mm x 0.25μm

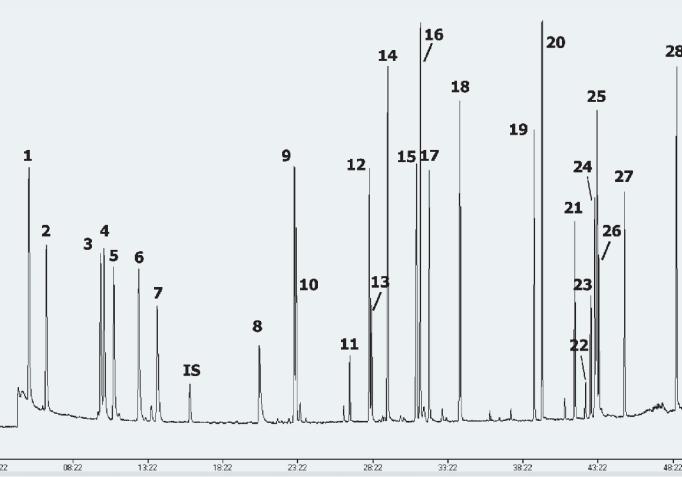
Injection: 1 μl standard (25 μg/ml) in dichloromethane, splitless (60s), 250°C

Carrier Gas: He, 1mL/min

Program temperature: 32°C (5min) @ 4°C/min to 250°C (5min)

Detector: MS KONIK-TECH, Mode El+ (70 eV), rango mas 35-300, Scan time 35ms,  
Source Temperature 120°C, Interface 250°C, Photomultiplier 750V.

Chromatogram provided by Nieves Sarrión from KONIK-TECH, S.A (Barcelona).

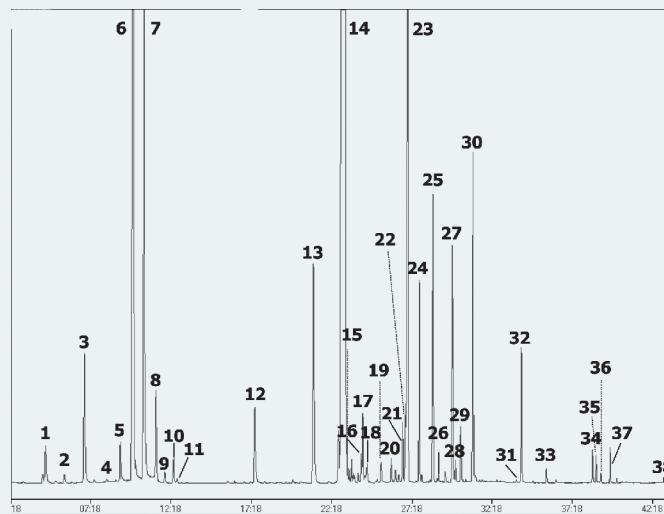


Peak Name

1	α-Pinene
2	Camphene
3	β-Mycrene
4	α-Terpinene
5	Limonene
6	γ-Terpinene
7	Terpinolene
8	β-citronellal
9	Linalool
10	Linalyl acetate
11	Neral
12	s-Carvone
13	Geranal
14	β-Citronellol
15	α-
16	Geraniol
17	Benzyl alcohol
18	Hydroxycitronellal
19	Eugenol
20	Thymol
21	Cinnamyl alcohol
22	Farnesol (1)
23	Farnesol (2)
24	Isoeugenol
25	Hexyl cinnamal
26	Farnesol (3)
27	Coumarine
28	Benzyl benzoate
IS	Ethyl heptanoate

TKG 1199

Column: TRB-WAX, P/N TR-140232  
 Size: 30m x 0.25mm x 0.25 $\mu$ m  
 Injection: split 1:30, 250°C (liner SPME, fibra: 2cm 50/30  $\mu$ m DVB/Carboxen/PDMS)  
 Sample: 5  $\mu$ L soap in 4 mL of water (26.6% NaCl)  
 Carrier gas: He, 1mL/min  
 Program temperature: 32°C (5min) @ 4°C/min to 250°C (5min)  
 Detector: MS KONIK-TECH, Mode EI+ (70 eV), range mass 35-300, Scan time 35ms,  
 Source Temperature 120°C, Interface Temperature 250°C, Photomultiplier 750V.



