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PERSONAL & CONFIDENTIAL

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UPDATE ON THE C-8 BLOOD SAMPLING PROGRAM

An overall drop continues to be observed in TEFLON® Fine Powder/Dispersion and FEP Operators. In Table 1, it can be noted from the most recent blood sample results (right-hand columns) that 10 out of 14 Fine Powder/Dispersion Operators experienced a drop in blood C-8 levels. The 4 remaining Operators experienced increases. However, 3 of those 4 Operators experienced relatively small increases (<10%) since their last sample was taken.

In Table 2, it can be noted from the most recent blood sample results (right-hand columns) that 8 out of 10 FEP Operators experienced a drop in blood C-8 levels. An additional Operator experienced no change. The one remaining Operator experienced an increase.

Data on individuals who left TEFLON® (see Table 3) indicate that the average biological half-life of C-8 in the blood (i.e., the time it takes to reduce blood C-8 level by 50%) is approximately 2.4 years and can vary significantly by individual.

Discussion

Tables 1 and 2 contain blood C-8 data for TEFLON® Fine Powder/Dispersion and FEP Operators. Blood C-8 data were obtained from the FLAIR (Fluoropolymers Laboratory Analysis Information Retrieval) program. All blood samples were analyzed by the C-8 specific method. Only data on Operators who have worked in TEFLON® FEP or Fine Powder/Dispersion at least 730 days as of the first of the 3 listed sample dates are included since new Operators will experience increasing blood C-8 levels until an equilibrium level is reached.

Fine Powder/Dispersion Operators experienced an average 24% drop in blood C-8 levels over the past 2 to 3 years. FEP Operators experienced an average 12% drop in blood C-8 levels over the past 2 to 3 years.

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Although many of the Fine Powder/Dispersion Operators are experiencing blood C-8 decreases, there are 4 Operators whose blood C-8 levels have increased. However, the increases experienced by 3 of those 4 Operators were relatively small, that is, less than a 10% increase since their last sample result. The increases experienced by the remaining Operator is believed significant, and follow-up with this Operator will be done. This particular Operator works a significant amount of overtime which may be contributing to the higher-than-expected levels. Follow-up with the one FEP Operator experiencing a blood C-8 increase will also be done.

Blood C-8 data were obtained on 11 individuals who left TEFLON® due to transfer, resignation or retirement (see Table 3). Data on these individuals indicate that, on the average, it takes about 2.4 years to reduce blood C-8 levels by 50%.

JGL:mah
Attachments
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TABLE 1

TEFLON® FINE POWDER/DISPERSION OPERATORSC-8 BLOOD SAMPLE RESULTS

Date of First Sample	C-8 in Blood (ppm)	Days in TEFLON® at Sample Date	Date of Second Sample	C-8 in Blood (ppm)	Days in TEFLON® at Sample Date	Date of Third Sample	C-8 in Blood (ppm)	Days in TEFLON® at Sample Date
1/14/82	26.0	9,358	1/12/83	20.0	9,721	1/10/84	18.0	10,084
2/18/82	24.0*	2,332	2/17/83	25.0*	2,696	No Further Data		
10/8/81	11.0	9,260	11/3/82	8.2	9,651	11/4/83	5.9	10,017
8/7/81	9.4	2,379	8/6/82	7.9	2,743	8/5/83	6.0	3,107
10/1/81	8.2	5,813	9/29/82	6.5	6,176	9/29/83	5.4	6,541
2/11/82	7.0	1,989	2/10/83	7.7	2,353	2/9/84	7.6	2,717
8/12/81	6.9	1,743	7/15/82	5.9	2,080	7/12/83	6.0	2,442
4/2/82	5.6	8,311	3/2/83	4.2	8,645	2/28/84	4.5	9,008
1/7/82	4.4	5,765	1/7/83	4.9	6,130	1/4/84	4.5	6,492
4/6/81	4.3	857	5/12/82	5.6	1,258	1/18/84	6.5	1,509
3/11/82	3.9	800	3/10/83	3.6	1,164	3/7/84	3.2	1,526
8/19/81	3.5*	871	8/17/82	2.1*	1,234	No Further Data		
3/26/82	2.9*	8,242	3/18/83	2.8*	8,599	No Further Data		
9/15/81	2.6	9,176	9/14/82	2.3	9,540	9/1/83	0.96	9,892
7/16/81	2.5	5,652	6/17/82	1.8	5,988	6/15/83	1.6	6,351
7/16/81	2.5*	1,705	6/30/82	2.5*	2,054	No Further Data		
3/3/82	1.6	5,880	3/22/83	1.5	6,264	6/17/83	0.95	6,351
2/9/82	1.5	770	2/10/83	1.2	1,136	2/9/84	1.3	1,500
9/8/82	1.4*	829	10/4/83	1.3*	1,220	No Further Data		
10/9/81	1.3*	1,803	10/6/82	1.1*	2,165	No Further Data		
$\bar{x} = 6.78$ ppm			$\bar{x} = 5.81$ ppm			$\bar{x} = 5.17$ ppm		

