



CELANESE CHEMICAL COMPANY
Chemcel Plant
Bishop, Texas

To: C. W. Harrison

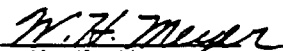
From: W. H. Meyer

WHM-196-78

September 7, 1978

Laboratory Department Summary
August, 1978

The Bishop Plant Laboratory activities during August are attached. Section I contains a summary of the Analytical Group activities with a table of analytical statistics. Section II contains a Quality Assurance Summary and a table listing shipments, quality waivers, quality complaints and sample shipping statistics. Section III describes the status of Special Problems Group projects by Unit Chemist assignment. A table listing the priorities, justifications and estimated completion dates of current Special Problems projects is also included in Section III.


W. H. Meyer

WHM/as
Attached Report

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I. ANALYTICAL GROUPCOMPETITIVE EVALUATION

None this month.

Methanol Synthesis (MS)

Extra analytical assistance was provided for the MS Unit startup of 7-31-78. Several column profiles were run on T-280 and T-288 to assist in stabilization of the system. The product has exhibited an amine odor subjectively rated as strong to slight and which has persisted to date at a rating of slight. Samples of crude product have been sent to the Technical Center for possible impurity identification.

Oxo Butyraldehyde (BuH) - Butanol (BuOH)

Analytical coverage is being provided for the monitoring of the aldol make in T-229 Res. (2.0 - 2.4%) and subsequent iso-Butyraldehyde level in T-210 (~0.3%). The T-210 OH product now constitutes the "Regular Grade" n-BuH being fed to Polyol Unit and shipped to Mexico. Shipments of "Polyvinyl Butyral Grade" n-BuH are being closely monitored to ensure compliance with customer critical end use specifications (iso-BuH max = 0.2%). Recent new customer, Union Carbide, Seadrift, Texas, is presently being supplied with the PVB Grade n-BuH.

Paraform - Esters

Support is being provided for investigations into recurring Iron and/or metals problems around the Paraform Unit products i.e., Formcels with higher than normal color, cloud and Iron levels and Flake/Powder with lumping and high Iron levels. Presently all Formaldehyde feed tanks to Paraform are being monitored for ppm Sodium and Iron.

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Polyol Unit

Pentaerythritol (PE) - Due to a recent customer complaint (DuPont) all PE finished product lots will be qualitatively checked for appearance. Approximate numbers and sizes of lumps and colored particles in the composite sample will be monitored. Operations is investigating the installation of smaller mesh size screens at Unit screening locations.

General

The two temporary, college student, summer employees utilized as vacation relief in the Analytical Section have resigned to return to school. A letter listing the summer program utilization rate will be issued.

A new chemist employee, Paul Buras, has completed 3 weeks of orientation in the Analytical Group work areas.

Electronic Associates, Inc. computer sales personnel have presented the EAI GC Data Systems for our consideration in replacement of the current obsolete Laboratory computer. Investigation of the alternatives continues.

Analytical Statistics

<u>Sample Count</u>	<u>August</u>	<u>August Y-T-D</u>	<u>Previous Y-T-D</u>
Chemical Section	4,450	35,973	39,541
Instrument Section	<u>2,887</u>	<u>21,012</u>	<u>18,458</u>
Total	7,337	56,985	57,999

Technician Overtime

Chemical Section	28	722	559
Instrument Section	<u>9</u>	<u>152</u>	<u>544</u>
Total	37	874	1,103

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II. QUALITY ASSURANCE

Customer Complaints - Quality - PE Pure Complaint - Cargill, Inc. The two hopper cars which were the subject of recent complaints from Cargill, Inc., ACFX 61366 & ACFX 61161, arrived at Chemcel during August. The subject complaint detail will be reported in a letter report now in preparation covering the inspection of these cars by H. A. Ducote, J. P. Vest and F. Shafer. The material returned was sampled, analyzed and in both cases found to be specification product. In our opinion Cargill should not have had any problems unloading all of the product.

On 8-21-78, a complaint was received from Dr. Tom Golson, Dallas, regarding a complaint from DuPont at Louviers, Colorado. The customer reported receiving two lots of PE Pure (162-3P & 165-3P) containing lumps, approximately 10-12 mesh size and a few colored particles. An inspection of the two lot retain samples confirm the presence of lumps and colored particles. All future shipments to DuPont will be made from the Bishop plant.