Chromatogram provided by Nieves Sarrión de KONIK-TECH, S.A

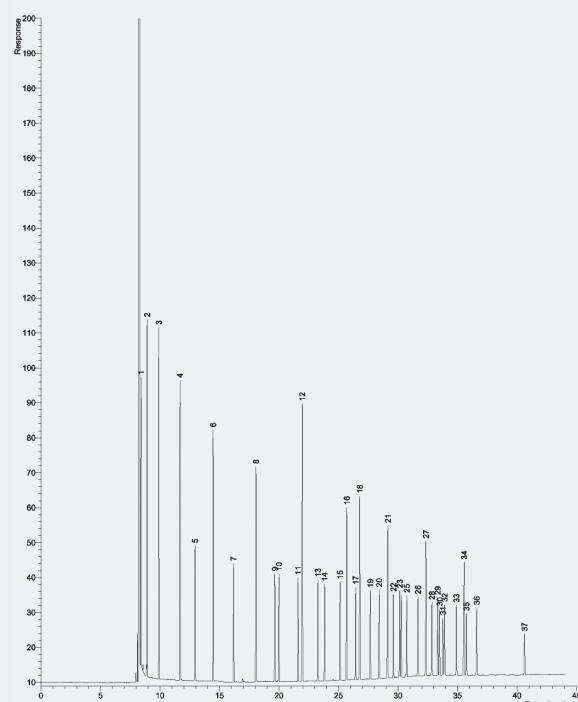
<u>Peak Name</u>
1 $\alpha$ -Pinene
2    Camphene
3 $\beta$ -Pinene
4    3-Carene
5 $\beta$ -Myrcene
6    Limonene
7    Eucalyptol
8 $\gamma$ -Terpinene
9    cis- $\beta$ -Ocymene
10   p-Cymene
11   Terpinolene
12   Methyl octanoate
13   (-)-Camphor
14   Linalool
15   Linalyl acetate
16   Methyl decanate
17   4-Terpineol
18   Linalyl isobutyrate
19   (-)-Menthol
20   Citronellol acetate
21   Terpineol acetate
22   (-)-Bornol
23 $\alpha$ -Terpineol
24   Nerol acetate
25   Geranial acetate
26   Citronellyl
27   Nerol
28 $\beta$ -Phenethyl
29   Estragole
30   Geraniol
31   Hidroxycitronellal
32   1-Undecanol
33   Cinnamal
34   Eugenol
35   Nerolin
36   Thymol
37   Carvacrol
38   DEP

TKG 1228

### SEPARATION OF METHYL ESTERS (FAMES)

Column: TR-CN100, P/N TR-882192  
 Size: 100m x 0.25mm x 0.20 $\mu$ m  
 Injection: 1 $\mu$ L Total FAMES en CH2Cl2 (30 mg/mL), split 1:100, 260°C  
 Carrier gas: He 45 psi, 21 cm/s (140°C)  
 Program temperature: 140°C(6min) @ 4°C/min to 240°C(10min)  
 Detector: FID, 260°C

<u>Peak Name</u>
1    C4:0 (butyric)
2    C6:0 (caproic)
3    C8:0 (caprylic)
4    C10:0 (capric)
5    C11:0 (undecanoic)
6    C12:0 (lauric)
7    C13:0 (tridecanoic)
8    C14:0 (myristic)
9    C14:1 (myristoleic)
10   C15:0 (pentadecanoic)
11   C15:1 (cis-10-pentadecanoic)
12   C16:0 (palmitic)
13   C16:1 (palmitoleic)
14   C17:0 (heptadecanoic)
15   C17:1 (cis-10-heptadecenoic)
16   C18:0 (stearic)
17   C18:1n9t (elaidic)
18   C18:1n9c (oleic)
19   C18:2n6t (linoleaidic)
20   C18:2n6c (linoleic)
21   C20:0 (arachidic)
22   C18:3n6 ( $\gamma$ -linolenic)
23   C20:1n9 (cis-11-eicosenoic)
24   C18:3n3 ( $\alpha$ -linolenic)
25   C21:0 (henicosanoic)
26   C20:2 (cis-11,14-eicosadienoic)
27   C22:0 ( behenic)
28   C20:3n6 (cis-8,11,14-eicosatrienoic)
29   C22:1n9 (erucic)
30   C20:3n3 (cis-11,14,17-eicosatrienoic)
31   C20:4n6 (arachidonic)
32   C23:0 (tricosanoic)
33   C22:2 (cis-13,16-docosadienoic)
34   C24:0 (lignoceric)
35   C20:5n3 (cis-5,8,11,14,17-eicosapentaenoic)
36   C24:1 ( nervonic)
37   C22:6n3 (cis-4,7,10,13,16,19-docosahexaenoic)



