AR226-1660

POLYMER PRODUCTS
Chestnut Run Plaza
P.O. Box 80713
Wilmington, Delaware 19880-0713

May 31, 1991

Mr. Robert Wilson
Arlon
1100 Governor Lea Road
Bear, DE 19701

Dear Bob:

Enclosed you will find copies of the documents I faxed to you earlier. These documents give a summary of the exhaust gas composition and volumetric exhaust rates from a coating tower that Du Pont operated in Fairfield, CT. The temperatures that the oven zones were operating at during the test were 180 degrees F in zone 1, 530 degrees F in zone 2, and 730 degrees F in zone 3.

I have also enclosed a portion of our revised MSDS for TEFLON(R)* dispersions. I have highlighted the section titled "Hazardous Decomposition Products" which deals with PTFE resins.

Hopefully this information will enable you to meet the requirements of the State of Delaware. If not, and you need additional information, please contact me and we can discuss how to proceed.

Sincerely,

Mary S. Carpenter
Laboratory Representative

cc: C. I. Haznedar, Du Pont
M. A. Cardona, Du Pont

*Teflon(R) is the Du Pont Company's registered trademark for its fluorocarbon resins.

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EID902003

CC: M. E. HERMES
R. C. DILL

FAIRFIELD, CONNECTICUT
MAY 13, 1977

TO: F. A. FLUEGGE

FROM: M. W. WESTLEY MWW

ARMALON® TCGF
TOWER #3 STACK SAMPLING

Air samples were taken from both exhaust stacks of Tower #3 on 4/28/77 during a run on Armalon® TG-4060 Teflon® TFE coated glass fabric. Stack #1 exhausts Zones 1 and 2, while stack #2 exhausts Zone 3. Air sampling and exhaust stack velocity profiles were taken by M. Westley and M. Miller.

Physical dimensions, average velocity profiles and corresponding exhaust volume calculations are summarized as follows:

	TOWER #3	
	STACK 1	STACK 2
Exhaust from zones	1 and 2	3
Diameter, inches	40	24
Average Air Velocity, Ft/min	870	1520
Exhaust Volume, ACFM	7600 (364°F)	4800 (501°F)
Exhaust Volume, $Ft^3/hr.$	4.56×10^5	2.88×10^5

Recirculation dampers were set at fully open for stack 1 and fully closed for stack 2, which is the normal TCGF operating condition.

The run in progress at the time of sampling was Armalon® TG-4060-38", job no. T-39520101A. Two coats had previously been applied and fused. Sampling was conducted during the third pass, which was being coated at a line speed of 10 ypm. Adjacent 1 yard samples of the coated fabric before and after the third coat were taken, and 12 replicate area weight determination made on 3.81" x 4.00" specimens cut from each sample. Prior to the third coat, the average weight was 5.006 ozs/sq.yd., with a standard deviation of 0.039. After the third coat, the measured average weight was 6.156 ozs/sq.yd. with a standard deviation of 0.114. Thus, weight pickup was 1.150 ozs/lineal yard at the measured width of 38-1/16".

At a line speed of 10 ypm, this is equivalent to a Teflon® solids application rate of 45.60#/hour.

EID902004

The coating solution being applied (3010 cement) had been made from

Teflon® 30 dispersion, blend No. 7479. Measured properties were 59.0% TFE solids, and 6.5% Triton X100 (based on TFE solids).

Assuming no TFE solids are volatized during processing, and assuming complete removal of all other constituents of 3010 cement, the feed rate was as follows:

	FEED RATE, #/HOUR
TFE solids	45.60
Rohm & Haas Triton® X100*	2.97
Union Carbide L77**	0.33
Water	28.72

*Alkylarylpolyether alcohol
** Oxyethylene Methyl Siloxane

Attached is a copy of the exhaust gas analysis performed at the PP&R department laboratory at the experimenatal station. The exhaust gasses would contain combustion products of each zone's heating burner in additon to any pyrolysis products of the organic constituend of the cement feed.