Quality Waivers and Shipment Delays - A waiver was obtained from Dallas, to ship, 800 x 50 lb PE Tech, to Champion Chemical Co., Odessa, Texas. The waiver was required due to the high color (15) in Lot 117-3T. Su Mah granted the waiver.

Three tank cars of n-Butyraldehyde were approved for shipment, by waiver, to Union Carbide Corporation at North Seadrift, Texas. The waiver was required due to the iso-Butyraldehyde content in the initial shipments to this customer. The iso-Butyraldehyde level was 0.27% to 0.37% wt. The customer requires 0.2% max. and all loadings and shipments since these initial three cars, have been well below the 0.2% maximum. Mr. D. Sherman with Union Carbide granted the quality waiver through T. H. Golson, Dallas.

A shipment on 8-08-78 of PE Tech Lot 117-3T to Sherwin Williams at Cleveland, Ohio was granted a quality waiver due to the high color (15). Internal Spec (10). Approval was granted by E. J. Radziewicz at Dallas.

Two tank car shipments of Butyl Formcel to the Argo Terminal were delayed on 8-24-78 for two days and one tank car shipment of Butyl Formcel to the Celriver Terminal was delayed one day on 8-24-78, all were due to high color and Iron. Assay on one car was also out of spec range.

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A tank car shipment of Butyl Formcel to Reichold Chemical, Inc. at Ferndale, Michigan was delayed 2 days due to high color and cloudiness. The tank car was unloaded and the product blended, filtered and reloaded with specification product.

Formaldehyde - A sample of 44.0% Formaldehyde from Nipak, Inc. (Kerens, Texas) inventory was sent to Bishop Laboratory for analysis. This former customer has an inventory of approximately 40,000 gallons and would like for Celanese to take it back. The analysis was as follows:

Assay, wt %	=	44.27
Acidity, wt %	=	0.016
Methanol, wt %	=	0.5
Iron, ppm	=	<0.1
Color, Pt. Co.	=	10 - Hazy Appearance

The analysis was called into Dallas Quality Assurance.

Trioxane (TO) - During August a 50# block of Trioxane was returned to Bishop from the Newark Inventory from Lot 78-06-6-GT. The lot was shipped to Newark before samples were taken. Analysis of the returned TO showed 0.4% Water needed for stabilization. Based on this analysis the lot was suitable for Newark's shippable inventory.

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Sample Shipping and Quality Assurance Statistics

Statistics For August 1978

<u>Sample Shipping</u>	<u>Month</u>	<u>YTD</u>	<u>Previous YTD</u>
Domestic	90	550	785
Export	0	23	77
Plastics	4	34	59
Other	18	121	702
Total	112	728	1,623

Quality Assurance Statistics

	<u>Month</u>	<u>YTD</u>	<u>Previous YTD</u>
Shipments (NO.of Orders)	851	5,992	6,762
Delayed	4	22	22
Waviers <u>Internal</u>		2	(33)
<u>External</u>	5	15	Total
Complaints (Total)	2	29	41
Complaints (Legitimate)		11	12
Complaints (Non-Legitimate)	1	6	29
Complaints - Outstanding (Unresolved)	1	12	--

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III. SPECIAL PROBLEMS GROUPMethanol Oxidation, Formaldehyde Blending
J. D. Presley

MO Efficiency Increase with Trace Amounts of Halogenated Hydrocarbons-
No progress due to priorities.

MS-II Crude to MO - Letters have been issued summarizing work on the Crude project and Plant Trial, JDP-33-78, FRD-26-78, MEH-09-78. Work continues to determine an alternate means of recovering the MO-IV Vaporizer blowdown.

Reduce Methylal Formation in MO Distillation Columns - No progress due to priorities.

MO Unit Support - Work is completed and a letter written summarizing data on the Gulf Adhesives foaming problem.

Several times this month the Paraform Unit has experienced problems running on MO-IV product Formaldehyde. Checks for Metalose, Chlorides, and Amines in the feed tanks V-1745, V-1133, V-1593 have all shown negative. Some metals contamination has been noted but data is incomplete. Work continues.

Since the startup of MS on the new ICI 51-2 catalyst, MO has been receiving only MO Grade (Sidestream) Methanol. The drawoffs of MS finishing Columns T-280 and T-288 have been burned while they were being checked for impurities. A letter has been written recommending that the lower drawoffs be included in the MS feed to MO.