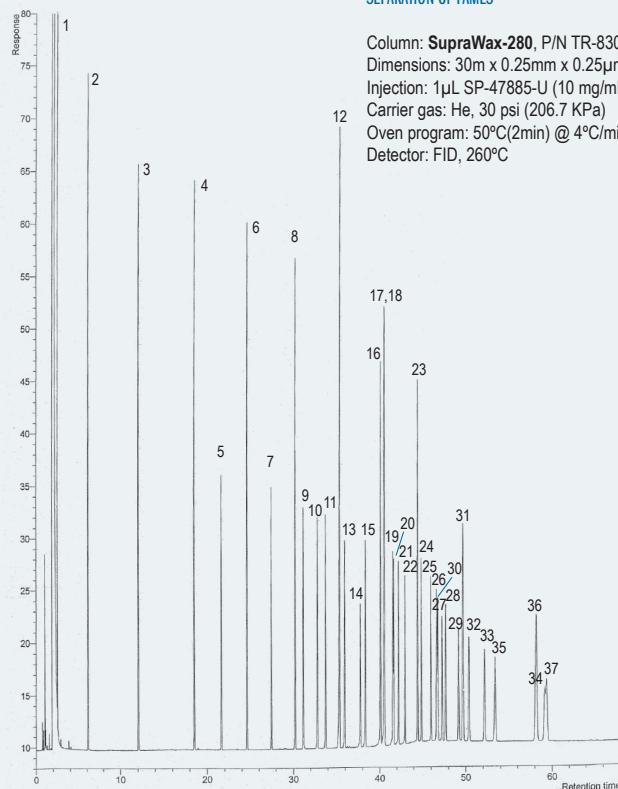
TKG 1229

Peak Name

1	C6:0
1-	C4:0 (butyric)
2-	C6:0 (caproic)
3-	C8:0 (caprylic)
4-	C10:0 (capric)
5-	C11:0 (undecanoic)
6-	C12:0 (lauric)
7-	C13:0 (tridecanoic)
8-	C14:0 (myristic)
9-	C14:1 (myristoleic)
10-	C15:0 (pentadecanoic)
11-	C15:1 (cis-10-pentadecanoic)
12-	C16:0 (palmitic)
13-	C16:1 (palmitoleic)
14-	C17:0 (heptadecanoic)
15-	C17:1 (cis-10-heptadecenoic)
16-	C18:0 (stearic)
17-	C18:1n9c (oleic) + C18:1n9t (elaidic)
18-	C18:2n6c (linoleic)
19-	C18:2n6t (linolelaidic)
20-	C18:3n6 ( $\gamma$ -linolenic)
21-	C18:3n3 ( $\alpha$ -linolenic)
22-	C20:0 (arachidic)
23-	C20:1n9 (cis-11-eicosenoic)
24-	C20:2 (cis-11,14-eicosadienoic)
25-	C20:3n6 (cis-8,11,14-eicosatrienoic)
26-	C21:0 (henicosanoic)
27-	C20:3n3 (cis-11,14,17-eicosatrienoic)
28-	C20:4n6 (arachidonicoic)
29-	C20:5n3 (cis-5,8,11,14,17-eicosapentaenoic)
30-	C22:0 (behenic)
31-	C22:1n9 (erucic)
32-	C22:2 (cis-13,16-docosadienoic)
33-	C23:0 (tricosanoic)
34-	C24:0 (lignoceric)
35-	C22:6n3 (cis-4,7,10,13,16,19-docosahexaenoic)
36-	C24:1n9 ( nervonic)

**SEPARATION OF FAMES**

Column: SupraWax-280, P/N TR-830232  
Dimensions: 30m x 0.25mm x 0.25 $\mu$ m  
Injection: 1 $\mu$ L SP-47885-U (10 mg/mL), split 1:100, 260°C  
Carrier gas: He, 30 psi (206.7 KPa)  
Oven program: 50°C(2min) @ 4°C/min to 220°C(15min)  
Detector: FID, 260°C



