Monsanto

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October 12, 1972

Mr. Robert C. Brandenburg
Acting Deputy Associate Commissioner
for Compliance (CC-2)
Food and Drug Administration
Room 9-57
5600 Fishers Lane
Rockville, Maryland 20852

Re: Department of Health, Education and Welfare
Food and Drug Administration
21 CFR Parts, 3; 121; 122; 128
Polychlorinated Biphenyls, Notice of
Proposed Rule Making
Federal Register, Vol. 37, No. 54, pp. 5705-5707
Saturday, March 18, 1972

Dear Mr. Brandenburg:

In our comments submitted on July 14, 1972 and relating to the proposed regulations pertaining to PCBs in food, animal feed, food and feed processing plants and packaging materials we referred to our experience with Monsanto Company heat transfer systems which had been converted to non-PCB fluids. Additionally we had offered to share with appropriate representatives in the Food and Drug Administration the available information pertaining to these conversions.

Attached is a summary of Monsanto's experience describing the system size, operating temperature, conversion procedure and the residual PCB in the system of typical units. All of these units are in chemical processing service and include heating coils, shell and tube heat exchangers, jacketed tanks and jacketed pipelines -- all of which are very common in the chemical industry.

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In all cases the replacement fluid is Monsanto's Therminol 66, a modified terphenyl containing no halogens. A copy of bulletin IC/FF-66 which describes this fluid is enclosed.

We hope this information will be useful to the Administration in determining the acceptable residual level of PCBs which can be realistically achieved in well run, properly managed systems.

Respectfully submitted,

W. B. Papageorge
Manager
Environmental Protection

WBP/bt

Enclosure

cc: Hearing Clerk
Department of Health, Education and Welfare
Room 6-88
5600 Fishers Lane
Rockville, Maryland 28052

Mr. John R. Wessel
Office of Associate Commissioner for Compliance
Food and Drug Administration
Room 9-57
5600 Fishers Lane
Rockville, Maryland 28052

bcc: W. R. Corey
K. W. Easley - 1920
J. F. Stapleton

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System	Volume (Gallons)	Normal Operating Temperature (°F)	Conversion Method	PCB Residual Wt %
1	880	360	Drained. Flushed with replacement fluid circulating for 20 hours at 300°F. Filled.	1.0
2	400	440	Drained. Flushed with replacement fluid circulating for 20 hours at 300°F. Filled.	1.5
3	2300	480	Drained. Flushed with replacement fluid circulating for 10 hours at 400°F. Repeated flushing. Filled.	1.5
4	990	580	Drained. Flushed with replacement fluid circulating for 20 hours at 480°F. Blown with nitrogen. Filled.	1.7
5	1300	500	Drained. Flushed with replacement fluid circulating for three hours at 80°F. Flush repeated with replacement fluid circulating for 14 months at 500°F. Filled.	0.7
6	250	520	Drained. Flushed with acetone circulating for three hours at 80°F. Blown with nitrogen. Flushed with Okite solution for three hours at 80°F. Filled.	0.1
7	1000	500	Drained. Replaced piping. Filled.	0.5
8	700	650	Drained. Flushed with replacement fluid briefly. Flushed again with replacement fluid circulating for two days at 400°F. Flushed with Dowell inhibited acid circulating for three hours. Filled.	2.7
9	1200	650	Drained. Flushed twice with Dowell inhibited acids circulating for three hours per flush followed by high pressure water flush. Filled.	0.7

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System	Volume (Gallons)	Normal Operating Temperature (°F)	Conversion Method	PCB Residual Wt %
10	300	400	Drained. Flushed with replacement fluid circulating for four hours at 80°F. Filled.	will shut down in 1974 operate only 1-2 wo/yr. ~~3.2~~ 10.4
11	300	400	Drained. Flushed with replacement fluid circulating for four hours at 80°F. Filled.	~~10.8~~ 3.2
12	4000	550	Drained. Flushed with replacement fluid circulating for 30 days at 550°F. Filled.	D. River. Will flush more only on direct order. 9.3
13	1650	500	Drained. Blown with nitrogen. Filled.	5.7
14	250	450	Drained. Flushed with replacement fluid circulating for four hours at 80°F. Filled.	3.2
15	3000	580	Drained. Flushed with chemical cleaning solution consisting of 5% detergent, 20% phosphates and 60% Cellosolve. Flushed with neutralizing solution of sodium tripolyphosphate. Filled.	4.8
16	250	520	Drained. Flushed with replacement fluid circulating for four hours at 80°F. Filled.	0.2
17	300	400	Drained. Flushed with xylene circulating for four hours at 80°F. Filled.	0.8
18	340	400	Drained. Flushed with xylene circulating for four hours at 80°F. Filled.	5.3

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