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CEL-8

CELANESE CHEMICAL COMPANY
Chemcel Plant
Bishop, Texas

To: Dr. R. R. Graham

From: G. D. Boyd GDB-144-81 October 8, 1981

Laboratory Department Summary - September 1981

Attached is the Laboratory's monthly summary for September. The summaries are by groups and a table listing priorities, justifications, and estimated completion dates of Special Problems projects is included.

G. D. Boyd

GDB:jr

Distribution

Chemical

J. J. Fritsch
W. H. Brough
J. B. Brown
G. L. Cade
R. R. Carpenter
M. W. Clifton
R. S. Hahn
W. A. Heenan
A. A. Miller
B. C. Kerr
C. W. Lee
D. E. Lockwood
A. G. McGehee
W. H. Meyer
D. G. Pausky
O. W. Schnellenberger
G. R. Scholz
D. D. Siemonsma
W. L. Sharp
K. R. Stelts
H. H. Thigpen
J. C. Rubiano

Plastics

R. G. Brandt
A. C. Abshier
R. L. Bunkley
H. L. Davis
D. A. Reck
E. J. Heinz

CCCTC

G. J. Fisher
W. E. Heinz
W. T. McNair
Central Files (2)

J. N. Gann, Bay City
J. E. Sanborn, Bayport
J. L. Paul, Clear Lake
D. W. Harris, Pampa
T. H. Golson, Dallas

File No: 303.3

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HIGHLIGHTS

- Microunit tests show that ultrasonically cleaned used MO catalysts give higher efficiencies than those cleaned with the current techniques. Follow-up Plant tests will be proposed to continue the evaluation.

- Preliminary data on the promising scheme to recover PE from VCI waste streams was documented. Studies continue to identify the best of several alternative ways to use the new process.

- Void volume measurements of Laboratory anaerobic reactors indicate an average void volume loss of 2.2% per month over the past 14 months since startup.

- A Plant trial of Oxo Run VI acid extracted catalyst has been recommended contingent upon a favorable reestimation of economics by Process Engineering.

I. ANALYTICAL GROUP

Methanol Oxidation (MO)

Extensive analytical assistance was provided to the HCHO color problems associated with the start-up of MO I Unit. Carbon make in the unit is now normal at <2.5 ppm.

In support of expanded efforts to deliver quality HCHO product to the northeast market, stabilizer levels will be determined daily on all preblend tanks. The stabilizer addition target is still 12 ppm, ref. AGM-142-80.

A tightening of tank car lining patch guidelines and emphasis on inspection/selection of tank cars has apparently facilitated delivery of 50% HCHO to Hooker Chemical in New York state. The customer reports receipt of good color product.

Specific Gravity calculations and tables were made for various concentrations of water in methanol and furnished to the MO IV Unit. This is to provide them with a method to determine the water content of the methanol vaporizer.

Methanol Synthesis (MS)

Methanol - The Instrument Section provided support for a Special Problems Laboratory study to determine if the amine in 23500 gal. of contaminated methanol could be removed economically in the MS finishing system. The results were negative. A report is being published by the Special Problems section.

Amine System - In the near future another Plant trial will be scheduled to determine if sodium metavanadate ($NaVO_3$) can be used effectively in the Shift section as a corrosion inhibitor. The Instrument Laboratory has developed an AA method to monitor the vanadium level in the system during this trial run. Sufficient accuracy can be achieved by this method to monitor vanadium levels from 5 to 30 ppm.

Polyol Area

1,3-Butylene Glycol - Several samples of V-778 residue were analyzed for ash content. This was to assist the Special Problems group in calculating the caustic balance around the unit. A report will be issued.

Pentaerythritol (PE) - Samples of the dust produced in the PE Unit were characterized for component concentration according to particle size. Inconsistancies in the component concentration preclude its sale as a straight product. Investigation into the possible processing of the dust will continue.

