

MONSANTO CHEMICAL COMPANY
St. Louis Research Department

*Mr. Jule
Aroclor
specification*

MINUTES OF MEETING ON AROCLOR 1260

HELD IN ROOM 319 ST. LOUIS

JUNE 24, 1953

Copies to:

Those present

Dr. R. E. Howard - Res. 3
Mr. H. L. Hubbard - Res. 2
Mr. R. F. Brooks - Res. 2
Mr. A. M. Ellenburg - Anniston
Mr. J. B. Trotter - MO
Mr. P. G. Benignus - MO
Mr. H. W. Yeagley (part time) - MO
Mr. J. W. Graves - WGK
Mr. W. J. Gresham - WGK

And to

Messrs. H. K. Nason - KXOK
O. J. Weinkauff - Res.
P. G. Marsh - KXOK
H. F. Weaver - MO
R. L. Jenkins - MO
E. E. Hardy - Anstn
H. O. Tittel(2) - Anstn
R. S. Wobus - WGK
C. Barbre - WGK
J. W. Carlson - Anstn
S. M. Kulifay - WGK

This meeting was called to discuss the Aroclor 1260 problem primarily with respect to the differences in the product quality as produced at Anniston and WGK plants.

Mr. Hubbard reviewed the conclusions of the 1/15-16/53 meeting on this subject as a background for the meeting proper. Mr. Ellenberg then reviewed his work given in Anniston Research Report No. 2881, 5/6/53, entitled "Aroclor Investigation on Difference between Anniston and Krummich Aroclor 1260". This work showed that the cause of the difference in viscosity is in the chlorination step. It also showed that the 2% difference in distillation recovery is real. (WGK 2% less than Anniston).

Messrs. Trotter and Benignus stated that recent conversation with Mr. E. Raab of General Electric brought out the fact that G. E.

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recognizes the existance of a difference in the W.G.K. and Anniston Aroclor 1260 but are not concerned since they have established that no trend of a changing product quality is occurring. However, this does not ease the problem from the standpoint of the W.G.K. production. Much of their Aroclor 1260 is borderline with respect to the lower viscosity specification and in many instances is below specs but is shipped anyway. It was pointed out that a more realistic specification would solve many of the W.G.K. difficulties, i.e. eliminate much of the analytical duplication and put the product within specification, but would not reconcile the difference in quality between the two plants. To change the specification would require discussions with G.E. Rather than do this at the present time, it was agreed that the better course of action would be to solve the plant problems and then approach G. E. Research will spend two man months' time on these problems. At the end of that time, the status of the problems will again be reviewed.

A. Plant Approach

Since Mr. Ellenberg's recent data showed the chlorination step to be the source of difficulty in the plant, the following program was agreed to:

1. Compare diphenyl quality.

Three samples of diphenyl from each plant will be forwarded to Mr. W. J. Gresham at the W. G. K. Lab. for crystallizing point, distillation range, color of melted sample, and moisture. A sample of the diphenyl storage tank at the W.G.K. plant, and Anniston, if they have one, will also be included in this comparison.

A description of Anniston's method of handling diphenyl transfers from the manufacturing department to the two Aroclor departments will be obtained by Mr. Ellenburg.

2. Catalyst

The type, size and supplier of the catalyst for each plant will be obtained and consideration will be given to obtaining the analysis of the steel from the suppliers.

The two plants will exchange description of their methods of treating the catalyst prior to charging to the chlorinator.

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3. Chlorine

Comparisons of the gas streams, i.e. chlorine feed and off-gas, to and from the chlorinator in each plant, will be made. The methods of analyses used in the W.G.K. plant will be sent Mr. Ellenburg.

Anniston has used revaporized liquid chlorine in the past and is presently using DeNora cell gas. W.G.K. plant uses a mixture of snift and cell gas for their chlorine. The W.G.K. plant chlorine contains considerably more air as a diluent. To determine whether this difference is causing the current difficulty, the W.G.K. plant will be requested to run a one week demonstration using revaporized liquid chlorine. Mr. Graves stated that he thought such a demonstration could be arranged.

4. Chlorination

A comparison of the operating techniques for the chlorination proper will be made. For this, the plants will provide a set of detailed operating instructions for this step.

A series of samples (16 oz.) will be taken from two batches run in different chlorinators in each plant and forwarded to Mr. W. J. Gresham at W.G.K. Lab for analysis for iron and moisture content. These samples should be taken as follows:

1. 0 hour just before adding Cl_2 .
2. 2nd hour.
3. 4th hour just before starting circulation.
4. Every four hours thereafter.
5. Final 1160 just before discharge.

It was agreed that two plant batches would be followed such that the chlorination time can be related to the batch temperature and specific gravity, Cl_2 feed composition and Cl_2 efficiency. It is to be preferred if these batches were the same from which the samples for Fe were taken. Isolation of these batches throughout the rest of the system so as to maintain batch identity is desirable so that the analyses of the Aroclor 1260 can be related to the operating data.

5. Miscellaneous

Following evaluation of the above data, two additional ideas will be considered by running one batch in the plant

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and then evaluating the 1160 in the laboratory. These will cover:

- a. Lower chlorination temperature
- b. Addition of FeCl_3 to the "green" batch

B. Specification Evaluation

In regard to the specifications, two problems exist. The first is a matter of agreement between the Anniston and W.G.K. laboratories of:

1. The definition of the distillation range, i.e. reported on the corrected or uncorrected basis.
2. The correct viscosity of any one sample.

The second is a matter of establishing realistic specifications.

To solve these problems it was agreed that:

1. There would be no change in the specifications or in the method of reporting analyses to G. E. It was felt that relations with G. E. should remain on a status quo until the plant problems are solved.
2. A 55 gallon sample of Aroclor 1260 would be obtained. A gallon sample would be given to Dr. R. H. Munch who would be requested to determine the viscosity. This sample would then be set up as a primary standard for the two plants. This will be done immediately.
3. Both plants will review the analyses of Aroclor 1260 shipped to General Electric during the past four years listing the average, high and low values, for all properties on a quarterly basis. For this review, corrected distillation ranges and viscosities should be used. It was recognized that Anniston on the distillation range and W.G.K. on the viscosity would have to use average correction factors recently determined. The data obtained in this review would be used to establish realistic specifications. It was agreed that these reviews should be completed by 8/15/53.

R. F. Brooks

bm:7/2/53

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