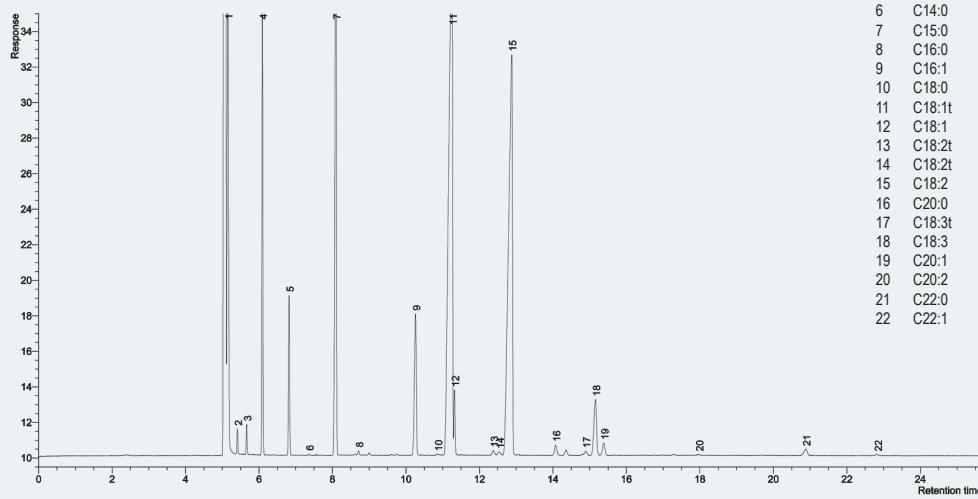
TKG 1237

**SEPARATION OF METHYL ESTERS IN SOYA OIL**

Column: TR-CN100, P/N TR-882162  
Size: 60m x 0.25mm x 0.20 $\mu$ m  
Injection: 1 $\mu$ L Total FAMES en CH<sub>2</sub>Cl<sub>2</sub> (30 mg/mL), split 1:100, 280°C  
Carrier gas: He 25 psi  
Program temperature: 185°C  
Detector: FID, 280°C

Peak Name

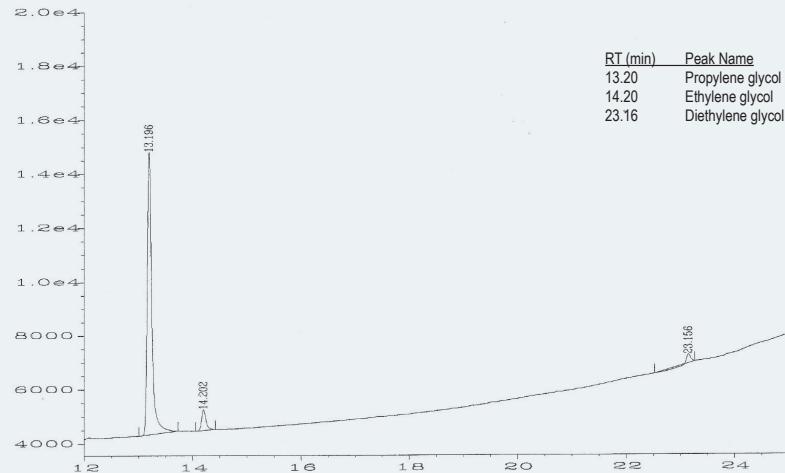
1	C6:0
2	C8:0
3	C10:0
4	C12:0
6	C14:0
7	C15:0
8	C16:0
9	C16:1
10	C18:0
11	C18:1t
12	C18:1
13	C18:2t
14	C18:2
15	C18:2
16	C20:0
17	C18:3t
18	C18:3
19	C20:1
20	C20:2
21	C22:0
22	C22:1



TKG 1239

## GLYCOLS IN WINE

Column: **SupraWAX-280**, P/N TR-831035  
 Size: 30m x 0.53mm x 1.0 $\mu$ m  
 Injection: 1  $\mu$ L split 1:50, 220°C  
 Carrier gas: He, 5.4 psi  
 Program temperature: 100°C (3min) @ 4.5°C/min to 220°C (10min)  
 Detector: FID, 260°C



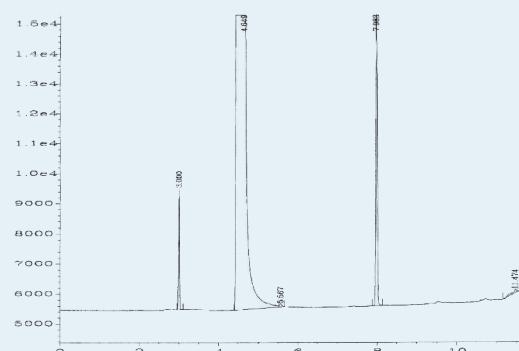
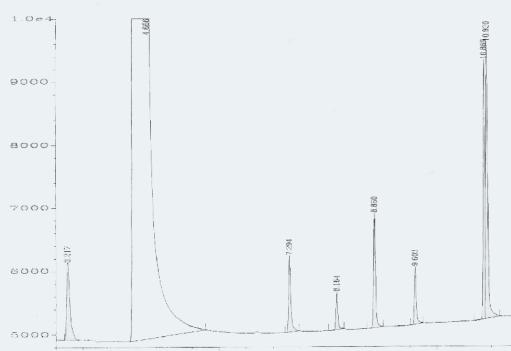
Chromatogram provided by R. Franquet and Joan Garcia from INCAVI (Vilafranca del Penedés, Barcelona)

