

PLAINTIFF'S
EXHIBIT

CEL-25

CELANESE PLASTIC MATERIALS COMPANY
Chemcel Plant
Bishop, Texas

TO: P. M. Sykes

FROM: R. L. Bunkley

RLB-41-79

July 17, 1979

Quality Control Monthly Report
June, 1979

cc: Dr. R. A. Daniel - Chatham
Mr. J. W. Beltz
Mr. A. R. Kurkowski
Mr. R. W. Murphy
Mr. F. M. O'Neill
Dr. M. L. Druin (6) - Summit
Mr. C. Gottfried

Dr. M. Meisters
Mr. F. B. McAndrew
Mr. W. L. Shearer
Mr. M. M. Wilson
Mr. D. Zimmerman
Summit Data Files

Mr. A. C. Abshier - Bishop
Mr. W. S. Allen
Mr. C. A. Amond
Mr. G. Artripe
Dr. J. D. Bennett
Dr. H. L. Davis
Mr. J. C. Doedyns
Mr. D. L. Dotson
Mr. R. D. Fuchs
Mr. D. E. Guthland
Mr. C. L. Hammond
Ms. A. R. Hancock
Mr. L. N. Harvey
Mr. H. P. Hohon
Mr. J. L. Merian

Mr. W. H. Meyer
Mr. A. B. Milam
Ms. P. J. Moede
Mr. E. Munoz
Mr. K. A. Rose
Mr. R. G. Rothenberg
Mr. J. D. Saladino
Mr. A. G. Salinas
Mr. P. N. Thomas
Mr. E. D. Wendler
Mr. K. A. Wolf
File: 3.017
301.014
501.009
Central Files (3) - CCCTC

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GENERAL SUMMARY:

Celcon® product waivers amounted to 18.6% of the month's production total of 7.4MM lbs. Natural Finishing waivers were due mainly to out of specification melt index and off size pellets. Quality waivers in Special Products were the result of out of specification melt index with off size pellets and Kd problems accounting for the other major quality deficiencies.

Celanex® quality waivers amounted to 6.3% of the month's production total of 1.89MM lbs. Major quality waivers were due to out of specification color matches, ash content of the fiberglass filled resins and failures of the burn test by some VO products.

Nylon product waivers totalled 19.6% of the month's production of 2.2MM lbs. Major quality variances were out of specification natural color, volatiles content, and relative viscosity.

Support for the start-up of the modified SH-1 unit continued during the month. Polymer quality continues to look good. Bulk density has been between 13-14 lbs./ft.³. Recommendations were made and are being evaluated which, if successful, should significantly reduce the loading of the Westfalia separators and allow the unit to operate at higher methanol concentrations.

I. CELCON®

A. Customer Complaints - Dotson/Tijerina/Hernandez

1. Huron Plastics entered a complaint (P-5513) indicating that they received only 4800 lbs. of "acceptable" resin in a 7200 lb. shipment of Celcon C-243 natural from lot 9010552.

One gaylord in the shipment was found without a box liner and the remaining gaylords were damaged. One gaylord was also missing from the shipment. The material left Bishop properly packaged. It appears that due to the damages, a gaylord of material was repackaged in a box without a liner during transit to the customer. The complaint has been referred to the distributing warehouse and the carrier by Distribution. (DLD-113-79)

2. A complaint was entered by Wolf Engineering (P-5514) stating that a shipment of C-243 natural from lot 9010552 had three damaged gaylords with a third of the contents missing and another gaylord without a plastic liner. This complaint involves the same lot of material and type of damages as cited in complaint P-5513. Distribution was requested to investigate this complaint with the distributing warehouse (Omega) and the carrier (Rodeway). (DLD-112-79)

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3. A complaint (P-5509) was entered by Dixon Industries Corp. indicating that a shipment of M25-01 natural lot 8120801 was contaminated with black specks, straw, paper from bags and other assorted debris. The total shipment (in drums) was returned to the plant.