* These values are not included in the column average in order to directly compare the column averages.

JGL:mah
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TABLE 2

TEFLON® FEP OPERATORS

C-8 BLOOD SAMPLE RESULTS

Date of First Sample	C-8 in Blood (ppm)	Days in TEFLON® at Sample Date	Date of Second Sample	C-8 in Blood (ppm)	Days in TEFLON® at Sample Date	Date of Third Sample	C-8 in Blood (ppm)	Days in TEFLON® at Sample Date
9/25/81	7.5*	8,131	9/23/82	6.3*	8,494	No Further Data	No Further Data	No Further Data
10/14/81	4.5*	7,257	8/18/83	1.3*	7,930	6/30/83	No Further Data	No Further Data
8/5/81	4.2	9,456	7/29/82	4.2	9,814	3/6/84	4.2	10,150
2/2/82	3.1	9,438	2/21/83	2.8	9,822		2.6	10,200
4/15/82	2.1*	8,917	4/14/83	1.5*	9,281	No Further Data	No Further Data	No Further Data
11/9/81	1.8	9,139	12/13/82	1.6	9,538	11/25/83	1.3	9,881
12/16/81	1.8	1,977	1/12/83	1.6	2,369	1/12/84	2.4	2,734
4/1/81	1.3	5,449	3/31/82	0.95	5,813	4/26/83	0.79	6,204
4/21/81	1.25	732	10/9/81	1.2	903	12/1/83	1.1	1,686
8/13/81	1.20	8,109	7/12/82	1.0	8,442	6/15/83	0.94	8,780
12/4/81	0.82*	1,145	12/1/83	0.75*	1,872	No Further Data	No Further Data	No Further Data
10/15/81	0.75	1,807	10/14/82	0.72	2,171	10/12/83	0.46	2,534
3/17/82	0.52	5,417	3/17/83	0.44	5,782	3/15/84	0.35	6,145
8/26/81	0.51	891	7/29/82	0.48	1,228	8/23/83	0.38	1,618
$\bar{X} = 1.64$ ppm			$\bar{X} = 1.50$ ppm			$\bar{X} = 1.45$ ppm		

* These values are not included in the column average in order to directly compare the column averages.

JGL:mah
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TABLE 3
EMPLOYEES WHO LEFT "TEFLON" JOBS

<u>C-8 in Blood When Left TEFLON* (ppm)</u>	<u>C-8 in Blood at A Later Date (ppm)</u>	<u>Days Elapsed Between Samples</u>	<u>Reason for Leaving TEFLON*</u>
21.0*	8.4	1,044	Retired from Company
19.0	--16.0	128	Retired from Company
3.8	2.2	780	Retired from Company
2.1	1.7	785	Retired from Company
1.3	0.49	859	Trans. to another WW Div.
0.64	0.47	563	Resigned from Company
0.57	0.14	730	Trans. to another WW Div.
0.22	0.15	315	Retired from Company
0.14	0.08	759	Trans. to another WW Div.
0.11	0.078	780	Trans. to another WW Div.
<u>0.11</u>	<u>0.053</u>	<u>807</u>	Trans. to another WW Div.
x = 4.45 ppm	x = 2.71 ppm	x = 686 days	

$$\frac{4.45-2.71}{4.45} \times 100 = 39.1\% \text{ average decrease over 686 days (1.9 yr.)}$$

50.0% average decrease would occur over 877 days (2.4 yr.)

* Sample was collected 4 months before individual left TEFLON*. All other results in this column represent the blood C-8 level at the time individual left TEFLON*.

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