TKG 1241

## METHANOL AND HIGHER ALCOHOLS

Column: **TRB-624**, P/N TR-601432  
 Size: 30m x 0.25mm x 1.4 $\mu$ m  
 Injection: 1  $\mu$ L split 1:50, 250°C  
 Carrier gas: He, 1mL/min  
 Program temperature: 40°C (5min) @ 20°C/min to 200°C (3min)  
 Detector: FID, 260°C

RT (min)	Peak Name
3.21	Methanol
4.66	Ethanol
7.29	1-Propanol
8.16	2-Butanol
8.86	Isobutanol
9.60	1-Butanol
10.87	Isoamyl alcohol
10.92	Isoamyl alcohol

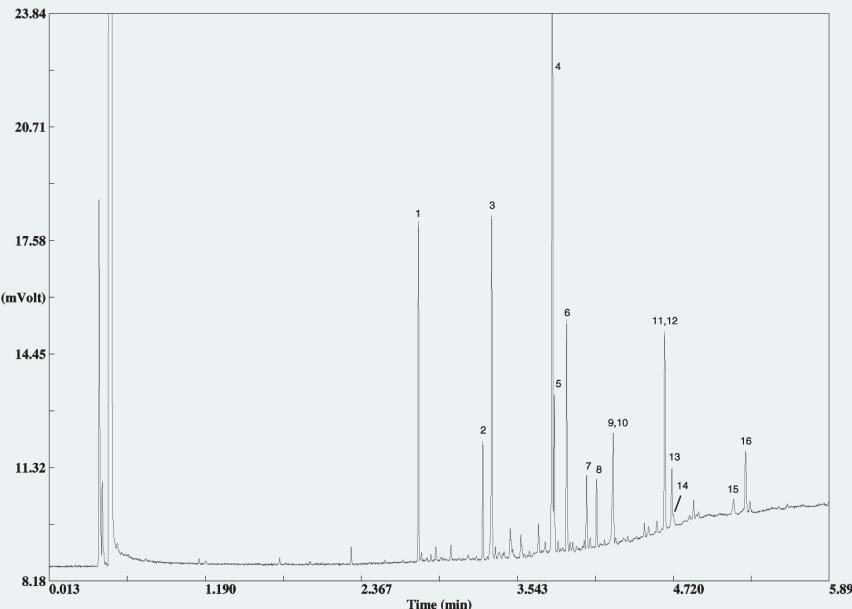


Chromatogram provided by Joan Garcia from INCAVI (Vilafranca del Penedés, Barcelona)

TKG 1242

**PUFA I**

Column: SupraWax-280, 15m x 0.10mm x 0.10 $\mu$ m (P/N: TR-830111)  
 Injection: 280°C, split 200:1, precision liner  
 Detector: FID, 280°C  
 Carrier Gas: H<sub>2</sub>, 45 psi (310.05 KPa)  
 Oven: 100°C (0.5min) @ 50°C/min to 280°C (2min)  
 Sample: 0.2 $\mu$ L PUFA I - Marine Source diluted to 50mg/ml in methylene chloride



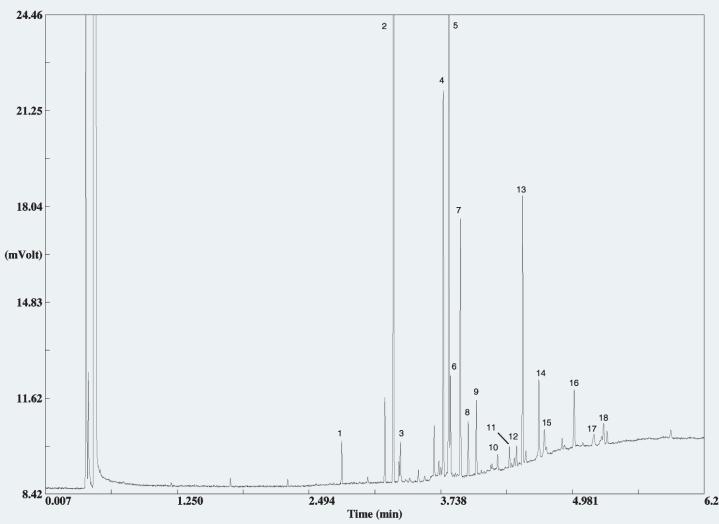
Peak Name

1. C14:0
2. C16:0
3. C16:1 $\omega$ 7
4. C18:1 $\omega$ 9
5. C18:1 $\omega$ 7
6. C18:2 $\omega$ 6
7. C18:3 $\omega$ 3
8. C18:4 $\omega$ 3
9. C20:1 $\omega$ 9
10. C20:1 $\omega$ 11
11. C20:4 $\omega$ 3
12. C20:5 $\omega$ 3
13. C22:1 $\omega$ 11
14. C22:1 $\omega$ 9
15. C22:5 $\omega$ 3
16. C22:6 $\omega$ 3