The material was released from the plant as specification material. Examination of the returned material failed to reveal any of the contaminants listed in the customer's complaint.

B. Manufacturing Support

1. SH-1 Start Up Support - Guthland

SH-1 was on stream 15 days during the month of June. The unit was shut down on 6/5 due to problems transferring product from the fluid bed dryer and on 6/22 due to "plating out" on the 1st precipitator cooler. Kd's, color, and physical properties were well within specs. Bulk density averaged 13.10 lbs/cu.ft. Extremely high extractable formaldehyde levels occurred concurrently on 6/14 and 6/15 with high wt.% volatiles of the fluid bed dryer product. High extractable formaldehyde continued to be a problem until the plasticized fluid bed dryer coils were cleaned. Sieve screen analyses of the fluid bed dryer product showed that high weight percent volatiles was independent of particle size.

2. SH-1 Bulk Density - Guthland

To date, bulk densities have averaged 13-14 #/cu.ft. in SH-1. A tentative method has been made available for determining bulk density at the screen bowl centrifuge (DEG-9-79). This method will provide a means of determining bulk density prior to the fluid bed dryer - thereby reducing the response time needed to affect changes in the product.

3. Fines in SH-1 - Guthland

High fines levels and their separation via the Westfalia separators have been a problem since the initial start up attempt. Particle size analysis of the second centrate has shown that 88-96 wt.% of the fines are between 0.07 and 0.05 mm and 4-12 wt.% between 0.05 and 0.01 mm. These fines have been shown to settle out quickly at a low "g" force (less than one minute at 100 g's). It has been recommended that a "partial separating device be placed in series up stream of the Westfalia's to reduce the solids load on the separators. If successful,

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this modification would make it possible to process more of the fine slurry, thus allowing the unit to run at higher methanol concentration in the hydrolysis-precipitation loop. To this end, Process Engineering is currently investigating the applicability of a wet cyclone.

In addition to the above, a recommendation was made to increase the polymer particle size exit the kokneader to reduce water carry-over from the first centrifuge. Process Engineering is investigating the use of a larger grinder screen to effect this particle size increase. If successful, this process change will allow a reduced load on the Westfalia separators and maintenance of higher methanol concentration in the system.

4. Trioxane Reactor Paraforming Problems - Moede

Iron and sodium are highly suspect of inducing solids formation in the trioxane reactor. A method for the analysis of iron in 50% formaldehyde was developed in order to monitor the iron impurities in TO-2 formaldehyde feed. The development of a method for sodium in 50% formyladehyde is in progress.

Laboratory experiments have been designed to determine if and to what extent (1) iron, (2) sodium, (3) "pH" and (4) phosphoric acid influence paraforming in the trioxane reactor. In addition, work being conducted in the Chemcel Lab by Mr. M. E. Harris on the stabilization of formyladehyde will be evaluated to determine if it is applicable to our process.

5. TO-1 Unit Support - Moede

Training for TO-1 unit laboratory personnel was completed on all methods of analysis required for TO-1 operations support. The laboratory was surveyed, and the additional chemicals and glassware required for TO-1 start up were supplied.

C. Analytical Development

1. Cross Contamination in Black Celcon, Celanex, and Nylon - Saladino

A test procedure (CL 1-94) has been issued (JDS-9-79) that can detect cross contamination in black Celcon, black Celanex, and black Nylon. The cross contamination in black Celcon, black Celanex, and black Nylon can be detected by melting any Celcon in the sample at 200°C,

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then refluxing any unmelted pellets in propylene glycol-chloroform-HCl for one hour. Nylon will dissolve, Celanex will not. A letter has been published (JDS-8-79) describing the development and verification of this procedure.

2. Talc Filled Celcon - Saladino

A letter was published (JDS-11-79) describing the development and verification of a procedure for analyzing CAO-5 stabilizer in talc-filled Celcon by U.V. spectrophotometry. The method for black Celcon (CL 1-20) was revised to include talc and is being used by the Spec Lab for routine analysis.