Several samples of VCI extraction streams were analyzed by Dionex ion exchange chromatography for NH_3, NaFo, and Na_2SO_4. This project is to determine if the PE can be recovered from the VCI waste stream after they have removed the NaFo. The project is continuing.

Paraform Area

Ester Unit - Due to a temporary Company-wide shortage of acetic acid the Plant accepted on an emergency basis approximately 22 M gal. of mixed HAC (several suppliers) into the Ester Unit. The resultant iso-butyl acetate production was out of Manufacturing Control Specification on iso-butyl propionate content, (200 ppm vs. 100 ppm max.). Subsequent analysis of the mixed HAC (samples sent to Pampa) revealed a propionic acid level of 0.09 wt.% vs. normal levels of 0.01-0.02 wt.% in CLP HAC. The off-test production will be shipped on waivers. Subsequent unit operation problems not yet correlated to the mixed HAC include shut down and clean out of asphalt like tar balls in the reactor and an approximate 100% increase in MSA catalyst demand.

Quality Waivers

8-28-81 - PVB Gd. n-butyraldehyde to Monsanto, Indian Orchard, Mass.- Acidity @ 0.18 wt.% vs. max. of 0.15 wt.% - 128,100 lbs - SQD.

9-2-81 - 50% formaldehyde to Owens Corning, Waxahachie, Tx. - pH @ 2.6 vs. customer special spec. of 2.8 min. - 47,030 lbs - QD.

9-10-81 - Para 95% flake to Baker Chemical Co., Ft. Stockton, Tx. - Assay @ 94.8 vs. 95.0 wt.% min. - 30,000 lbs - SQD.

9-14-81 - Para 95% flake to Arwell Oil Co., Midland, Tx. - Assay @ 94.8 vs. 95.0 wt.% min. - 45,000 lbs - SQD.

9-16-81 - Iso-butyl acetate to Worth Solvents, Wichita Falls, Tx. - Iso-butyl propionate @ 0.02 wt.% vs. max. of 0.01 - 3,590 lbs - QD.

9-21-81 - Iso-butyl acetate to Houston Solvents, Houston, Tx. - n-BuOH content @ 0.08 wt.% vs. 0.05 max. - 14,970 lbs - QD.

9-23-81 - Iso-butyl acetate to Southland Industrial Products, Memphis, Tn.- n-BuOH @ 0.08 wt.% vs. max. of 0.05 - 7,170 lbs - QD.

9-28-81 - Pentaerythritol (Tech) to Reichhold Chemical Co., Jacksonville, Fla. - This lube grade material being waived to a tech customer - 40,000 lbs - SQD.

Product	% QD[1] Month	% QD YTD	% SQD[2] Month	% SQD YTD
Para F-Powder	0	1.0	0	2.5
Para C-Powder	0	0	0	6.5
Diacetone Alcohol	0	1.2	0	0
Formaldehyde	0.2	0.2	0	0
n-Butyl Acetate	0	5.0	0	1.6
Sodium Formate	0	0	0	1.2
Pentaerythritol-Tech* *(Lube as Tech)	0	0	2.7	1.5
Iso-Butyl Acetate	3.4	3.8	0	0
n-Propyl Acetate	0	0	0	<0.1
n-Butyraldehyde	0	0	14.0	0.5
Para 95% Flake	0	0	51.7	8.1

[1] Lbs. of product shipped out of Manufacturing Control Specification vs. total lbs. of that product shipped for month and YTD.

[2] Lbs. of product shipped out of Sales Specification vs. total lbs. of that product shipped for month and YTD.

Special Analytical Assignments

Polyol Feed to BOD II (F. R. Dow, B. W. Wise) - Low concentrations of Polyol type compounds (TMP, PE) cannot be accurately determined by capillary GC, however, BOD samples can be concentrated, silylated and analyzed by the SMA PE/TMP procedure for low concentrations. The next phase of this investigation is to determine the Polyol component accuracy and accountability.

Utilities and BOD

Good correlation between Plant methodology and consultant (Ernst Davis) has been achieved on the fecal coliform analysis in Plant BOD unit outfall. The test will be monitored locally on a weekly basis and chlorination facilities will be maintained on a standby basis.

Analytical support was provided for a comparative analysis of Virginia Chemical Co. ground water monitor wells.

With the cessation of massive analytical requirements on Plant monitor wells for the groundwater consultants (URM), the Analytical Group will revert to monitoring Enforcement Compliance Directive parameters for TDWR. This will facilitate potential work on RCRA requirements, soil reclamation, injection well compatability studies, vacuum truck characterization and monitoring of Polyol effluents through the BOD system.

Analytical General

Thomas Robinson, SNE Technician, was employed September 9, 1981 in the Wet Chemical Section.

Analytical Statistics

	Sept.	Sept. YTD	Previous YTD
Sample Count			
Chemical Section	5377	41498	41838
Instrument Section	3036	24218	21042
Total	8413	65716	62880
Technician Overtime			
Chemical Section	29	510	597
Instrument Section	11	321	296
Total	40	831	893
Sample Shipping			
Domestic	55	551	592
Export	5	50	25
Plastics	1	10	73
Others	10	89	66
Total	71	700	756
QA Statistics			
Shipments	693	5874	6690
Waivers (QD)	4	19	7
Waivers (SQD)	4	12	21
Complaints	0	11	28

Process Technology
B. C. Kerr

Seminar on INQUIRE© - I attended a seminar given by Mr. Fred Reed, from Charlotte, on the information data base, INQUIRE. The seminar covered the basic commands which are used with the system to access data resident in the Charlotte computer system.

Separation of Di-PE From Chemcel PE Product - A study has been started to evaluate novel methods for producing a di-PE product. This work is based upon a marketing need for a competitive di-PE product equal to or superior to the product marketed by Hercules. Since economic evaluations of previous work have not been encouraging, I am starting this project with an attempt to find another, perhaps more economical, approach.

Methanol Oxidation, Formaldehyde Blending
T. A. Jasek, J. F. Glenister, J. D. Presley,
B. K. Huelle, J. E. Russell

MO Unit Support (Jasek, Glenister, Presley) - The Laboratory conducted analytical AMR's at the following units:

MO III Start-Up September 5, 1981

	Indicated	Analytical
"A"	0.89-0.90	0.96
		0.971

MO III "B" After Start-Up

"B"	0.810	0.876
		1.03

MO I Start-Up September 9, 1981

0.99-1.0	1.06
	1.25*
1.96-1.0	1.23*
1.0 -1.1	1.17
0.98-0.99	1.17
1.01	1.17

MO III Start-Up September 18, 1981

"A"	0.88-0.92	1.18
"B"	0.90-0.94	1.25

Initial Color Throw Test of Blending Unit Anion Exchange Resins (Glenister) - The Laboratory conducted tests to determine initial color throw comparing present resin (Dow XFS-4048) with replacement resin (Dow XFS-43223) on start-up of new resin bed. No initial color was shown for the resins in 50% formaldehyde.

Tank Car Inspections (Glenister) - Follow-up inspections were completed on tank car lining previously inspected before shipment of 50% formaldehyde to Hooker Chemical Co. in N. Tonawanda, N.Y. Cars were newly lined on shipment with under one square foot exposed car surface. Liners on return showed little deterioration of the exposed areas with the most noticeable effect of corrosion in the safety valve and dome opening areas. Maximum exposed area was still well below one square foot specification.

Sinter Test Evaluation (Jasek, Glenister) - The Laboratory is monitoring the reactor efficiency of reactors containing good and fair sintering Engelhard silver catalyst. Operations originally charged four reactors in MO III and two reactors in MO IV with Engelhard Lot 198. Due to poor start-up performance and acid problems in MO III and MO IV, one catalyst bed was changed out in MO III and both in MO IV. The Laboratory is monitoring the remaining Engelhard charge in MO III to obtain any possible information relating sintering characteristics with reactor efficiency and start-up capacity.

MO I Color Problems (Presley, Jasek, Glenister) - MO I experienced a color problem in product formaldehyde beginning September 18, 1981. J. D. Presley filtered a sample of 30 color and reduced the color to 13 APHA. The vaporizer level indicator at the unit apparently malfunctioned allowing the vaporizer level to drop below normal. This may have contributed to the problem. The following week, MO I still showed color of 9-13. Excessive carbon in reactors may have been a contributor, however, the unit was experiencing cooling water problems and high acid from old catalyst beds. After changing beds and stabilizing at half rates the color dropped to <5 (T-254) and the color has been remaining at this level for the remainder of the month.

HCHO Stabilizer Study (Day) - Work has been underway this month to establish the variability in HCHO stability within and between each of the MO units. Samples were set up from MO IV, MO III, MO I, the unit storage tanks, and after the anion exchange resin beds both before and after metolose is added. Twelve ppm metolose is added to the sample (if it does not already have metolose), and then it is stored at 40°C. Some samples are also being stored at 49°C to check our published stability specs. No results are available yet.

Assay Descrepancy Between Acme and Celanese (Huelle, Russell) - Studies are continuing in efforts to explain the differences between the assay methods. The average difference between the methods are 0.3 to 0.4 wt.%. Studies to determine why the difference exists and which method is accurate are almost complete. Final conclusions should be available in October.

Laboratory MO Microunit (Jasek) - Catalyst evaluations have been completed. The ultrasonic cleaning of used silver catalyst showed a substantial increase in efficiency over catalyst washed by the current procedure. Evaluation of acid washed catalyst showed only minute improvements in catalyst efficiency.

A quantity of used silver catalyst was cleaned and sent to CCCTC. The catalyst will be evaluated in the Laboratory microunit.

MO Color Development Testing (J. D. Presley) - Quick patch paint tests for HCHO tank cars have been completed. The aluminum and the titanium dioxide based high temperature paints failed in the vapor space and subsurface test.

It has been observed that the height above the surface in the vapor space is important. At heights where infrequent or no liquid contact is made, a "scratched" coupon develops a hard resistant coating. When the scratched surface is then lowered to about 1 cm above the liquid surface corrosion similar to that of subsurface occurs.

The quick patch paint obtained from Heresite (VR-514) shows excellent adhesion to both of our present tank car linings. The new air dry paint when cured at ambient temperature for 24 hrs. on a scratched coupon shows good resistance in 50% HCHO. Even though the HCHO is still iron free after 17 days, the test patch of VR-514 softens and can be scraped with the fingernail. On drying the paint rehardens considerably. However, the surface is fairly chalky. Hence, VR-514 should not be used to quick patch tank cars except in emergencies.

Results of maximum exposed surface area study (subsurface) are similar to preliminary findings reported last month. On the average 0.0122 ppm iron per ft^2 per day per 20 M gal. tank car were leached from carbon steel surfaces. However, note that the range is from 0.006 up to 0.023. Therefore, caution should be exercised in determining the "safe" travel time for a given car.

A letter is in preparation.

BOD-Utilities

D. R. Akin, P. W. Young, G. R. Stasney

BOD II Support (Young) - Continued support was provided to BOD II operations.

Polyol Treatability in BOD II (Young, Stasney) - A Laboratory anaerobic-aerobic system is currently being fed 6% by volume a polyol steady state effluent blend (COD ~31,000 ppm) (22% COD from polyol). The unit is operating at an organic loading of 0.2 lbs COD/ft^3 /day at a detention time of ~3.5 days giving an aerobic outfall COD of 168 ppm. The target for steady state polyol is ~7% by volume (25-40% COD). A sampling and analysis program of the polyol effluent to solar is beginning. Plans are to feed actual polyol effluent to the Laboratory unit to pilot treatability of effluent variability.

VCI Waste Treatability (Young, Stasney) - VCI waste is being fed to a Laboratory anaerobic-aerobic system at a feed concentration of 5.5% by volume (7-8% COD). At an OL = 0.2 lbs COD/ft^3/day and detention time of 3.5 days, the aerobic outfall COD is 150 ppm. Effects of variability in waste COD concentration will be investigated upon receiving samples.

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Void Volume Measurement By Tracer (Young, Stasney, Wise) - A void volume measurement was done on the Laboratory anaerobic reactors treating polyol and VCI effluent using t-butyl alcohol (TBA) as a tracer. The measurement showed 28 (VCI) and 33 (Polyol) % void volume loss in 14 months of operation covering three different studies.

Plastics Laboratory Effluent (Young, Stasney) - Daily samples of Plastic's laboratory effluent are being analyzed. It is hoped that this analytical will show the effluent treatable in BOD II, thus enabling it to be sent to BOD II and not to solar via the polyol sump line.

Sludge Disposal - Aerobic Digestion (Akin, Stasney) - This project was completed during September. These aerobic digestors were being operated in conjunction with Environmental Dynamics, Inc. to support evaluation of sludge disposal alternatives.

BOD II Aerobic Optimization - Sludge Age Study (Akin, Stasney) - Two aerobic tanks, one at 25 days sludge age and the other at 35 days, are being fed anaerobic recycle from BOD II at a 3 day detention time. Both tanks have equivalent COD removal efficiencies at about 80%, but the 25 day sludge age shows a higher sludge settling velocity than the 35 day sludge age. This study will be concluded this month.

Aerobic Treatment of Polyol Sump (Akin, Stasney) - A study is underway to determine if undiluted polyol effluent can be treated by aerobic methods alone. A Laboratory unit is currently being acclimated to solution of polyol sump and equalization basin (50% of COD contribution from polyol). The detention time is 12 days with sludge age maintained at 35 days. Current removal efficiency is at 90%. The next step is to feed the system undiluted polyol sump.

Vacuum Truck Content Characterization (Akin) - A sampling program has begun on vacuum truck contents which are currently being disposed of in the solar ponds. The analysis of these samples will aid Process Engineering in designing a disposal system. Analyses include pH, viscosity, specific gravity, specific filtration resistance, settling time, % solids, and % oil layer. Chemical analysis of major constituents is also included.

Methanol Synthesis
J. C. Bustabad

Laboratory Distillations of Crude MeOH and Crude MeOH Blended With Contaminated MeOH (V-650) - A letter has been submitted which details the Laboratory distillations of crude MeOH and crude MeOH blended with contaminated MeOH (V-650).

Monoethanolamine (MEA) in Storage - A letter has been submitted that summarizes the Laboratory study of MEA stored in V-345 and V-346. The results of the study showed sulfur contaminants not to be a problem; thus, the Laboratory has recommended reuse of this MEA.

Monitoring of H_2S in Recycled CO_2 - A September 23rd check by Dräger showed undetectable levels (<1 ppm) of H_2S in 5 MM Girdler recycled CO_2.

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Shift MEA System - On September 15th, Operations personnel requested a foam test be completed on MEA from the shift system. There was a concern that amine was being carried over from the absorber (T-214) with the hydrogen. The foam test indicated no foam problems with the MEA. Further analyses of heat stable salts, loading, and MEA assay showed no atypical results.

Determination of Microbial Biomass - Research of the literature has begun on microbial biomass determination based on adenosine triphosphate (ATP) concentrations.

Oxo, Butanol
J. D. Presley

Reactor Stability/Accountability - The Oxo reactor has been down most of the month because of high inventory. Average component accountability since the late September start-up is 86%. Work is in progress to improve daily reactor analysis.

Work has been completed qualifying C. Itoh & Co. (America), Inc. as a TPP supplier. A letter has been issued (JDP-91-81). A seven day Plant Trial is recommended. The Plant Trial should be conducted before the end of Run VII.

Rhodium Accountability - Rhodium accountability is about 88% with the unit running. It is believed that higher than normal rousing is resulting in inaccurate reactor level readings. This is supported in that immediately before shutdown in August the level reading was 3'1". Immediately afterward, the level reading was 3'2½". Accountability at shutdown was about 94%.

T-210 residue rhodium losses total 7.3# RTD.

Improved Rhodium Recovery - Laboratory work on reclamation of Run VI Oxo catalyst by phosphoric acid extraction has been completed. A Plant Trial to extract 250 to 500 gal. of the contaminated material is recommended, provided economics are favorable. Adding the trial extracted catalyst to Run VII in fourth quarter '81 would represent the least risk since catalyst change out is scheduled for first quarter '81. A letter has been submitted.

Work is presently underway to attempt to extend Run VII catalyst life. Run VI phosphoric acid extractions indicated slight foaming reduction. Plans are to test water alone and various concentrations of phosphoric acid in extractions of Run VII catalyst. Work continues.

Oxo Unit Support - Samples of the Oxo Interstage Cooler Knockout Pot and the 5 MM Syn gas Inline Knockout Pot were brought to the Laboratory for analysis. An unusually large organic layer was noted. Normally, the organics (less than 5 vol.%) are emulsified in the water draining from these pots. The former sample was about 60 vol.% organics and the latter <5 vol.% organics.

GC and infrared analysis of these organic layers indicated that they are very similar. They are mostly heavy aldol by-products of BuH. They contain less than 2% TPP or TPP oxide. Carbon rod AA indicates that they contain less than 1 ppm rhodium. No further work is planned.

Environmental Health
C. E. Gary, K. V. Parker

Formaldehyde Monitoring - Follow-up formaldehyde personal monitoring continues to establish a better statistical base.

Noise Monitoring - Follow-up noise exposure monitoring continues to establish a better statistical base.

Asbestos Analysis - One sample of insulation was tested and found to contain asbestos.

Formaldehyde Methods Validation (Gary) - Equipment and chemicals were ordered to rig the Metronics Dynacalibrator and to supply the formaldehyde analyses to be used in the Formaldehyde Institute program. Equipment on hand was checked to determine the suitability for use in support of the formaldehyde testing program for the Formaldehyde Institute.

Trimethylolpropane
R. L. Day

Sample Analyses for CCCTC TMP Staged Cooling Extraction Project - At the request of Ed Taylor, several samples from the CCCTC TMP Staged Cooling Extraction Project were analyzed for sodium and TMP. A letter was written documenting the results and the methods of analyses.

747 Residue Methanolysis - Previous economics of a proposed scheme to recover TMP from V-747 residue were not promising. The scheme included a methanolysis of TMP linear formal followed by a one-stage extraction of TMP for recycle using TMP extractor residue. The remaining organics contained too much sodium formate to allow burning to recover fuel value. Studies are underway to modify the scheme to require less methanol and produce a burnable waste stream. This would significantly improve the economics.

The original work on the methanolysis of 747 residue did not employ a fixed resin bed reator. This type of reactor is being utilized now. Several modifications were made to the current apparatus to improve temperature control and to minimize flashing of the methanol. Although the original batch work was at 71°C, duplication of the MeOH/BTMPLF ratio used in the original study required a lower temperature (62°C vs. 71°C) to avoid flashing the MeOH in the resin bed. Runs made at 62°C and ∿2 hrs. residence time gave conversions of BTMPLF comparable to the original work. Studies are also underway to improve the method of analysis used in the original study.

A 25:1 molar ratio of methanol to BTMPLF is being used (as was used in the original study) to determine a minimum residence time in the fixed bed. After the residence time is established, conversions at lower ratios of MeOH to BTMPLF will be determined.

1,3-Butylene Glycol
J. E. Russell

V-778 Residue Burning - A set of samples of V-778 Residue were collected during September and are being analyzed for ash and sodium. The results will be related to a caustic balance around the unit. Analysis is not complete.

Pentaerythritol
L. M. Harvey, B. K. Huelle, J. E. Russell

Recovery of PE From VCI Extraction Waste Stream (Harvey) - A report has been issued (LMH-97-81) proposing a single-step process for recovery of 2-ethylhexylamine and PE from VCI extract. A cursory economic evaluation has been requested to determine the direction of further Laboratory studies. Meanwhile, back extraction and/or the proposed process will be evaluated using the residue from VCI's proposed wiped-film evaporator.

Determine Potential of PE Dust For Use as Lube-grade PE (Harvey) - A report, written with Operations, has been issued (LMH-96-81) summarizing the evaluation of PE dust for potential product blends having high di-PE content. At present, there is no economically attractive blend which could be isolated. No further work is planned.

PE Hydrolysis (Russell) - The final Laboratory report is still in the process of being reviewed. Work on the letter was held up due to the formaldehyde analysis problem.

General

- Tom Jasek, Joann Glenister and Hub Thigpen attened the MO development meeting at the Tech Center on September 18th.

- Frank Dow, Chuck Gary, Jim Presley, Dan Akin, Belinda Huelle and Beck Day attended Expochem '81 in Houston, Texas, September 1st and 2nd.

- Jane Bustabad attended a gas chromatograph seminar in Houston given by Perkin-Elmer on September 9th - 11th.

- D. R. Akin attended a water treating seminar given by Nalco in Corpus Christi on September 17th and 18th.

- A. G. McGehee attended a Basic Statistics in Quality Control Seminar in Houston, Texas, September 21st - 23rd.

Current Special Problems Projects

Project	Chemist	Priority	Justification	Estimated Completion Date
Revise Process Technology Manual	Kerr	1	MOB	Mid-November
INQUIRE®		1	MOB	
Production of Di-PE		1	MOB	June, 1982
TMP - Extractor Optimization	Day	1	Raw Material Savings	October, 1981
Formaldehyde Stability		1	MOB	November, 1981
MO Catalyst Screening	Jasek	1	To Establish Alternate Catalyst	Continuing
GC Methanol Oxidation Reactor Optimization		2	Catalyst Evaluation for Possible Efficiency Improvements	November, 1981
Modified Silver Catalyst		1	Catalyst Efficiency Improvements	January 1, 1982
Formaldehyde Product Color	Jasek Glenister	1	MOB	Continuing
Burn BG V-778 Residue	Russell	1	Recover Energy and Avoid Disposal Problems	December, 1981
Monitor Conversion in the PE Reaction System	Huelle	2	MOB	December, 1981

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Current Special Problems Projects

Project	Chemist	Priority	Justification	Estimated Completion Date
Resolve HCHO Analytical Discrepancy Between Celanese and Acme Resins	Huelle Russell	1	MOB	October 1, 1981
Recover PE From VCI Waste Stream	Harvey	1	Cost Reduction	March, 1982
Dow Chemical Complaint of Our HCHO Causing Slime in Their Product EDTA	Glenister Dow	1	MOB	December, 1981
TPP, P_2O_5 Emissions	Akin	2	Emissions Quantification	April 1, 1982
BOD II Aerobic Optimization (Sludge Age Study)	↓	1	MOB	October, 1982
Ni(CO) Method Evaluation	Bustabad	2	Determination of Method's Accuracy.	December 1, 1981
Polyol/VCI Treatability	Young	1	MOB	February 1, 1982
Extend Run VII Catalyst Life	Presley	1	Raw Materials Savings	December 31, 1981
Industrial Health Formaldehyde Methods Validation	Gary	1	MOB (Environmental Health)	June 1, 1982
Operations Formaldehyde and Noise Monitoring.	↓	1	MOB (Environmental Health)	October, 1981
Maintenance Noise Exposure Monitoring	↓	1	MOB (Environmental Health)	January, 1982

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Current Special Problems Projects

Project	Chemist	Priority	Justification	Estimated Completion Date
Methanol Personal Exposure Monitoring	Gary	1	MOB (Environmental Health)	September, 1982
Area Surveys for Miscellaneous Organics	↓	2	MOB (Environmental Health)	February, 1983

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