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POLYMER PRODUCTS DEPARTMENT
EXPERIMENTAL STATION

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Pral File
I.C.

AR226-1590

PERSONAL AND CONFIDENTIAL

July 20, 1981

TO: DR. Y. L. POWER - PPD, Parkersburg

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

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 810-578; PRAL Nos. 81-2952-2955; Notebook Nos. E22514, E26238)

As requested in your letter of 7/14/81 to L. J. Papa, the 4 blood samples submitted then have been analyzed for perfluorooctanoate (C_8). Results and sample identification are given in the attached table.

As noted there, the analyses were done using a gas chromatographic method specific for C_8 (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

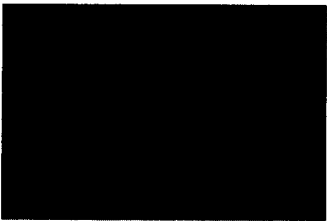
There is a world of things we're doing something about

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TABLE I

CONCENTRATION OF PERFLUOROCTANOATE IN BLOOD (a)

				GC Analysis (b)	
Sample				Date Analyzed	[C ₈], μ g F/g blood
PRAL No.	Date Sampled	P.R.No.	Name		
81-2952	6/9/81	4543		7/14/81	0.61
81-2953	6/12/81	WS		7/14/81	0.51
81-2954	6/18/81	WS		7/14/81	1.2
81-2955	6/18/81	1581		7/14/81	0.15

- (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.

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