During MO-III A-train startup this month the Lab was called on to run analytical AMR's. It is not yet known why, but the analytical AMR disagreed with the Control Room AMR by about 0.1 AMR unit (analytical showed high). However, reactor temperatures apparently confirmed the Control Room AMR. The discrepancy of the analytical AMR is probably due to excessively high ambient temperature. The AMR apparatus will be modified to take care of the problem.

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Due to recent sintering problems with Englehard Catalyst, several Silver Catalyst samples were sent to CCCTC for Electron Microscope examination and for surface analysis. The semi-quantitative surface analysis is incomplete. A 1,000X magnification micrograph indicates that samples of Englehard and Matthey-Bishop Catalyst are similar. A sample of Handy and Harmon shows a more faceted surface than either of the other two. Work continues.

MO-IV experienced a short-lived but severe quality problem during which product Formaldehyde was gelatinous. Lab analysis showed the product to be high in metal contaminants. A letter has been written recommending a sampling procedure in the event of another such upset.

Nepera Blend - Nepera Chemical through our Sales Office requested a 1 gallon sample of Nepera Blend (Formaldehyde, Acetaldehyde, Methanol, Water) from the Bishop Lab. The blend was prepared and shipped. Further work is pending Neperia's investigation of the samples.

BOD

S. G. Smith, T. A. Jasek, G. R. Stasney

BOD Unit Analytical Methods Manual - No progress due to priorities.

Anaerobic Testing of Chemical Wastes - Organic loading to the anaerobic filter reached the design level of 0.5 lb COD/ft³/day on 7-28-78. Oxo sump effluent, which is currently pumped to the Solar ponds, was included in the anaerobic feed on 8-03-78. Following the addition of this stream to the feed, organic loading has remained at 0.50 - 0.54. Kinetic loading has varied from 0.36 to 0.45 lb COD/ft³/day. Chemical and kinetic removals have varied between 70 - 80% early in the month, gradually increasing to 80 - 90% in the latter part of the month. These higher removal efficiencies may be due in part to three temporary shutdowns (9.5, 4, and 7 hours) which were experienced in the middle of August. The shutdowns were caused by partial plugging of the inlet line to the filter. The plugging problem has been corrected. The lower outfall COD experienced at this time is also probably due to the longer detention time in the filter during shutdown.

A simulated nylon waste effluent was included in the anaerobic feed on 8-27-78. Not enough data has been collected to evaluate the effect of the nylon stream on the anaerobic filter.

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The aerobic section has been operating with few problems since 8-05-78. All anaerobic outfall is fed directly to the aerobic section. Detention time in the tank has been from 1.50 to 0.75 days (design detention = 2.7 days). The food to biomass ratio (F/M) has varied from 0.27 to 0.83, while COD in the outfall has ranged from 96 ppm to 244 ppm. COD removal over the entire anaerobic-aerobic system has been between 96 and 98%.

Aerobic Treatment of Nylon Wastewater - The nylon waste portion of the feedstock to the nylon tank was increased from 5% to 10%, by volume. This higher strength nylon wastewater and normal BOD unit feed (equalization basin) have been fed to two Laboratory aeration tanks at food to biomass ratios, F/M, of 0.3 - 0.45. No adverse effects have been observed: outfall COD for both tanks has remained between 160 - 240 ppm. Effects of further increases of the F/M ratio will be studied.

OSHA Monitoring
J. M. Jackson

Follow-up monitoring on the Methanol Oxidation II operator is complete. No action forms were necessary based on the results. Data was issued in JMJ-38-78.

Thirty-two personnel eight-hour time weighted average (8-hr TWA) samples were documented for Benzene exposure in the SH I/TO I Units. Twelve were above one-half the pending 8-hr TWA Benzene standard of 3.2 mg/m³ (1 ppm). A report was issued, JMJ-39-78.

Data obtained during sampling of the Celcon Production Office for Formaldehyde showed no significant problems at time of sampling. A report has been issued, JMJ-40-78.

The personnel eight-hour time weighted average Formaldehyde Survey report on the Operator Helpers in SH I/TO I has been issued (JMJ-41-78).

CCCTC analysis showed that the Main Office Building ceiling tile does not contain asbestos fiber. A report was issued, JMJ-42-78.