3. Liquid Chromatographic Analysis of Celcon Stabilizers and Nylon Effluent - Allen/Saladino

Recent work in collaboration with Varian Associates indicates that High Pressure Liquid Chromatography (LC) would be a viable technique for routine Q.C. analyses of stabilizers in colored Celcon formulations and in formulations containing mixed stabilizers. The total analysis time is approximately 1.5 hours and involves simple techniques.

The LC analysis of adipic acid in nylon effluent was also demonstrated. This analysis would allow identification of nylon salt losses. It also involves simple techniques and requires a total analysis time of 15 minutes. A report is in progress.

D. Routine Analytical - Salinas

Sample count, overtime hours, holiday overtime hours and formaldehyde feed concentration for June are summarized in Table I. The sample count for June was 5221 compared to 5031 in May. The overtime hours for June were 418 compared to 324 in May. The increase in overtime was due to the resignation of a technician. This slot was covered with overtime.

Special analytical support was provided to the following projects:

1. K. H. Patel - PBT High I.V. Trial Batch No. 6 & 7.
2. SH-1 Start Up Support - David Guthland.
3. MH-2 Special Trials - David Guthland, hydrolyzables.

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II. CELANEX®A. Customer Complaints - Dotson/Tijerina/Hernandez

1. A precautionary complaint was entered by ITT Cannon (United Kingdom) stating metal contamination in material from both a Kelanex 2012 natural shipment and from a Kelanex 3310 natural shipment. The lots involved were numbers 8071344 and 8081343 for the 2012 material and lot 8112841 of the 3310 material.

Plant records showed that the lots in question were free of any metal contamination upon release. Re-examination of our shipping lot retains confirmed the original examination results. Further examination of plant manufacturing records failed to reveal any operational problems during the production of these lots that could have contributed any metal contamination. The lack of an unopened bag of material prevented any further evaluation of the complaint. (DLD-115-79)

III. NYLONA. Customer Complaints - Dotson

At months end, six nylon complaints are pending.

B. Manufacturing Support1. Nylon Nucleant Production - Saladino/Salinas

The inventory status of nylon nucleant is summarized below:

|                           |          |
|---------------------------|----------|
| Inventory 6/1/79          | 10 drums |
| Inventory 6/30/79         | 13 drums |
| Nucleant Produced in June | 9 drums  |
| Nucleant in Process       | 14 drums |
| Inventory 6/30/79 (KF)    | 13 drums |
| Inventory 6/30/79 (CaAc2) | 30 drums |

IV. INDUSTRIAL HYGIENE - Hancock, Pritchard, GreyA. Formaldehyde Survey

The formaldehyde survey in the Special Products unit is complete. No formaldehyde exposure problems exist under normal operating conditions. A report is in progress.

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B. Dust Sampling

A nuisance dust survey in the Natural Finishing unit is still in progress. Short-term ceiling concentration samples taken on the pellet blender operators show exposures (40-250 mg/m³) above the suggested 20 mg/m³ ceiling level. The survey will continue to better document the exposure levels.

The nuisance dust survey in Special Products is complete. No apparent dust problems exist. A report has been issued.

A survey for nuisance dust in the Celanex unit has begun. The survey will be concentrated around the SEO production runs. Exposure to dust is greater during these runs than others. So far, exposure levels have been under the 5 mg/m³ action level for nuisance dust.

C. Miscellaneous

Formaldehyde personal samples were taken in the Nylon unit and compounder building when T-302 residue line "broke" in T02. The wind direction carried the formaldehyde vapors across from T02 into the Nylon units. All exposures were below the 1.85 mg/m³ action level for formaldehyde. Area samples were also taken with concentrations ranging from 3 mg/m³ to 12 mg/m³ (directly downwind of the spill). A report will be issued.

To obtain operating permits for SH1 from TACB, T-30,000 and T-30,009 scrubber vents have been sampled. The vents will be sampled once more to verify emissions before results are submitted to TACB. A report will be issued.

D. Analytical Load

The OSHA/environmental analytical load, to date, is summarized below.

	Month		YTD	
	OSHA	Environmental	OSHA	Environmental
SH1/T01	0	5	40	6
SH2/T02	0	0	222	0
MH2	0	0	99	1
Nat. Finishing	4	0	226	2
Spec. Prod.	70	0	312	2
Celanex	10	0	32	1
Nylon	6	0	30	1
Chemical Co.	0	0	0	3
	90	5	961	16

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V. COLOR SERVICE - Artripe, Rothenberg, HarveyGeneral Summary

Color Service developed 29 color matches this month. The distribution of color match work for each marketing group was 13 Celcon, 11 Nylon, and 5 Celanex matches; of this 2 Celcon, 3 Nylon, and 3 Celanex were reworked from existing formulations.

215 pounds of products were extruded and shipped.

A total of 227 chips were sent out in the process of filling 14 sample requests for chips only.

We have scheduled 25 color matches for July, leaving our backlog of unscheduled work at 37. This backlog is for reformulation of existing formulas. Reformulation is necessary due to pigment obsolescence or chip replenishment. There are no new marketing requests on backlog.

Fisher Body Claret WPH 4887 and Blue WPH 7130 have been reformulated using a more U.V. stable pigment. These colors are under Fade-Ometer testing. The testing should be completed 7-9-79.

Color Service work load remains very high, turnaround time per match was slightly below last month.

1. Nylon Color Formulations - Rothenberg

All active Nylon color concentrate formulations were furnished to R. W. Murphy and A. Serle. This information will be used in obtaining U.L. color approvals and meeting more stringent 1980 U.L. color requirements (RGR-48-79).

2. Oster Colors

The four Oster color formulations (with information on pigments used in the formulations, chemical identification of the pigments, and manufacturers) was submitted to Nylon Marketing for transmittal to Oster. The only Oster formulation currently using FDA approved pigments (for a food contact application) is NA 3144-K20 White (RGR-53-79).

3. Formulations for NSF Approvals

Complete formulation data on Celcon FDA-grade color concentrates CA 31989-K20 (white) and CG 32013-K20 (blue) were furnished to A. Serle. This information was needed to complete material formulation confidential reports for NSF for one of our customers (RGR-54-79).

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4. Reformulation of Nylon Color Concentrates from Outside Vendors

Attempts have been made for approximately the last year to ascertain the formulations for Nylon color concentrates from various vendors. Due to lack of response and increasing pressure from the Commercial Hazards Committee to know all colorant safety data, Bishop Color Service will reformulate Nylon concentrates manufactured by outside vendors for which the formulation of the concentrate is not known (RGR-57-79).

5. Colorant Evaluation

In June two new pigments were added to our approved colorant list bringing the total number of colorants used to 73.

In order to insure that a colorant meets all the criteria to produce an acceptable color, current evaluation of new colorants will be expanded to include Fade-Ometer exposure of the masstone and tint plaques. This additional testing of colorants will help minimize product color fading problems under particular end-use conditions in the field. To summarize, the colorants used in Celcon, Celanex and Nylon must have the following characteristics:

1. Relative consistency in color and color strength.
2. Stable to extrusion temperatures.
3. They must be light fast; i.e., they must not fade.
4. Cannot cause deterioration of the polymer.
5. Cannot bleed out of the polymer.
6. Must disperse easily in the polymer.
7. They must be stable in the chemical environment of the polymer, including stabilizers and other additives.

During the month, 10 new pigments have been received. Final evaluation of these colorants will be completed shortly.

VI. STATUS OF LAB BUILDING CONSTRUCTION - Rose/Artripe

The 2-story hood was found to have inadequate face velocity. Temporary measures have been taken to boost this to 125-150 ft/min. A meeting was held with Each and Assoc., and they have agreed to modify the existing ductwork and, if necessary, the exhaust blowers to achieve 150 ft/min. velocity with one door of the hood open on each floor. Thermocouples have been installed, and the temperature recorders are operational on each floor.

Many leaks are present in the lab roof. Significant repair will be necessary to make this tar paper roof watertight. Leakage of water into the color measurement room during rainy weather is jeopardizing critical equipment.

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A broken steam vent pipe above the ASTM room has not been repaired. During periods of high steam usage, condensate leaks into the ASTM room.

Backs for the island bench sink units have not been received or installed.

Incomplete PER's (Spec Lab)

#9676	1/31/79	6-Hole Steam Table
#9680	4/11/79	Lab Utility Modifications

The following is a list of items remaining to be completed in the Color Lab:

- Complete bottle rack (top has sharp edges)
- Complete Lydon air oven vent
- Complete Van Dorn vents
- Complete 1" extruder drains
- Complete cooling to minijector oil coolers
- Complete insulation on Van Dorn Thermolator lines
- Connect water and drain to sink in 2 1/2" extruder room
- Complete ceiling in janitor closet
- Replace bad wall clock (new - does not keep time)
- Plug holes in walls and repaint walls as necessary
- Re-concrete around drain plug in front of elevator
- Make covers for funnels on therminol make-up tank
- Complete counter tops and repair bad drawers (short 1 drawer)
- Install legs and tops on 3 small tables and paint
- Move bell on telephone
- Eliminate noise over offices
- Clean light fixtures in ceiling
- Therminol system not operating properly
- Complete 2 1/2" extruder (make operational)
- Move 8 file cabinets to closet
- Broken ceiling tile by 2 story hood
- No fire extinguisher on north ramp

VII. PERSONNEL

James A. Remlinger, chemist assigned to the Finishing Area, resigned July 1.

Effective July 9, W. S. Allen, Nylon Support Chemist, is assigned to the Finishing Area. At the same time, J. D. Saladino, Analytical Development Chemist, is assigned to Nylon Area Support.

Richard A. Gray, Specification Lab Technician, resigned June 29.

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During the month, Mr. Arturo Contreras and Mr. David Clapper jointed the company as Technicians in the Specification Laboratory.

R. L. Bunkley
R. L. Bunkley

RLB:slh

Attachments

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SAMPLE COUNT TABLE I

MONTH June, 1979

Area	No. Sples. Celcon®			No. Sples. Celanex®			No. Sples. Nylon			Total (All Types)	% of Total (All Types)
	Non-		Routine	Non-		Routine	Non-		Routine		
	Routine	Total		Routine	Total		Routine	Total			
Q-1	311	10	321							321	6.1
Q-2	498	73	571							571	10.9
H-1	248 ¹	372	620							620	11.9
H-2	259	2	261							261	5.0
H-2	510	97	607							607	11.6
natural Finishing	608	3	611							611	11.7
pecial Products	712	1	713							713	13.7
celanex				222	22	244				244	4.7
ilot Plant	0	0	0							0	0.0
aw Materials	134	0	134							134	2.6
ic	82	0	82							82	1.6
ylon							1041	16		1057	20.2
others	0	0	0							0	0.0
TOTALS	3362	558	3920	222	22	244	1041	16	1057	5221	100.0

Overtime:

Regular
Holiday

TOTAL

Reg. T.M.

HCHO Feed Ave. Conc. 48.57
Hi 51.58
Low 3.99
HCHO Feed Ave. HCOOH 0.076
Hi 0.157
Low 0.004
HCHO Feed Ave. HCHO 0.30
Hi 0.70
Low 0.05

Total Samples
(All Types)

Routine 4625
Non-Routine 596

Total Sples YTD 29,498

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TABLE II.
Celcon Quality Summary

	JUNE		Year to Date	
	<u>M Lbs</u>	<u>Percentage</u>	<u>M Lbs</u>	<u>Percentage</u>
Gross Production	7345.2	100.0	40845.3	100.0
Total Packaged Off Specification	1801.0	24.5	10261.6	25.1
Quality Waivers	1369.0	18.6	8406.6	20.6

TABLE III
Celcon Experimental Products

<u>Product</u>	<u>Production</u>	<u>Releases</u>
C240A	131,010	131,010
C243	80,950	80,950
C244	511,650	511,650
C267	20,400	20,400
C300	81,600	81,600
C301	150,000	150,000

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TABLE IV

Analysis of Celcon Packaged Off Specification

<u>Natural Finishing - June</u>						
<u>Defect</u>	<u>Lots</u>	<u>Quantity</u> <u>M Lbs.</u>	<u>% of</u> <u>Total</u> <u>Natural</u>	<u>Lots</u>	<u>Quantity</u> <u>M Lbs.</u>	<u>% of</u> <u>Total</u> <u>Natural</u>
Melt Index	4	382.2	6.2	44	3876.0	12.3
Discolored Pellets	1	42.5	0.7	10	451.0	1.4
Black Specks	2	85.5	1.4	25	1861.7	5.9
Stabilizer Content	3	179.4	2.9	13	740.2	2.3
Ash Content	0	0	0	1	28.3	0.1
Natural Color	2	229.8	3.7	5	753.3	2.4
Ext. HCHO	0	0	0	4	108.8	0.3
10X Melt Index	0	0	0	1	19.1	<0.1
Kd	0	0	0	3	362.5	1.1
Volatiles	3	123.7	2.0	4	168.2	0.5
Off Size Pellets	2	326.6	5.3	2	326.6	1.0

<u>Special Products - June</u>						
<u>Defect</u>	<u>Lots</u>	<u>Quantity</u> <u>M Lbs.</u>	<u>% of</u> <u>Total</u> <u>S. P.</u>	<u>Lots</u>	<u>Quantity</u> <u>M Lbs.</u>	<u>% of</u> <u>Total</u> <u>S. P.</u>
Melt Index	17	294.0	24.7	59	877.1	9.4
Discolored Pellets	7	49.9	4.2	12	94.4	1.0
Color Match	3	25.1	2.1	14	92.1	1.0
Off Size Pellets	6	54.2	4.6	38	500.8	5.4
Colored Pellets (Contamination)	0	0	0	5	22.4	0.2
Volatiles	1	15.6	1.3	7	105.8	1.1
Stabilizer Content	0	0	0	11	366.5	3.9
Kd	13	64.3	5.4	19	119.5	1.3
Black Specks	0	0	0	1	9.4	0.1
Tensile Strength	3	47.6	4.0	5	73.2	0.8
Natural Color (Glass Filled)	1	14.3	1.2	14	177.6	1.9