A summary of the exhaust gas composition and volumetric exhaust rates are as follows:

	STACK 1		STACK 2	
	PPM*	Ft^3/hour	PPM*	Ft^3/hour
Carbon Dioxide	2500	1140	3000	864
Carbon Monoxide	5	2.3	2	0.6
Methane	2	0.9	6	1.7

*By volume

M. E. Hermes had expressed concern that dioxane might be a toxic product of pyrolysis of Triton® X100. As noted in the attached report, No measurable quantities of dioxane were detected.

I suggested we have a meeting with R. C. Dill and M. E. Hermes to determine if the data reported in this memo will allow us to legally continue manufacture of Armalon® TCGP under existing State of Connecticut EPA laws, or if some further action is required.

MWW/cmh
Attch.

DUPONT

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE

PLASTIC PRODUCTS AND RESINS DEPARTMENT
EXPERIMENTAL STATION

cc: A. J. Dahl — 269
J. E. Lane — 269
J. Mitchell, Jr. — 269
PRAL File
I.C.

ANALYTICAL REPORT

May 5, 1977

MELVIN W. WESTLEY
FABRICS AND FINISHES DEPARTMENT
FAIRFIELD, CONN.

AIR ANALYSIS AT FAIRFIELD, CONN. PLANT
(JOB No. 771-387; PRAL Nos. 77-4058-59)

We have analyzed the two air samples taken at F&F in Fairfield. You collected the samples in our FEP bags, and we determined the composition of each from its infrared absorption spectrum using a 20-meter cell at one atmosphere of pressure. Concentrations of each compound detected are listed in the table below.

PRAL No.	Your Designation	ppm (By Volume) CO_2	CO	CH_4
77-4058	9213-64-1	2500	5	2
77-4059	9213-64-2	3000	2	6

You mentioned that dioxane and/or TFE may have been present at the time of sampling. We did not detect either. Our limit of detection for dioxane is 1 ppm, and 0.5 ppm for TFE.

There were several minor bands in the spectra of both samples that we were not able to identify. However, assuming these were from compounds that have reasonably intense infrared bands, they were present in low ppm amounts.

B. B. Baker

F. Raniszewski

fmt

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statement oversimplifies things and causes many questions from customers, air pollution agencies and state or federal OSHA personnel. From the data available to us the questions appear to be caused by the following:

1. HF, COF2, and perfluoroolefins are not given off at the same temperature as particulate matter, which may cause polymer fume fever (PFF).

2. Our safe handling bulletin says:
   - o COF2 and PFIB have been reported at about 500 C.
   - o Trace amounts of HF are liberated as low as 400 C.
   - o Up to 450 C the principal toxic ingredient is particulate matter.

3. The decomposition temperatures used in our MSDSs have been conservatively taken as the temperature at which the initial weight loss is 0.001 %/hr (data from Safe Handling Bulletin), which is sometimes below the melting point of the resin, where there is little or no hazard.

PROPOSED CHANGES

Following is a draft of statements agreed to at the 3/25/91 meeting of the SPD Plastics Toxicity Committee meeting. If no objection is received by 4/10, these statements will be incorporated into all of our TEFLON MSDSs:

1. For resins for which the rat ALT is higher than the melting point (PTFE and FEP resins):

HAZARDOUS DECOMPOSITION PRODUCTS Above the melting point, small amounts of particulate matter evolved from prolonged heating may cause polymer fume fever (see INHALATION below). Trace amounts of hydrogen fluoride and carbonyl fluoride may be evolved at temperatures above 400 deg C (750 deg F).

2. For resins for which the rat ALT is lower than the melting point (PFA and FPFA):

HAZARDOUS DECOMPOSITION PRODUCTS Prolonged heating in unventilated areas at temperatures as low as ___ deg C (___ deg F) may cause evolution of small amounts of particulate matter which may cause polymer fume fever (see INHALATION below). Trace amounts of hydrogen fluoride and carbonyl fluoride may be evolved at temperatures above 400 deg C (750 deg F).

(The temperatures used in the blanks above will be the rat ALT, which is 300 deg C (570 deg F) for PFA and 200 deg C (390 deg F) for FPFA.)

3. Irradiated resins are special cases. For these we will follow the convention above for polymer fume fever, but will use the following temperatures for evolution of HF, as at present: