Z-45 REV 12 79

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PRAL File
I.C.

79357

AR226-1561

ANALYTICAL REPORT

January 23, 1981

PERSONAL AND CONFIDENTIAL

TO: DR. Y. L. POWER - PPD, Washington Works

FROM: S. S. STAFFORD SS. Stafford

ANALYSIS OF BLOOD SAMPLES FOR ANALYTICAL METHOD COMPARISON
(JOB No. 800-598, 802-5500, 800-5518; PRAL Nos. 80-62910-922, 80-63834-847, 80-64329-330, 80-66546)

Notebook Number: E22514

As requested in your letter of 10/2/80 to L. J. Papa, the 27 blood samples listed in the attached table have been analyzed for perfluorooctanoate (C_8).

The results given there are for analysis by the C8/GC method ("Determination of Perfluorooctanoic Acid in Blood, Gas Chromatographic Method", S. Stafford, 1/2/81). The samples were also analyzed for organic fluoride by the Wickbold Torch procedure, and a comparison of the results and analytical methods is discussed in a separate letter being sent from L. J. Papa to Paul Thistleton (1/23/81).

As noted in the table, repeat samples were requested in two cases where difficulty was encountered in the analysis. For PRAL No. 80-63847, results of the re-samples are reported here. For PRAL No. 80-63840, the analysis will be repeated when a second sample is received.

Attachment
fmt

Key Words:
Perfluorooctanoic acid
Ammonium perfluorooctanoate
Blood analysis
GC

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Sample PRAL No.	P. R. No.	Date Sampled	Name	GC Analysis Date Analyzed	[C_8], µg F/g blood[b]
80-62910		8/20/80		9/2/80-9/5/80	13.
80-62911		8/20/80		" "	4.9
80-62912		8/20/80		" "	0.78
80-62913		8/20/80		" "	21.
80-62914		8/19/80		" "	6.4
80-62915		8/19/80		" "	0.015
80-62916		8/13/80		" "	2.9
80-62917		8/13/80		" "	5.6
80-62918		8/18/80		" "	29.
80-62919		8/19/80		" "	7.8
80-62920		8/18/80		" "	1.2
80-62921		8/20/80		" "	0.26
80-62922		8/19/80		" "	4.6
80-63834	REDACTED	8/29/80	REDACTED	9/9/80-9/12/80	0.22
80-63835		9/3/80		" "	0.52
80-63836		9/3/80		" "	0.40
80-63837		8/29/80		9/15/80-9/18/80	1.9
80-63838		8/20/80		" "	24.
80-63839		8/21/80		" "	8.2
80-63840		8/25/80		" "	(c)
80-63841		8/29/80		" "	1.5
80-63842		8/29/80		" "	4.0
80-63843		9/2/80		" "	3.7
80-63844		8/26/80		" "	6.6
80-63845		8/29/80		" "	0.72
80-63846		8/26/80		" "	5.5
80-63847		8/21/80		" "	(~.02)
80-64329		9/17/80		9/24/80-9/26/80	0.022
80-64330		9/17/80		" "	

(a) Analysis as described in the C_8/GC method, using the packed column GC analysis with perfluoro-n-octanoic acid as calibration standard. Estimated uncertainity ±10% relative standard deviation. Lower limit for quantitation 0.007 µg F/g.

(b) Although the analysis is specifically for perfluorooctanoate (acid or salts), concentrations are given in ppm fluorine for comparison with the results of total fluorine analyses.

(c) Unusually large variation was found in both GC and Wickbold Torch results for repeat analyses of this sample (80-63840 as received, 80-66546 after lyophilization of a portion), with values ranging from ~26-41 ppm F. Sample inhomogeneity may have contributed to this, but the reason for the problem is not really known. Analysis will be repeated on a second sample, as requested 11/25/80 by P. Thistleton.

(d) In GC analysis of the initial sample (80-63847), three unusual peaks were observed in the region of interest, one of which interfered with quantitation of C_8 at this low level. In the repeat samples (80-64329 and 30) these peaks were greatly reduced in size, and no interference with the C_8 was apparent. The value given is the average for the two repeat samples.