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POLYMER PRODUCTS DEPARTMENT
EXPERIMENTAL STATION

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Pral File
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AR226-1577

PERSONAL AND CONFIDENTIAL

May 20, 1981

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

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

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 810-578; PRAL Nos. 81-1827-1844; Notebook Nos. E22514, E26238)

As requested in your letter of 5/1/81 to L. J. Papa, the 18 blood samples submitted then have been analyzed for perfluorooctanoate (C₈). Results and sample identification are given in the attached table.

As noted there, the analysis was 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
jah

Key Words:

Perfluorooctanoic Acid
Perfluorooctanoate
Blood Analysis
GC

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

EXP000020
EID713834

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TABLE I

CONCENTRATION OF PERFLUOROOCCTANOATE IN BLOOD (a)

				GC Analysis		(b)
Sample				Date Analyzed	[C ₈], µg F/g bloo	
PRAL No.	Date Sampled	P.R.No.	Name			
81-1827	4/21/81	4538		5/4/81	1.2	
81-1828	4/22/81	30-2350		5/4/81	0.26	
81-1829	4/23/81	3390		5/6/81	0.52	
81-1830	4/24/81	4746		5/4/81	<.007	
81-1831	4/24/81	4747		5/4/81	0.079	
81-1832	4/27/81	4675		5/8/81	0.42	
81-1833	4/27/81	4673		5/7/81	0.48	
81-1834	4/27/81	4664		5/7/81	0.050	
81-1835	4/27/81	4706		5/7/81	0.43	
81-1836	4/27/81	1498		5/4/81	2.7	
81-1837	4/27/81	W.S.		5/4/81	0.39	
81-1838	4/27/81	4053		5/7/81	0.27	
81-1839	4/27/81	4668		5/8/81	0.020	
81-1840	4/27/81	4584		5/8/81	0.0091	
81-1841	4/27/81	4674		5/8/81	0.35	
81-1842	4/27/81	4667		5/8/81	0.012	
81-1843	4/27/81	4678		5/6/81	0.031	
81-1844	4/1/81	1920		5/6/81	1.3	

(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. (ppm F = 0.688 x ppm perfluorooctanoic acid) Estimated uncertainty is $\pm 10\%$ relative standard deviation. The lower limit for quantitation is 0.007 µgF/g. The detection limit is ~ 0.004 µgF/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 [C₈] $\lesssim 0.004$ ppm, which cannot be distinguished from reagent background.

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REDACTED EID713835

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