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cc: A. J. Dahl - 353
B. W. Karrh - N11400
L. J. Papa - 269
Pral File
I.C.

AR226-1579

May 20, 1981

TO: DR. J. M. HEDGES - PPD, Circleville, Ohio

FROM: S. S. STAFFORD *S.S. Stafford*

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 810-633; PRAL Nos. 81-1936-1950; Notebook Nos. E22514, E26238)

As requested in your letter of 5/1/81 to L. J. Papa, the 16 blood samples submitted then have been analyzed for perfluorooctanoate (C₈). Results and sample identification are given in the attached table.

As noted there, the analyses were done using a gas chromatographic method specific for C₈ (Lab Method Number ES-567) but results have been reported as ppm F for comparison with total organic fluorine analyses. Precision is $\pm 10\%$ relative standard deviation over most of the concentration range, somewhat less at the lowest values. The lower limit for quantitation is 0.007 ppm F (0.01 ppm perfluorooctanoic acid), with a detection limit of ~ 0.004 ppm which can be distinguished from the reagent background but not well quantitated.

Please contact me (772-4440) or L. J. Papa (772-2745) if you have any questions regarding the analyses. General questions on blood sampling can be directed to J. W. Raines or L. F. Percival.

Attachment
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Key Words:

Perfluorooctanoic Acid
Perfluorooctanoate
Blood Analysis
GC

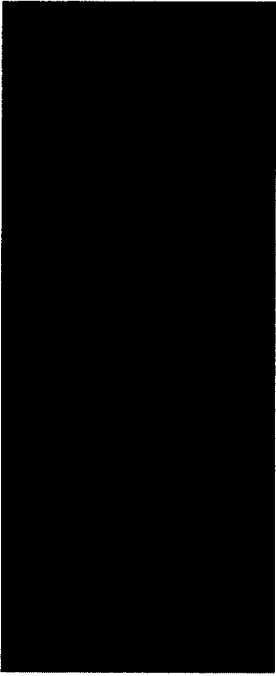
There's a world of things we're doing something about

EXP000022
EID713836

000083

TABLE I

CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

Sample				GC Analysis	
PRAL No.	Date Sampled	P.R.No.	Name	Date Analyzed	[C ₈], $\mu\text{g F/g bl}$
81-1936	5/1/81	1485		5/12/81	0.027
81-1937	5/1/81	3518		5/12/81	n.d.
81-1938	5/1/81	2430		5/12/81	0.017
81-1939	5/1/81	3032		5/12/81	0.015
81-1940	5/1/81	5656		5/12/81	n.d.
81-1941	5/1/81	6828		5/12/81	n.d.
81-1942	5/5/81	3322		5/12/81	0.030
81-1943	5/4/81	0275		5/12/81	0.027
81-1944	5/4/81	2718		5/12/81	0.025
81-1945	5/4/81	3766		5/12/81	n.d.
81-1946	5/4/81	4748		5/13/81	0.017
81-1947	5/4/81	5646		5/13/81	0.026
81-1948	5/4/81	7350		5/13/81	0.028
81-1949	5/5/81	1505		5/13/81	0.008
81-1950	5/5/81	5645		5/13/81	0.053
81-1951	5/5/81	7452		5/13/81	0.017

- (a) Analysis as described in Lab Method ES-567 ("Determination of perfluorooctanoic Acid in Blood, Gas Chromatographic Method", S. Stafford, 4/3/81), using the packed column GC analysis with perfluoro-n-octanoic acid as calibration standard.
- (b) Although the analysis is specifically for perfluorooctanoate (acid or salts), concentrations are given in ppm fluorine for comparison with the results of total organic fluorine analyses. ($\text{ppm F} = 0.688 \times \text{ppm perfluorooctanoic acid}$) Estimated uncertainty is $\pm 10\%$ relative standard deviation. The lower limit for quantitation is $0.007 \mu\text{gF/g}$. The detection limit is $\sim 0.004 \mu\text{gF/g}$, but concentrations in that range cannot be well quantitated and are reported as < 0.007 . None detected (n.d.) is reported for samples with $[\text{C}_8] \lesssim 0.004 \text{ ppm}$, which cannot be distinguished from reagent background.

REDACTED

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