Asbestos monitoring results on Laboratory technician (Main Laboratory), have been received. The sample was taken during the preparation of packing of the Total Organic Carbon (TOC) Analyzer. A report was issued, JMJ-43-78.

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Results received on samples submitted by Arthur Brothers on Arthur Brothers employees for Asbestos analysis were documented and reported to Mr. E. C. Cude. JMJ-44-78.

Analysis results for Nickel Tetracarbonyl in the SMM Girdler, Methanator, D. P. G & Selas during the recent MS Unit turn around have been issued. Carbon Monoxide content in the cryogenic Nitrogen showed <1 ppm by the Ecolyzer 6,000 "Hipster".

Utilities, Raw Materials
J. R. White

Evaluation of Alternate Weak Base Resins for the Demineralizer - Work is underway to evaluate possible higher capacity resins, Rohn and Haas FRA-68 and Dow WGR-2, in a Laboratory simulation of the Blending Unit weak base resin bed. Both acid and organic capacity of the resins are under consideration.

Formaldehyde Stability at 160°F - Due to Acme Resins complaint of low assay Formaldehyde shipments, the stability of 50% Formaldehyde at 160°F is under investigation. Acid build and Formaldehyde (Assay) loss is being followed in both stabilized and unstabilized material. A report will be issued.

Esters, Methylal, Paraform, Formcel® Products
M. E. Harris

Acetate Unit Support - The Lab will start up the simulation of T-343 the first week of September. Most of the equipment has been assembled and no further delays are expected.

Formcel® Products Unit Support - Studies are in progress to determine the cause of recent problems with colored Formcel solutions. Iron is apparently one cause. Low colors (5 - 10 Pt. Co. Units) caused by Iron have been successfully reduced to less than 5 by treatment with 10 ppm EDTA. Cation exchange resins are also being investigated. A report is forthcoming.

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Paraform Unit Support - Recent problems in the Paraform Unit have been traced to metal contamination. Some of this contamination was introduced in the 51% HCHO feed. Tentatively, metal contamination in the 51% HCHO feed has been traced in part to the Methanol Vaporizer blowdown in MO-IV (HE-961BD). Additional data are being collected and a report will be issued (co-authored with J. Presley) when the study is complete.

The use of a sodium ion electrode to monitor the Sodium content of Paraform Unit feed has been investigated. The use of this method to routinely monitor Sodium in the Paraform Unit feed is recommended. A report is forthcoming.

Diacetone Alcohol
R. G. Hilbrich

Diacetone Alcohol Unit Support - The Laboratory analytical evaluation of Union Carbide Acetone for use in the DAA Unit is near completion. We are waiting for CCCTC GC-Mass Spec identification of unknowns. A report will be written as soon as the unknowns are identified.

Laboratory studies designed to determine source of recent DAA miscibility problems are completed. It appears that the problem was due to contamination not associated with the DAA Unit. A report was written (RGH-18-78).

Pentaerythritol
R. G. Hilbrich

PE Unit Support - In response to recent quality complaints concerning lumps in the PE a recommendation was made to replace the screens on the PE finished product conveyor and in the line from the hoppers to the bagging machine with No. 12 mesh screens. Currently the finished product conveyor has a No. 8 mesh screen and the screen in the line to the bagging machine is a No. 5 mesh. An AVO has been written by Operations to install the No. 12 mesh screens.

PE Unit Analytical Methods Manual - No progress due to priorities.

Recovery of Energy from the PE Unit "A" Evaporator Steam Jet - One key factor in this energy saving project is the reuse and/or disposal of about 80 gpm of contaminated condensate. Most of the apparent options require a partial or complete removal of PE from the water. Numerous absorbants were evaluated for removing PE from water at the 0.1 wt % level

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expected in the condensate. None of the materials evaluated, CPG 12X40 Carbon, Amberlite XAD-Z and XAD-4, Amersorb XE-340 and XE-347, and IR 45, were successful at removing the PE. Current Laboratory emphasis is on determining the possibility of using reverse osmosis for PE removal. Work continues.

