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TABLE II
Comparison of Ca/GC and Wickbold Torch Analyses of Rat Blood Samples (a)

PRAL No.	Sacrifice-Tube	GC Analysis, [Ca], $\mu\text{g F/g blood}$	Wickbold Torch Analysis, Total Fluoride, $\mu\text{g F/g blood}$	
			Uncorrected	$\times 1/0.83^{(b)}$
80-67461	1-6	7.7	6.9	8.3
80-67462	1-7	13.1	10.5	12.7
80-67752	2-18	11.4	9.5	11.4
80-67756	3-18	8.6	9.0	10.8
80-67481	4-16	1.3	1.6	2.2
80-67460	1-2	1.1	1.1	1.3
80-67484	Test blank	<0.007 (none detected above reagent background)	0.76	0.92

(a) Analyses on duplicate portions of the lyophilized blood samples. GC analyses as described in Table III, 12/1/80-12/8/80. Wickbold Torch analyses by E. Kissa, Jackson Lab, 12-31/80-1/7/81, Notebook reference 8902-134.

(b) Recovery of perfluorooctanoic acid in the Wickbold Torch procedure is currently 78%, as determined in recent work by E. Kissa.

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TABLE III
Concentration of Perfluorooctanoate in Rat Blood Samples, GC Determination (a,b)

Sacrifice	Group I (control)		Group II (1 mg/m ³)		Group III (8 mg/m ³)		Group IV (80 mg/m ³)	
	Tube #	[Ca], $\mu\text{g F/g}$	Tube #	[Ca], $\mu\text{g F/g}$	Tube #	[Ca], $\mu\text{g F/g}$	Tube #	[Ca], $\mu\text{g F/g}$
1, 0 Days	1	0.68	6	7.7	11	53	16	131
	2	1.1	7	13.	12	28	17	124
	3	21.	8	17.	13	37	18	89
	4	3.3	9	20.	14	62	19	86
	5	0.53	10	9.4	15	57	20	110
	Ave.	5.3 1.4 exc. #3		13.		47		108
2, 14 Days	3	0.30					18	11
	4	0.43					19	10
	5	0.12					20	8.5
	Ave.	0.28						10
3, 28 Days	3	0.086	8	0.97	13	4.2	18	8.6
	4	0.11	9	1.5	14	4.6	19	5.8
	5	0.11	10	0.84	15	2.6	20	6.9
	Ave.	0.10		1.2		3.8		7.1
4, 42 Days	1	0.010					16	1.3
	2	0.037					17	3.6
	3	0.058					18	1.2
	4	0.038					19	1.1
	5	0.017						
	Ave.	0.032						1.8
5, 48 Days	1	0.029					13	0.14
	2	<.007 (c)					14	1.3
	3	0.021					15	1.1
	4	<.007 (c)						
	Ave.	0.015						0.84

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TABLE III (con't)

- (a) Procedure as described in the method "Determination of Perfluorooctanoic Acid in Blood Gas, Chromatographic Method", 1/2/81, using the capillary column GC analysis and perfluoro-n-octanoic acid as calibration standard. Lower limit for quantitation 0.007 ppm F. Estimated uncertainty $\pm 10\%$ relative standard deviation over most of the range, somewhat higher at the lowest concentrations.
- (b) For the six "test blank" samples listed as analyzed in Table I, [C₈] < 0.007 ppm F (none detected above reagent background). (PRAL Nos. 80-60368-69, 80-60372-75)
- (c) Values of 0.005 (sample 5-2) and 0.003 (sample 5-4) were used to calculate the average, but quantitation cannot really be done at these levels, and it is questionable whether 5-4 contained any C₈ above background.

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TABLE IV
Percent Straight-Chain Perfluorooctanoate in Rat Blood Samples (a)

Sacrifice	Group I (control)		Group II (1 mg/m ³)		Group III (8 mg/m ³)		Group IV (80 mg/m ³)	
	Tube #	Percent	Tube #	Percent	Tube #	Percent	Tube #	Percent
1, 0 Days	1	85	6	82	11	89	16	88
	2	84	7	80	12	92	17	88
	3	96	8	85	13	90	18	87
	4	91	9	88	14	85	19	84
	5	86	10	81	15	86	20	86
2, 14 Days	3	93					18	93
	4	92					19	92
	5	91					20	91
3, 28 Days	3	not	8	93	13	96	18	94
	4	cal-	9	91	14	95	19	92
	5	culated(b)	10	97	15	96	20	93
4, 42 Days	1	not					16	94
	2						17	96
	3	cal-					18	95
	4						19	94
	5	culated(b)						
5, 84 Days	1	not					13	97
	2	cal-					14	94
	3	culated(b)					15	93
	4							

(a) Calculated as described in the method, for peak #3 in the group of five C₈ isomer peaks seen in Figure 3b.

