file D-246

JLBernhardt - St. Louis Org. R&D Labs. - 1700 So. 2nd St.

December 16, 1969

DWJackson - WGK
WAKuhn - GO
JJLuecken - WGK
NFMueller - Res-1
WRRichards - GO

FROM THE FILES OF THE WGK LABORATORY PLEASE RETURN

FRACTIONATION OF AROCLOR 1242

Dr. R. H. Munch

ORGANIC RESEARCH - 2

Two distillations were carried out in the laboratory in the period from 11-26 to 12-9-69. This work was done at the request of Messrs. Munch, Luecken and Richards.

To save time, a column which had previously been used for the fractionation of phthalic anhydride was readied for the project. This was a 25-plate, 1-inch Oldershaw column. A charge of Aroclor 1242 finished product, taken from WGK's Dept. 246 on 11-4-68, was flushed thru the column.

The first fractionation was Aroclor 1142 from the continuous blow tank at WGK. The work was done per the memo to D. R. Cova dated 11-24-69. The first three cuts of this material were quite cloudy which seemed to indicate that the column was not cleaned completely. The fractionation was completed, however, again per instructions, and a sample of each cut was submitted to the GLC lab for analysis.

The second fractionation was on material from the next to last chlorinator (Aroclor 1130) at WGK. This material contained HCl so it was blown with N_2 in the lab prior to fractionation. The fractionation was carried to completion and the various cuts were submitted for analysis. It was noted that cuts 1, 4, 5, 6 and 7 were solids at room temperature.

The first fractionation was made with cuts in the following percentage of the charge:

Cut 1	1.6%
2	2.6
3	67.2
4	5.4
5	5.2
6	4.8
7	5.0
8	3.4

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The second fractionation had the following percentages:

Cut 1	1.1%
2	3.5
3	62.0
4	4.6
5	4.7
6	4.8
7	4.4
8	5.3
9	2.7

In both fractionations CaO, in the amount of 1% of the charge, was added. Also, the reflux ratio was 5/1 throughout and the head pressure was maintained at 40 mm. Hg. These conditions gave a pot temperature ranging from 230-283°C. in the first distillation and 217-258°C. in the second. The head temperature in the first distillation ranged from 184-252°C. and in the second from 155-226°C.

No further work is planned until evaluation of these two runs is complete.

James L. Bernhardt

James L. Bernhardt

dm
Att.

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Monsanto

FROM (NAME & LOCATION) J. J. Luecken, WGK Plant

DATE November 24, 1969

SUBJECT Fractionation of Aroclor 1242

REFERENCE

cc: D. W. Jackson
W. Richards GO
R. Munch GO
N. Mueller So. 2nd St.
D. Cova So. 2nd St.

TO : W. Kuhn

You spoke to me last week, expressing concern in the following areas:

(a) How difficult would it be to separate pentachlorobiphenyl and higher isomers from Aroclor 1242? If we did separate these isomers, what would the physical, chemical and electrical properties of the product be?

(b) What is the isomeric composition of Aroclor 1232; how would this respond to fractionation?

Since then, I have spoken to Norm Mueller and Bill Richards. Here's my understanding of what will be done:

(1) On 11/24 WGK will supply 5 gallon samples of crude 1142 and 1132 (approximately) to Norm Mueller and N. Cova. They will run one distillation (perhaps 20 trays) from each of the two crudes making cuts as follows:

0 - 1%	A total of at least 1/2 gallon is required.
1 - 5%	
5 - 70%	
70 - 75%	
75 - 80%	
80 - 85%	
85 - 90%	
90 - 95%	

(2) The above material will be sent to Richards/Munch. They will determine isomeric composition of the cuts and, on that basis, make a composite from each distillation representing "acceptable" material. Munch will test electrical properties; a sample of each composite should be sent to WGK for non-electrical tests.

I would suppose that the above sequence should be completed by mid-December.

I'm writing this memo to communicate my understanding of what's going on. If I've misinterpreted anybody's commitment, please let Kuhn or Richards know.

John Luecken

emc

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Monsanto

FROM (NAME & LOCATION) G. C. Vincent - Krummrich

DATE : November 30, 1970

SUBJECT : TEAM C STATUS REPORT ON PCB WORK 11/30/70

REFERENCE :

TO : W. C. Engman

cc: B. W. Corlew
T. W. Dalton
D. W. Jackson
E. W. Mares
H. G. Yapp

The Santophen I unit, Department 239, has a Therminol furnace which uses Aroclor 1248 as a heat transfer fluid. A potential emission of PCB is one of the several problems with this unit. The other problems are mainly as follows:

1. Furnace does not meet the most recent safety standards as to location. It is not 150 feet from the process structure where flammable fluids are handled.

2. The system is believed to be less than desirable in many design aspects. This limits heat transfer ability and highly reliable operation is not obtained.

3. An increased capacity Therminol system may be needed in order to meet a greatly increased sales forecast.

Good management of this situation would seem to require that we establish objectives and direction before we move into an execution phase. To date we have not obtained agreement from all who influence a decision and direction.

The writer made a KTA decision analysis of the furnace potential pollution problem and communicated this to those concerned. With the data then available, and without considering furnace relocation, the analysis leaned only slightly towards going to a non-PCB heat transfer fluid. More data, ideas and problems have entered since then.

On November 3, 1970, Harry Yapp issued a plan and logic diagram on reaching a decision as to the direction we take on this and other Santophen problems and opportunities. This was in the form of a logic diagram and was discussed with other members of Team C on November 6. We are moving to collect data, information, opinions this plan requires. Calculations and rough cost estimates of various alternates have also been made. We expect to have enough background work done to reassemble decision makers in December for another attempt at establishing direction.

G. C. Vincent

G. C. Vincent
Technical Services Department

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