

Monsanto

FROM (NAME & LOCATION)

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SUBJECT CEA 2417 - Aroclor Column
Objectives and Key Premises

REFERENCE Revision No. 2

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Previous objectives were issued as follows:

12/10/70 - Original
2/4/71 - Revision No. 1

This Revision No. 2 of the objectives and key premises is for two purposes. First, it adds objectives and premises to include monochloro-biphenyl (MCS-1109). This product was not being considered at the time of Revision No.1. Second, current status and appropriate comments are included on some of the objectives.

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STLCOPCB4066491

SECTION III. PROJECT OBJECTIVES AND PREMISES

I. CEA 2417 OBJECTIVES

The following objectives will be demonstrated:

	<u>STATUS/COMMENTS</u>
1. Meet the CEA 2417 time schedule.	1. The original start-up date was 6/1, but was changed to 8/1 when MCS-1109 was added to the scope.
2. Stay within budgets on construction and start-up costs: CEA 2417 Capital \$830 M CEA 2417 Expense 95 M Start-up expense 100 M	2. The 2417 budgets include Variance No. 1 which allowed for facilities to produce MCS-1109. It appears that both capital and expense will be within budget.
3. Demonstrate design capacity: Aroclor 1016 54 M#/yr. MCS-1109 18 M#/yr.	3. Underwriter Laboratories accepted Aroclor 1016 as being equivalent to 1242. If a forecut had been necessary, capacity would have been lower on 1016.
4. Meet specification qualities on all products. Those affected by CEA 2417 are: Aroclor 1016 MCS-1109 Aroclor 1254 Aroclor 1260 Aroclor 1221	
5. No increase in PCS's leaving Dept. 246 via sewers and no more than 1.0 lbs./day additional to atmosphere.	5. During the first run (only) of MCS-1109, 3-5 lbs./day of monochlorobiphenyl will be discharged to the sewer.
6. No significant change in department biphenyl yield.	

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SECTION III. PROJECT OBJECTIVES AND PREMISES (contd.)

II. KEY DESIGN PREMISES

STATUS/COMMENTS

1. Any remaining phthalic anhydride in column can be flushed out in initial startup.
2. Volumetric control is adequate for determining:
 - a. change in reflux ratio
 - b. end of crude feed
 - c. end of forward flow
 - d. end of forecut for MCS-1109

Volume control within 250 gal. is necessary on the above determinations and can be achieved.
3. Still pot pressure can be controlled such that the furnace outlet temperature will be a maximum of 300°C., and the temperature differential on the furnace a maximum of 10°C.
4. Still pot bottoms from Aroclor 1016 will be 50% Cl₂ or less.
5. The C. B. 5+ level will not exceed 0.4% in the finished Aroclor 1016.
6. The C. B. 2+ level will not exceed 1.0% in the finished MCS-1109.
7. PCB discharge to the atmosphere will be an estimated 1.0#/day or less from the vacuum jet. There will be no significant PCB loss to the sewer from this project, and none from the vacuum jet. All sewers will pass through a settling basin.
8. The severity of potential hazards in Dept. 246 will not be increased by CEA 2417.
9. Stainless steel is a suitable material of construction for the Aroclor fractionating

1. The first run will be a "half-size" run of Aroclor 1016. Assuming acceptable quality, this production will be used for Therminol FR-1.
2. "End of forward flow" on MCS-1109 can also be determined by C.P. "End of forecut" on MCS-1109 can also be estimated by % Biphenyl in forward flow.
7. During the first run (only) of MCS-1109, 3-5 lbs./day of monochlorobiphenyl will be discharged to the sewer.

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SECTION III. PROJECT OBJECTIVES AND PREMISES (contd.)

II. KEY DESIGN PREMISES (contd.)

STATUS/COMMENTS

10. WGK will be the only MCS-1016 supplier and will be reliable.
11. Cross-contamination between Aroclor 1016 and MCS-1109 can be held to an acceptable level.
12. The isomer distribution of crude for MCS-1109 (5.0% Cl₂) that will be produced in the continuous chlorinators will be adequate for the process which was based on batch-produced crude.

III. OPERATIONAL PREMISES

1. Chlorine and biphenyl will be available in adequate quantities and proper quality.
2. WGK will produce Aroclor 1016; MCS-1109; Aroclors 1232, 1242, 1248, 1254, 1260, 1262, and 1221; blends Inerteen PPO, Inerteen 70/30, Inerteen 54201 CM, Pyranol A13B3B, Therminol FR-0, and FR-Low Temp. (or their equivalent by other names); Therminol FR-1, and MCS-1023.
3. WGK will not produce Therminol FR-II or FR-3, or Pydrauls after Antwerp is in Pydraul operation.
4. WGK will rework reclaimable scrap Aroclors or blends.
5. Therminol FR-1 will utilize Aroclor 1016 and Inerteen 54201 CM will use Aroclor 1242.
6. The 100% column capacity for Aroclor 1016 will be 54 M#/yr., and 18 M#/yr. for MCS-1109. Based on the 1971 forecast there will be 2.0-2.5 months of idle time.
7. The capacity for continuously chlorinated Aroclor 1142 (crude) will be approximately 54 M#/yr. This provides a surge capacity of 5-10% over expected 1971 demand.

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SECTION III. PROJECT OBJECTIVES AND PREMISES (contd.)

III. OPERATIONAL PREMISES (contd.)

8. The sales and use forecast used in designing this project is:

Aroclor 1221/MCS-1109	<u>1971</u> 2.3 M
1232	0.1 (approx.)
1242/MCS-1016	40.3 (about 5.0 M of 1242)
1248	1.4
1254	8.4
1260	2.7

9. Dept. 246 will have the following delivery capability (bulk):

	<u>Necessary Lead Time</u>
Aroclor 1016 & FR-1	Anytime
MCS-1109	5 days
Aroclor 1254	1 day
Aroclor 1260	2 days
Aroclor 1232	10 days
Inerteen 70/30	Anytime (assuming installation of 70/30 tank)
All other blends	3 days - 80% confidence 5 days - 95% confidence
Aroclor 1221 and 1242	2 days

When possible cars will be loaded prior to the receipt of an order.

10. All products will be available in drums and tank cars. Commercial trailers can be loaded with non-electrical grade products. Electrical grade products can be loaded into trailers reserved for this service.
11. Aroclor 1016 and MCS-1109 column bottoms will be distilled and further chlorinated to Aroclor 1254 or 1260. If there is an excess of still bottoms; it will be incinerated. If more 1254 or 1260 is needed, it will be batch chlorinated from biphenyl.
12. Off-gas condensate will be further chlorinated to Aroclor 1254.
13. The operation of the Aroclor incinerator will not be an integral part of the Aroclor production department.

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SECTION III. PROJECT OBJECTIVES AND PREMISES (contd.)

III. OPERATIONAL PREMISES (contd.)

14. There can be blending of finished lots of Aroclor 1016 as long as each lot is a complete batch distillation.
15. Construction and tie-in of this project will not interrupt normal production, other than brief shutdowns for piping tie-ins (8-48 hours).
16. Customer acceptance of Aroclor 1016 will be such that there will not be parallel production of Aroclor 1016 and Aroclor 1242 for capacitor use.

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