Trimethylolpropane
L. Mayerle

TMP Unit Support - On August 18, the TMP Butyraldehyde (BuH) feedstock was changed from T-266 (BuH Finishing Column) OH to T-210 (BuH Heavy Ends Column) OH. T-210 OH has a higher iso-BuH content than T-266 OH (0.3 -0.4 wt % iso-BuH in T-210 vs <0.1 wt % iso-BuH in T-266 OH). It was assumed that iso-BuH would be converted to Neopentyl Glycol (NPG) in the TMP reaction system and would be removed as a light end in the TMP Finishing Column (T-205) OH. The routine method of analysis for T-205 OH was adapted to include a determination of the NPG content. The concentration of NPG in T-205 OH has increased to ~5 wt % while no NPG has been detected in the TMP product. The NPG content of T-205 OH and TMP product will be monitored on a daily basis.

The compatibility study between TMP and 1,3-BG Units waste streams is continuing. A letter will be issued with recommendations in September.

Potential for Increased Reactor Cooling - Methanol production across the TMP reactors has remained high (~0.3 Δ wt % MeOH). At this time it is not obvious whether the increase in MeOH production is due to increased cooling-water temperature or to reactor-fouling build-up. A one-day shutdown has been recommended for the purpose of cleaning the reactors (JRK-50, LM-44-78). Data taken before and after the cleaning would indicate the effect of fouling, independent of cooling-water temperature.

TMP Alternate Purification Scheme - A meeting was held with CCCTC personnel to review the results of Bishop Laboratory studies of the TMP alternate purification system back extractor (HHT-44-78). It was concluded that satisfactory separation could not be obtained in the existing York-Scheibel prototype. Additional studies will be scheduled in 1979 depending on the availability of manpower and equipment at either CCCTC or the Bishop Laboratory. A letter which documents the Bishop results has been issued with Process Engineering (LM-45-78, JRK-51).

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1,3-Butylene Glycol
P. J. Buras

BG Unit Support - Laboratory support is being provided during the BG Unit startup which began August 28. V-778 residue and overhead were analyzed at regular intervals for Sodium to indicate the amount of entrainment. The residue was frequently checked for BG content to allow turning of operating conditions to minimize BG losses. The color and BG assay of T-226 overhead (T-227 feed), T-227 overhead and T-227 residue were checked several times. The analytical method for analyzing for Water and Crotonaldehyde in T-135 overhead was checked, proper techniques were reemphasized and new standards were provided.

The Laboratory will continue to work with Operations and Process Engineering to minimize BG losses (maximize efficiency) during the current and future runs. Data will be documented at the appropriate time.

T-227 Residue Product Rather than Vapor Side Stream - The BG Unit started up August 28 with a T-227 residue stream rather than a vapor side stream. All BG specifications were met except color which was consistently high (>10 Pt. Co. Units). T-227 was switched back to vapor side stream on August 31. Another test will be made during the current run after the unit has run for awhile at good efficiencies while making spec. product. The residue stream vs vapor side stream will save about \$50 M per year in steam costs, if successful.

Methanol Synthesis
F. R. Dow

Fuel Gas Quality - No samples were analyzed due to other priorities.

MS-II Analytical Support - Back up support for the MS-II Process analyzers was provided during the reduction of the ICI 51-2 catalyst.

Crude Methanol from the new catalyst contains ~130 ppm DME, ~150 ppm EtoH and ~300 ppm MeFo. The Cu and Zn in T-92 Res decreased to <0.1 ppm in 4 days.

Two problems being investigated are (1) paraffins in the Crude Methanol and (2) an "amine like" odor in the finished Methanol.

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Oxo, PrOH, BuOH Unit Support
A. J. Bacon

Rhodium Accounting - A report on Rhodium accounting for run # 4 was completed with Operations.

Reactor Stability/Accountability - The present run # 5 catalyst is still not building heavy ends. Accountability as of 8-30 was ~92% (95% if 3% is added for dissolved gases). Activity is still good although no Rh has been added for about 4 weeks. This may be due to a lack of Rh fines in the system.

Several additions of Dowtherm have been made. The effect has been to lower the Propylene partial pressure as if Rh had been added. The effect has been attributed to increased catalyst volume (STY) and solvent effects.

The Lab stirred autoclave was set up to study catalyst activity. A series of runs was made with samples of run # 4 catalyst and a synthetic solvent (Dowtherm, TPP and n-Hexene) to establish mass transfer limitations. Then the effect of Nickel on the system was tested using Bis-diphenylphosphino-nickel-dicarbonyl (a substitute for $\text{Ni}(\text{CO})_4$). An excess of Ni to Rh completely killed the reaction. A report will be issued.