TKG 1248

**PUFA II**

Column: SupraWax-280, 15m x 0.10mm x 0.10 $\mu$ m (P/N: TR-830111)  
 Injection: 280°C, split 200:1, precision liner  
 Detector: FID, 280°C  
 Carrier Gas: H<sub>2</sub>, 45 psi (310.05 KPa)  
 Oven: 100°C (0.5min) @ 50°C/min to 280°C (2min)  
 Sample: 0.2 $\mu$ L PUFA II - Animal Source diluted to 50mg/ml in methylene chloride



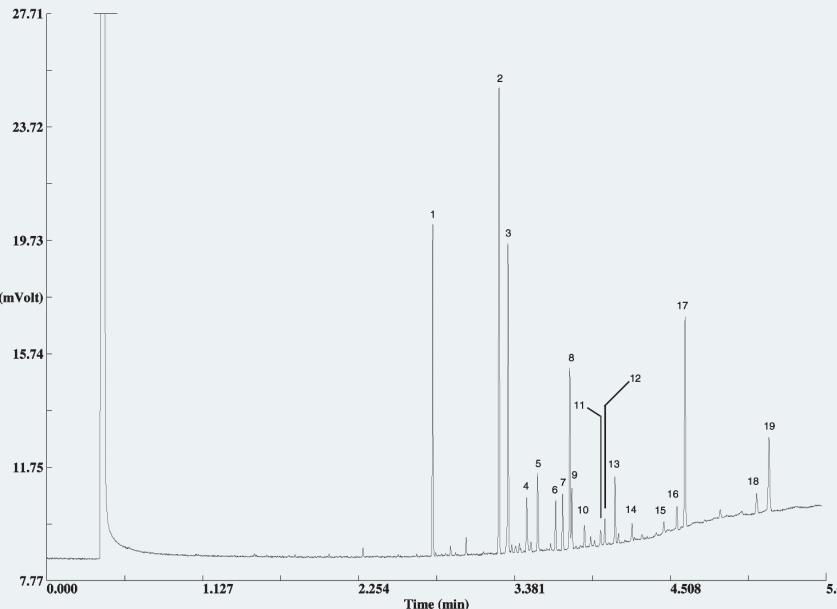
Peak Name

1. C14:0
2. C16:0
3. C16:1 $\omega$ 7
4. C18:0
5. C18:1 $\omega$ 9
6. C18:1 $\omega$ 7
7. C18:2 $\omega$ 6
8. C18:3 $\omega$ 6
9. C18:3 $\omega$ 3
10. C20:1 $\omega$ 9
11. C20:2 $\omega$ 6
12. C20:3 $\omega$ 6
13. C20:4 $\omega$ 6
14. C20:5 $\omega$ 3
15. C22:1 $\omega$ 9
16. C22:4 $\omega$ 6
17. C22:5 $\omega$ 3
18. C24:1

