

'... difficulties may arise when samples contain a mixture of phthalate esters, especially isomers...'

Phthalate Esters

Phthalate esters are used in diverse applications throughout the chemical industry, e.g., as plasticisers, solvents for substances like cellulose esters, insect repellents, fixatives in perfumes and in the denaturation of ethyl alcohol. The widespread use of phthalates has resulted in their current environmental status as 'priority pollutants', even though their toxicity is low. Consequently, numerous methods for the analysis of various phthalates have been developed.

Chromatographic separation of individual phthalate esters from other components in complex samples is often a trivial problem, however difficulties may arise when samples contain a mixture of phthalate esters, especially isomers. As shown in the accompanying chromatogram, Figure 1, reversed phase HPLC with gradient elution is successful under such circumstances.

Conditions

Column:

Keywords:

Butylbenzyl Phthalate, Dibutyl Phthalate, Diethyl Phthalate, Di-(2-ethylhexyl)phthalate, Dimethyl Phthalate, Dioctyl Phthalate

Spherisorb S5 ODS2,
250 x 4.6 mm ID

Guard Column: Spherisorb S5 ODS2,
50 x 4.6 mm ID

Temperature: 35°C

Mobile Phase: Solvent A: Acetonitrile/Water/
Tetrahydrofuran (50:48:2),
Solvent B: Acetonitrile/
Tetrahydrofuran (98:2), Linear
gradient, 20% B – 100% B over
6 minutes

Flow Rate: 1.5 ml/min

Detection: UV at 230 nm

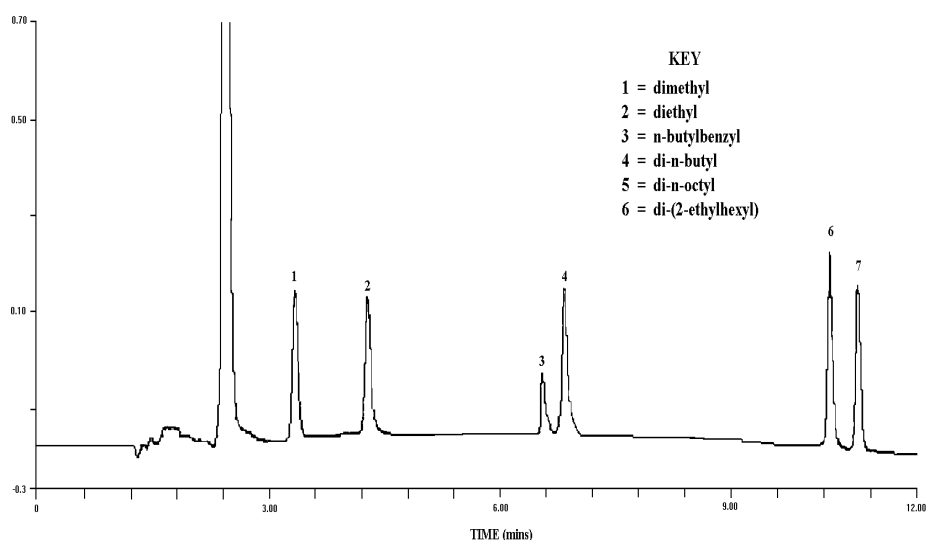
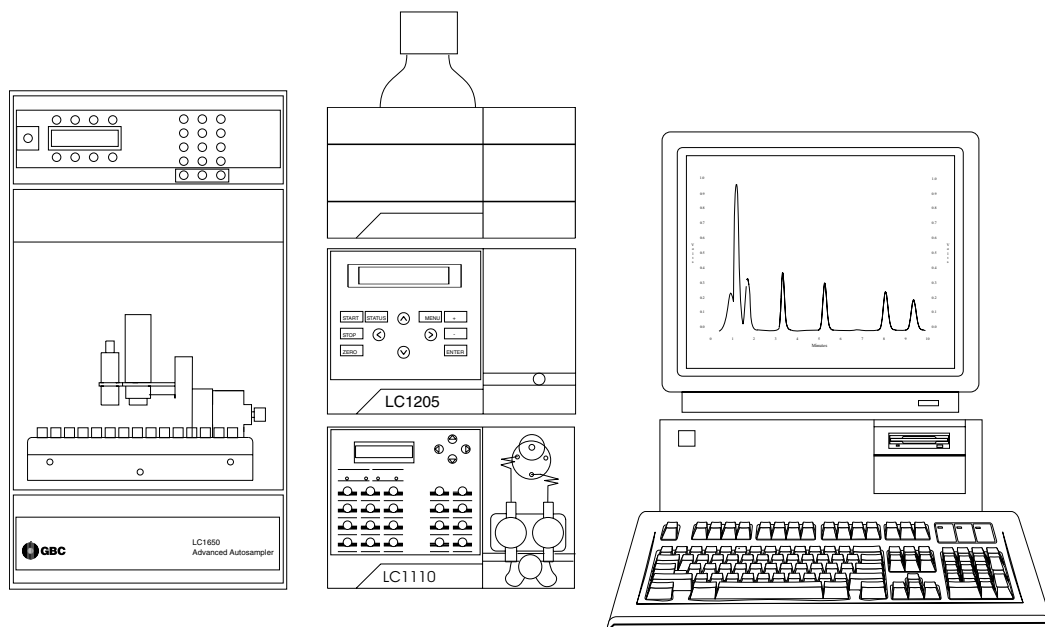


Figure 1 Separation of EPA Priority Pollutant Phthalate Esters



GBC HPLC Instrumentation

LC1110 Dual Piston HPLC Pump (x2)
LC1205 Programmable UV/Vis Detector
LC1431 System Organiser
LC1650 Advanced Autosampler
GBC Column Heater
WinChrom Chromatography Data
Management System



E10
01-0356-00

GBC Scientific Equipment Pty Ltd
A.C.N. 005 472 686
12 Monterey Road, Dandenong, Victoria, 3175, Australia
Phone: (03) 9213 3666 Fax: (03) 9213 3677

All rights reserved
GBC publication number 01-0356-00
September, 1995