Oxo, Butanol, Propanol Unit Support - Analytical problems with the determination of i-BuH in n-BuH were rectified. Work continued through the month in support of n-BuH sales to Union Carbide.

T-229 residue is again showing high concentrations of aldol products. Lab tests were begun to investigate the use of phosphate additives to the column feed. Hopefully one can be found that will passivate the carbon steel surfaces which are presumably causing the aldol formation. If additives can be found which do not increase aldol formation in Lab reflux tests, their use will be recommended. Phosphoric Acid, Korrid, Hercules CR 408 and Betz 35A are being tried.

No progress was made on M and T TPP quality testing.

Lab work was provided to support girdler MEA reclaiming.

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Process Technology
B. C. Kerr

Abstracting of Technical Reports - Abstracting of technical reports is current. Changes in stenographic support in the Laboratory has caused a short delay in preparation of Abstract Cards.

Revision of Purchase Specification Manual - A draft copy of a revision in Chemcel Plant Purchase Specification Manual has been issued for review and comments. After receiving these copies with corrections, a new Manual will be issued.

Preliminary Studies of Plant Sampling and Analytical Procedures - A study of the approach required to carry out a complete review of current Plant sampling and analysis for Process Control and Quality Assurance has been made. Results of this study will be issued for review.

Statistical Data for the Butanol Unit - An examination of the Unit data taken during February, 1978, has indicated that several important meters needed for understanding unit operations were out of calibration. It is planned to take another set of data at a later date for statistical purposes.

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Current Special Problems Projects

Project	Chemist	Priority	Justification	Estimated Completion Date
Mo Efficiency Improvements with Trace Amounts of Halogenated Hydrocarbons	Presley	2	Raw Material Savings	Undetermined
MO Catalyst Screening	↓	2	To Establish Alternate Suppliers and Improve Catalyst Quality	Continuing
MS-II Crude To MO	↓	1	Steam Savings	April 1, 1979
Reduce Methylal Formation in MO Distillation Columns	↓	1	Raw Material Savings	April 1, 1979
BOD Analytical Methods Manual	Smith	2	Maintenance of Business	Undetermined
Anaerobic Testing of Chemical Waste Streams	↓	1	To Test Anaerobic Process as Alternate BOD Expansion	Jan. 1, 1979
Aerobic Treatment of Nylon Waste Water Effluent	↓	1	To Test Treatability of Nylon Waste in Bishop BOD Unit	Oct. 1, 1978
Evaluation of Alternate Weak Base Resins for the Demineralizer	White	1	To Increase the Demineralizer Unit Capacity	Dec. 1, 1978
Formaldehyde Stability at 160°F	↓	1	Acme Resins Customer Complaint	Oct. 1, 1978
1,3-BG Unit T-227 Residue Stream Instead of Vapor Side Stream	Buras	1	Steam Savings	Nov. 1, 1978
Identify Unknown in DAA Product	↓	2	Maintenance of Business	Nov. 1, 1978

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Current Special Problems Projects

Project	Chemist	Priority	Justification	Estimated Completion Date
PE Unit Analytical Methods Manual	Hilbrich	2	Maintenance of Business	Undetermined
Energy Recovery from PE "A": Evaporator Steam Jet	↓	1	Steam Savings	Jan. 1, 1979
Seeding the PE "A" Crystallize	↓	1	Raw Material and Steam Savings	Dec. 1, 1978
Paraform, Formcel [®] Products, Esters Unit Analytical Methods Manual	Hilbrich Harris	2	Maintenance of Business	Undetermined
New Ester Unit Reactor Column Start Up	Harris	1	Steam Savings	Oct. 15, 1978
Establish Potential of Increased TMP Reactor Cooling	Mayerle	2	Raw Material Savings	Continuing
Remove Crystallization Inhibitors From PE "A" Crystallizer Feed	↓	1	Raw Material Savings	March, 1978
TMP Unit Analytical Methods Manual	↓	2	Maintenance of Business	Undetermined
PE Unit Air Emissions Survey	↓	1	Provide Emissions Data	Undetermined
OSHA Monitoring	Jackson	1	Ensure Employee Health and Safety. OSHA Compliance	Continuing
Fuel Gas Quality	Dow	1	Improve Fuel Gas Accountability	Continuing

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Current Special Problems Projects

Project	Chemist	Priority	Justification	Estimated Completion Date
MS-II Analytical Support	Dow	1	Maintenance of Business	Continuing

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