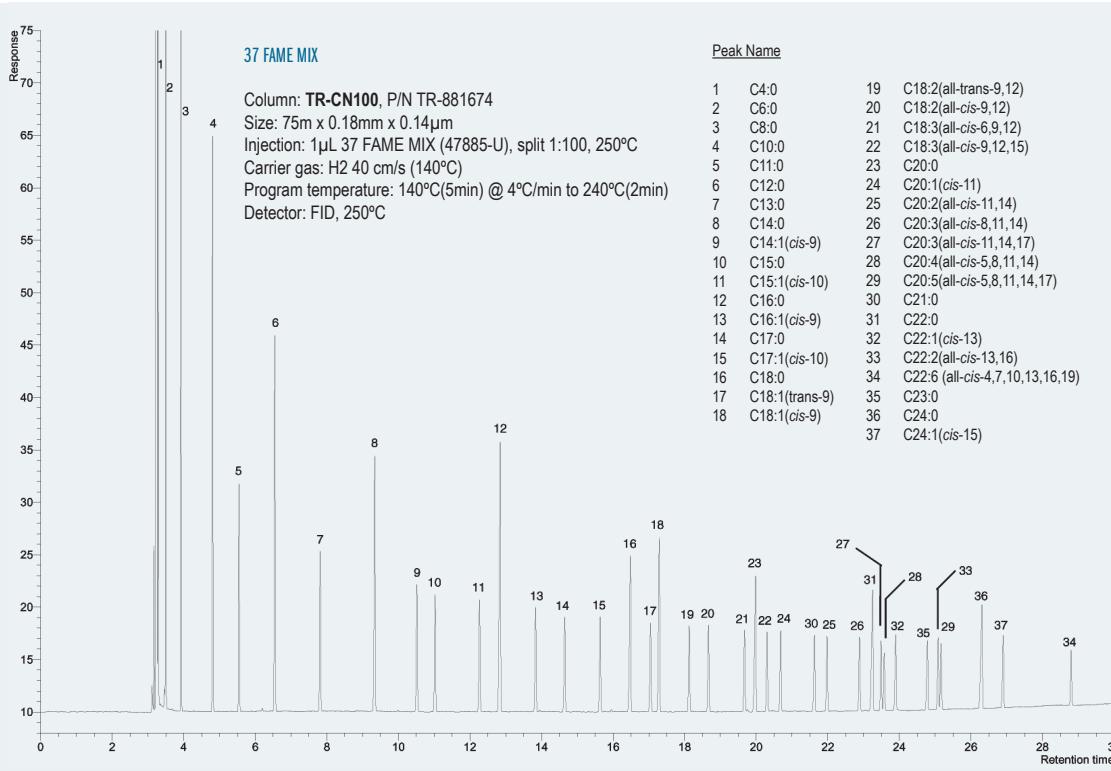
TKG 1249

**PUFA III**

Column: SupraWax-280, 15m x 0.10mm x 0.10 $\mu$ m (P/N: TR-830111)  
 Injection: 280°C, split 200:1, precision liner  
 Detector: FID, 280°C  
 Carrier Gas: H<sub>2</sub>, 45 psi  
 Oven: 100°C (0.5min) to 280°C @ 50°C/min (2min)  
 Sample: 0.1 $\mu$ L PUFA III – Partially Hydrogenated Menhaden Oil diluted to 100mg/ml in hexane



TKG 1253

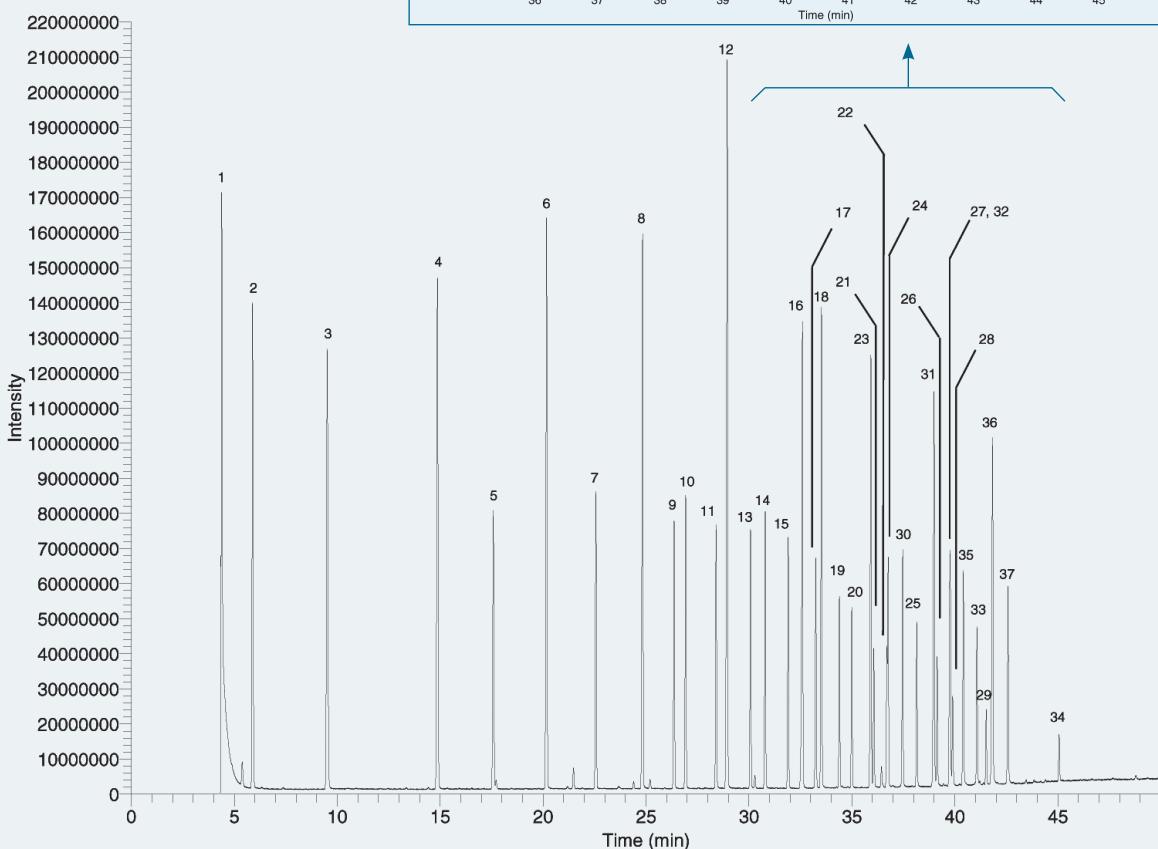
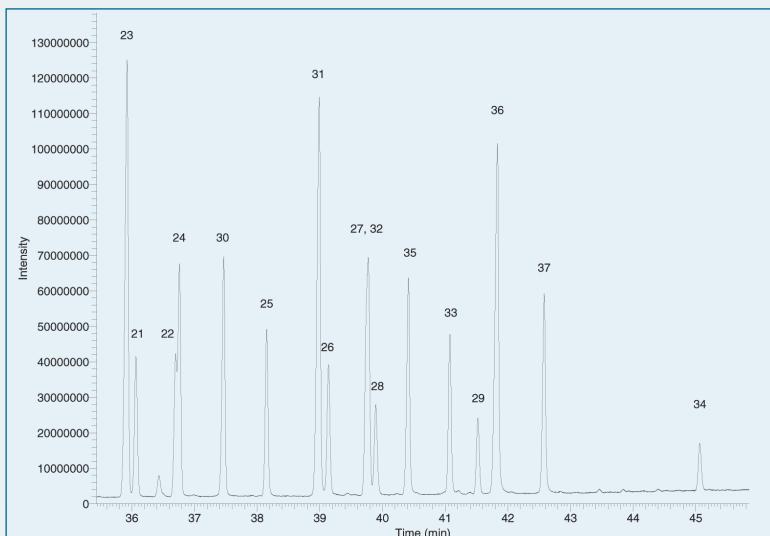


