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PROGRESS REPORT
TECHNICAL SERVICES DEPARTMENT
ANNISTON, ALABAMA PLANT

JOB NO. 370-736 **REPORT NO.** 1 **DATE** December 22, 1967

TITLE: SANTOWAX-R QUATER/HIGH POLYPHENYL STUDY

OBJECTIVE: To evaluate the effects of quater and higher polyphenyls in Aroclor 5460 production.

PERSONNEL: J. MacPherson, (TSD Supt.)

REPORTED BY: J. MacPherson

SUMMARY:

Laboratory investigations have indicated that quater and higher polyphenyls adversely affect Aroclor 5460 production; greatest among the effects are (1) yield losses as increased still residue (Montar 5) and (2) the possibility that the chlorination cycle is directly dependent upon the quater/poly phenyl content. A plant test to verify the laboratory investigations has been proposed, the study will commence as soon as

1. Organic Research approves a Santowax OMP based 5460
2. A tentative process amendment to permit to permit the testing is approved
3. Production schedules permit

The study has an estimated cost improvement of $457,000 total for the years 1969-1972.

FUTURE ACTION

1. Publish a schedule of events for the proposed study.

J. MacPherson
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JMP:kd

ANNISTON

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Background

With the startup of the new Santowax still system, some Aroclor 5460 production difficulties became obvious; as examples, the solids still distillation cycle was lengthened and high evolution of HCl was noted at the end of a still batch. Laboratory investigation [1,2] indicated that high quaterphenyl content in Santowax R was the culprit. The investigation also produced evidence that high polyphenyls would result in increased still residues and promoted the idea that the chlorination cycle time could be directly affected by the polyphenyl content.

To check validity of the observation that SW-R composition directly affects quality and efficiency a Quality-Operations Control Program [3] was set up by W. B. Dunlap to correlate quality, throughput, loss, and crude quality with SW-R composition. The program went into effect in April 1967. In August 1967, TSD began to plan a study for a plant test of the SW-R composition effects. A cost improvement of $457,000 has been estimated based on improved yields, reduced chlorination cycle, improved O.S.T. and higher Cl_2 quality; this potential has been outlined and is attached.

Plant Costs

An outline of the Santowax-R Quater-Higher polyphenyl study is attached. An item not included in the outline in the number of runs at each design level of quaterphenyl content. Initially eight sets of runs are planned at each level, a set being 1 and 2 runs of the distillation sequence in the solids still or as many still batches before Montar is withdrawn from the still. A key event is Organic Research approved of OMP based 5460, no OMP or OMP/SW-R runs will be attempted without this.

Results

1. The Quality Operations Control Program has shown that the quaterphenyl content of the SW-R varies between 13.3% to 15.9%. A selected grouping of sets, five in number and sampled between 9/9/67 and 10/4/67, gave an average of 14.6%; this may be a representative figure for the average quaterphenyl content.

Conclusions

1. None to date.

Future Work

The following will be worked on immediately:

1. Tentative Process Amendment D written to cover OMP based 5460.

2. Complete the evaluation of OMP based 5460, Organic Research has submitted sample material to United Resins for further product evaluation.

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The following will be done as soon as possible:

3. Install (a) LI No. 4 still receiver and (b) FI No. 4 still circulating line. These items are necessary for plant tests with OMP and OMP/SW-R mixtures.

4. Operating instructions for plant tests will be written after manufacturing approves TSD program.

5. Develop the schedule of events for the plant tests.

References

1. Anniston PR&D report No. 1 (370-500) - 2/13/67

2. Anniston PR&D report No. 2 (370-500) - 4/20/67

3. Memo, W. B. Dunlap to V. R. Haupt 4/14/67

J. MacPherson

:kd
Attachments

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