September 7, 1956

Mr. Elmer P. Wheeler
Industrial Hygienist
Monsanto Chemical Co.
1700 S. Second Street
St. Louis 4, Missouri

Dear Mr. Wheeler:

We have generated a saturated atmosphere of Pydraul F-150 by means of the equipment in the enclosed photograph.

Air from a Cast Rotary Blast and Suction pump (A) at the rate of 10 liters per minute as measured by a rotameter (B) passed through either one or two bubblers (C and D) each containing 500 ml of Pydraul F-150. (The bubblers were 9.75" high (O.D.) and 2.9" in diameter O.D., the air entered the bubbler through a fritted glass thimble, 7/8" x 3 3/4.) The air-borne Pydraul F-150 was passed through an impinger bottle (E) and then through a Millipore filter (f) before entering a glass tube (G) on which was surmounted a thermometer. (The room temperature was maintained at either 72° or 80°F by means of an air-conditioning unit.) Nine liters of the sample were discharged into the room through an upright tube above H. Air at the rate of one liter per minute was drawn from a sampling port (H) and passed through a furnace (J) (maintained at 850°-900°C and equipped with a platinum strip). The furnace was humidified by means of a wet wick at I. The thermally decomposed Aroclor was collected in two midget bubblers (K) in series. (The bubblers each contained 10 ml of 0.1 N NaOH and were equipped with fritted glass thimbles.) A drying tower (L) preceded a capillary flowmeter (M) and the sampling pump (N).

The thermally decomposed chloride was determined turbidimetrically as given in my memo of July 7, 1956, except we were able to eliminate the step for the removal of phosphate since the phosphate did not interefere because it was soluble in nitric acid.

Mr. Elmer P. Wheeler
September 7, 1956

The results obtained were as follows in one study (No. 1) which included 24 smaples (48 analyses) each of which was collected for 15 minutes.

Number of Bubblers for Generation of Vapor	Temperature (°F)	Average of six samples; micrograms of Aroclor 1242/ liter
1	72	4.8
2	72	6.1
1	80	5.2
2	80	6.5

These samples are undoubtedly high, since it was found after their analyses that a small crack was present in the Millipore filter.

The results of a second study on a similar number of samples (15 minutes for collection) were as follows:

Number of Bublers for Generation of Vapor	Temperature (°F)	Average of six samples; micrograms of Aroclor 1242/ liter
1	72	3.5
2	72	1.9
1	80	2.5
2	80	2.7
	Ave. of Ave.	2.65

A few samples in a third experiment were collected for a period of one hour, these results were as follows:

Number of Bubblers for Generation of Vapor	Temperature (°F)	Number of Samples	Average Micrograms of Aroclor 1242/ liter
1	72	2	0.95
2	72	2	2.25
1	80	1	1.1
2	80	1	1.9
		Ave. of Ave.	1.55

Treat this as Data best. Data falls on Bottom part of Curve

MONS 090851

At 745 mm and 25°C one microgram of Aroclor 1242 vapor is equivalent to 0.0969 ppm by volume (1 mg/l = 96.9 ppm). Therefore 2.65 γ/l = 0.256 ppm and 1.55 γ/l = 0.150 ppm. Although there are fewer samples in this latter determination, I am inclined to believe it is probably the best value.

Because of the number of samples and the deviation in them it is doubted that the difference between 1 and 2 bubblers on the one hand and between 72° and 80°F on the other hand can be statistically differentiated without many more samples.

We shall proceed with the determination of the threshold odor concentration and effectiveness for removal of Pydraul F-150 by passage through MEA very shortly.

Sincerely yours,

Joseph F. Treon

JFT:fk

cc: Mr. Elmer Wheeler
(Washington, D.C.)

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