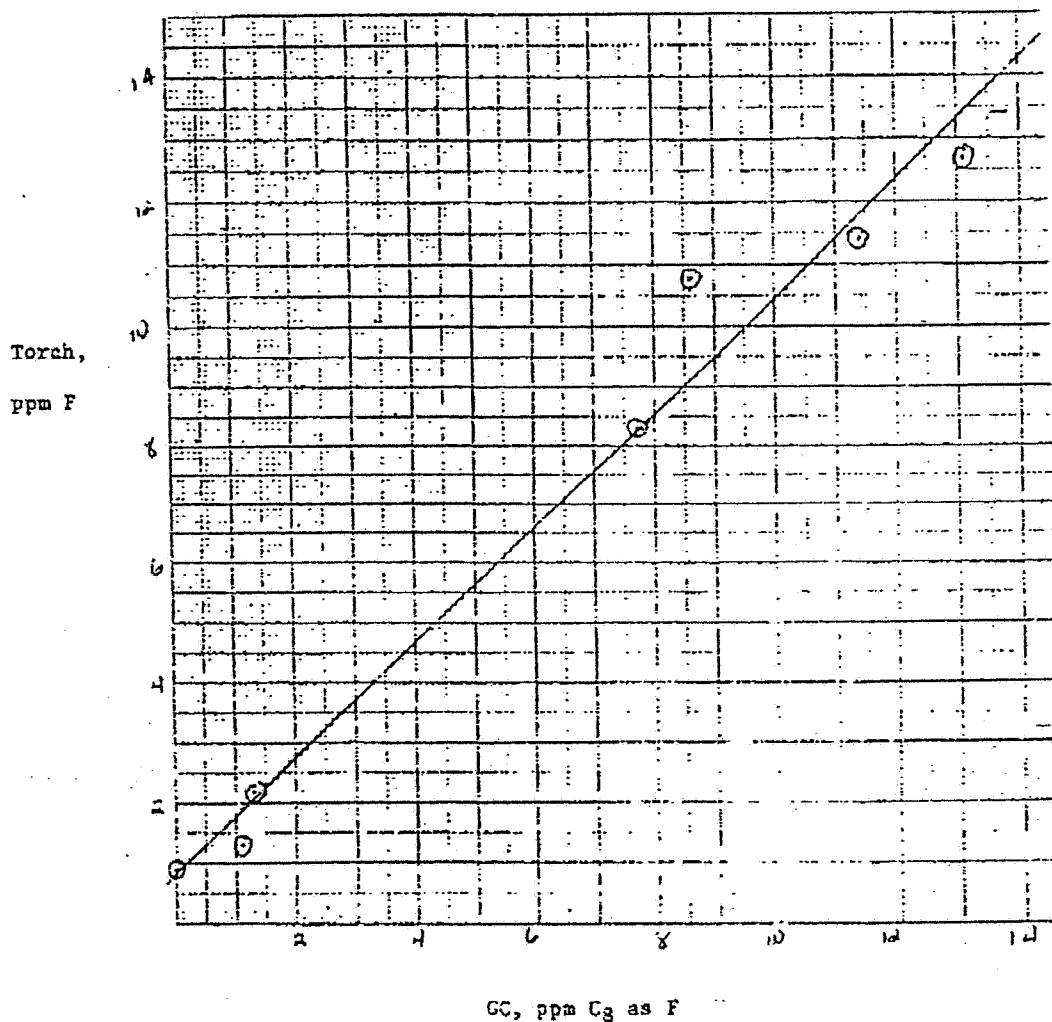
The same calculation for spiked blood standards (10 ppm F) gave average values of 74% straight-chain for FC-143, 94% for perfluoro-n-octanoic acid.

(b) A calculation of branched isomer concentrations was not attempted for samples with [C₈] < 0.1 ppm, due to the small size of the secondary peaks and interference from the reagents.

Figure 1 - Comparison of C₈/GC and Wickbold Torch Analyses of Rat Blood Samples

Data from Table II, using Torch values corrected for 83% recovery of perfluorooctanoic acid

Linear Least Squares Fit: Torch = 0.90 + 0.96 (GC)



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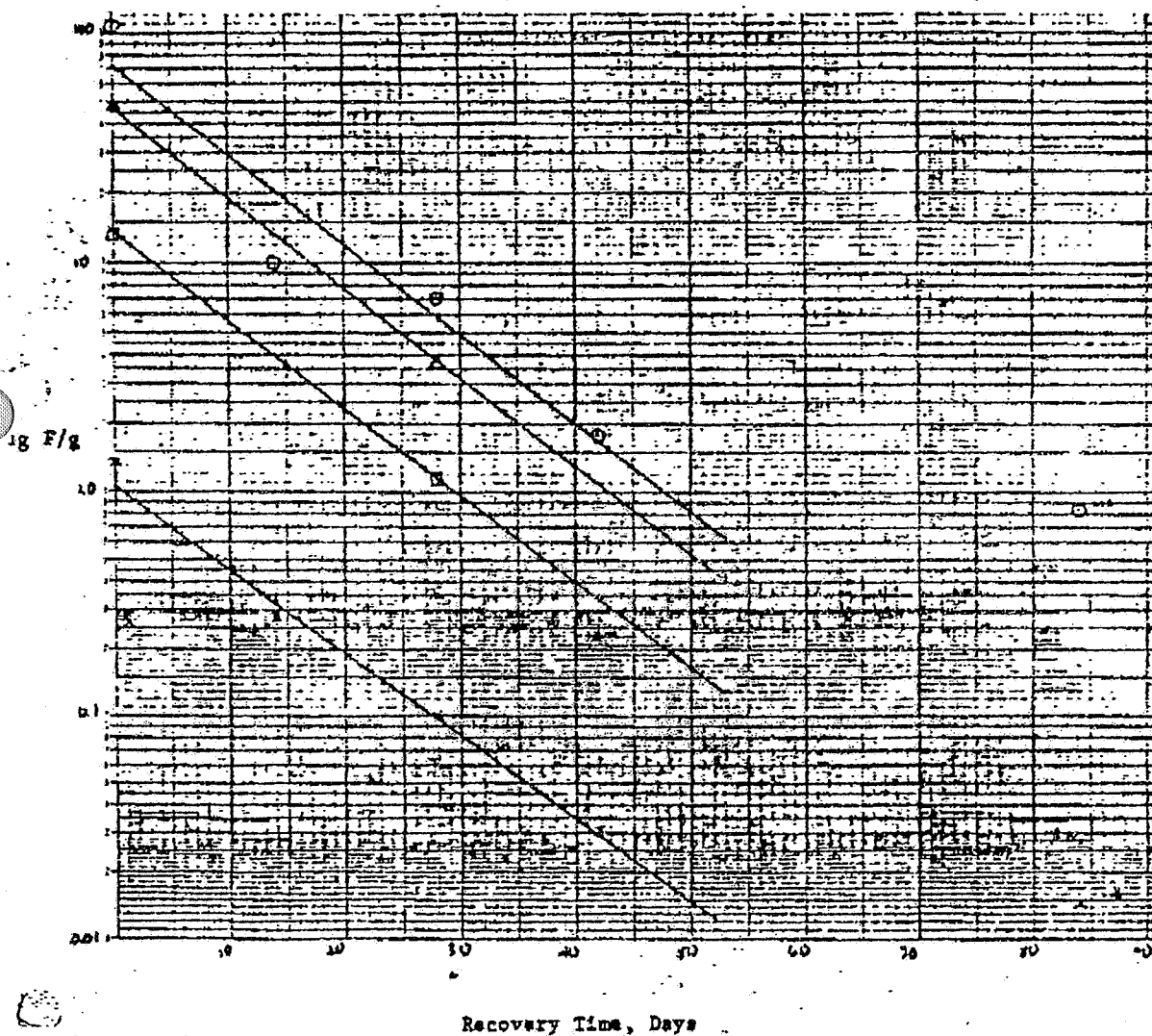
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Figure 2 - Concentration of C_B in Rat Blood Samples vs. Recovery Time

Data from Table III, Average Values by GC

- $\odot$ - Group IV $\log C = 1.9 - 0.039 t$ (to 42 days only)
 Δ - Group III $\log C = 1.7 - 0.039 t$
 $\square$ - Group II $\log C = 1.1 - 0.038 t$
 $\times$ - Group I $\log C = 0.078 - 0.038 t$ (to 42 days only, sample 3-20 excluded)



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