TKG 1250

### 37 FAME MIX- MS DETECTOR

Column: TR-CN100, 60m x 0.25mm x 0.20 $\mu$ m (P/N: TR-882162)  
 Injection: 280°C, split 50:1  
 Oven: 90°C (7min) to 240°C @ 4°C/min (3min)  
 Carrier gas: Helium, constant pressure @ 24psi  
 Detector: MS  
 Transfer line temp.: 230°C  
 Ionization mode: EI  
 Scan range: 40-450amu  
 Sample: 0.5 $\mu$ L Food Industry FAME Mix 30mg/ml in methylene chloride

Peak Name		
1	C4:0	19
2	C6:0	20
3	C8:0	21
4	C10:0	22
5	C11:0	23
6	C12:0	24
7	C13:0	25
8	C14:0	26
9	C14:1(cis-9)	27
10	C15:0	28
11	C15:1(cis-10)	29
12	C16:0	30
13	C16:1(cis-9)	31
14	C17:0	32
15	C17:1(cis-10)	33
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- Malaysia
- Pakistan
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- Qatar
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- Syria
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To find a local Teknokroma representative in your country, please, visit our website:  
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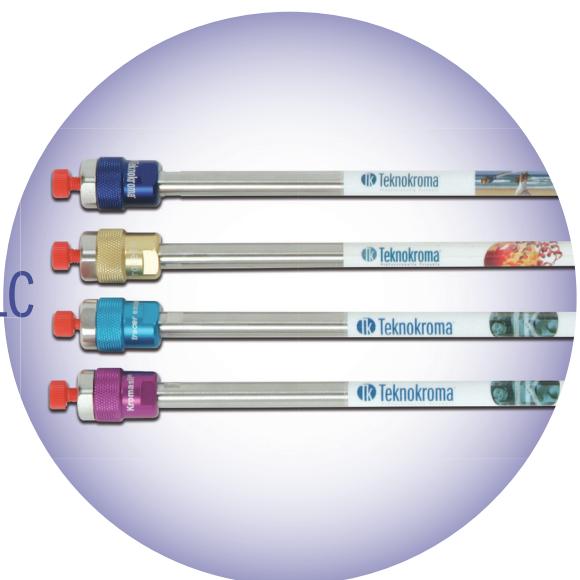


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