Detection of Polychlorinated Biphenyls (PCB's) in Adipose Tissue

The acetonitrile partition, described in the attached method, requires a minor modification to insure a quantitative recovery of the PCB's.

At the end of the acetonitrile partition, the petroleum ether extract should be concentrated to 25 ml and transferred to the florisil column after the column has been washed with 150 ml of petroleum ether. (Discard wash as soon as the petroleum ether extract is placed on the column).

If multiple unknown peaks are present on the final chromatogram, PCB's may be present.

Detection limit

Assume — 5g sample

— 25 ml final vol

— 5 ul injection vol

— abs sens 1×10^{-9} g

$$\frac{1 \times 10^{-9}\,g}{5\,ul} \times \frac{10^{3}\,ul}{ml} \times 25\,ml \times \frac{1}{5\,g} \times 10^{3}\,g/kg \times 10^{3}\,\frac{mg}{g}$$

= ppm = 1

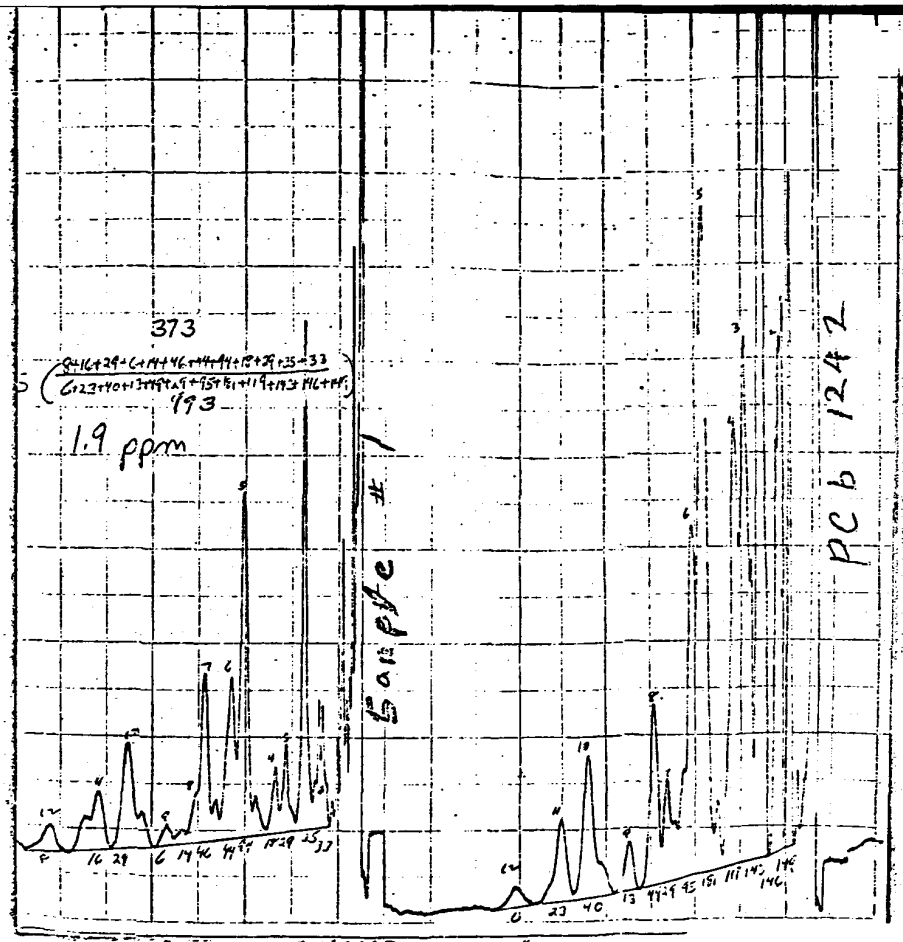
MONS 075836

Quantitation of Polychlorinated Biphenyls (PCB's) in Adipose Tissue

The attached chromatograms indicate the method which should be used for quantitation. As shown, 12 peaks from sample 1 were matched (same retention time) with 12 peaks from the PCB 1242 standard, and the peak height of each one was measured.

The sum of the heights of the identifiable peaks from the sample was divided by the sum of the heights of the corresponding peaks from the 5 nanogram standard. Since the injection represented 1 mg. of sample, the concentration of PCB 1242 was 1.9 ppm in this sample.

You may or may not be able to match as many peaks as are shown on the attached chromatograms. For proper quantitation, however, you should use as many peaks as can be properly matched.


373
493
1.9 ppm
Sample #1
PCb 1242