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TABLE V

Celcon Releases

Formulation	Releases				Quality Waivers			
	Quantity		Lots		Quantity		Lots	
	(M	Lbs)	JUNE	YTD	(M	Lbs)	JUNE	YTD
M9000 Flake	10.5	26.8	1	3				
M9001 Flake	81.4	862.7	7	72				
M27000 Flake	0	24.9	0	2				
M2501 Natural	0	673.8	0	15	313.2			8
M2504 Natural	0	814.2	0	17	480.2			10
M2514 Natural	0	25.7	0	1				
M9004 Natural	3448.5	17458.4	45	148	959.6	4279.1	11	34
M9014 Natural	349.5	2127.9	4	17	134.7	750.5	2	7
M90210 Natural	0	30.2	0	1		30.2		1
M14014 Natural	0	49.6	0	1				
C143 Natural	366.7	2179.5	5	28	195.2			2
M27004 Natural	336.4	1795.4	2	14	68.4			1
M27014 Natural	274.8	1188.3	3	23	225.1			6
U1011 Natural	0	144.3	0	6	67.4			3
M2501 Color	0	21.8	0	2				
M9004 Color	306.5	1305.7	21	119	24.6	213.7	2	20
M9014 Color	19.4	22.6	2	4		1.9		1
M9008 Color	0	98.3	0	9				
M9008 Natural	36.0	222.2	2	14		14.2		1
M9034 Color	50.4	256.3	3	14	50.4	148.5	3	8
M14014 Color	0	38.8	0	3				
C143 Color	60.5	80.4	8	12		5.6		2
M27004 Color	0	107.1	0	10		2.6		1
M27008 Color	94.1	225.1	19	31	29.0	77.9	3	6
M2504 Black	0	107.1	0	13		39.9		1
M9004 Black	378.2	2251.4	10	66	37.3	331.6	1	9
M9014 Black	60.9	403.6	3	21	40.2	200.8	2	9
C143 Black	14.7	133.4	2	8				
M27004 Black	56.1	263.4	2	10	16.3	16.3	1	1
U1011 Black	0	20.9	0	4				
GC25A Natural	45.1	440.1	3	35	45.1	159.9	3	12
GC25A Black	0	1296.2	0	53		12.7		1
M9007 Color	0	199.9	0	49				
M9007 Black	0	122.6	0	6				
Salt & Peppers	102.4	857.1	7	62				
C155	0	124.7	0	5		85.3		3
C234A	0	735.1	0	26		99.8		4
C240A	131.0	502.6	1	4		93.8		1
C241	0	64.7	0	4		18.2		1
C243	80.9	305.0	2	7	31.8	31.8	1	1
C244	511.7	2672.6	4	28		309.6		4
C251	0	211.2	0	6		133.2		3
C252	0	176.4	0	2				
C254	0	12.6	0	1				
C255	0	5.0	0	1				
C257	0	12.0	0	1				
C267	20.4	20.4	2	2				
C300	81.6	717.4	1	7				
C301	150.0	417.5	1	4				
TOTALS	7067.7	41785.2	159	993	1369.0	8406.6	29	161

	Month	YTD
% COLOR	8.02	5.69
BLACK	7.21	9.37
OTHER	2.75	4.24
GLASS FILLED	0.64	4.15
NATURAL	82.02	75.78
CONCENTRATES	0	0.77

QUALITY WAIVERS

MONTH	YTD
19.4	20.1

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TABLE VI

Celanex Quality Summary

	JUNE		Year to Date	
	<u>M Lbs</u>	<u>Percentage</u>	<u>M Lbs</u>	<u>Percentage</u>
Gross Production	1885.0	100.0	12195.4	100.0
Total Packaged Off Specification	226.4	12.0	943.9	7.7
Quality Waivers	118.0	6.3	714.6	5.9

003909

TABLE VII

Analysis of Celanex Packaged Off Specification

<u>Defect</u>	<u>JUNE</u>			<u>Year to Date</u>		
	<u>Lots</u>	<u>M Lbs</u>	<u>% of Production</u>	<u>Lots</u>	<u>M Lbs</u>	<u>% of Production</u>
Flammability	6	58.1	3.1	9	177.4	1.5
Discolored Pellets	0	0	0	5	52.3	0.4
Ash Content	2	70.4	3.7	22	480.5	3.9
Off Size Pellets	1	17.8	0.9	2	62.8	0.5
Volatiles	0	0	0	1	39.4	0.3
Colored Pellets (Contamination)	0	0	0	2	51.2	0.4
Color Match	7	95.3	5.1	7	95.3	0.8

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TABLE VIII

Celanex Releases

Formulation	Releases				Quality Waivers			
	Quantity		JUNE	YTD	Quantity		JUNE	YTD
	(M	Lbs)			(M	Lbs)		
	JUNE	YTD	JUNE	YTD	JUNE	YTD	JUNE	YTD
2000 Natural	0	25.9	0	2				
2000-2 Natural	116.6	326.2	6	31				
2002-2 Natural	18.4	18.4	2	2				
2012 Natural	0	86.3	0	7				
2012-2 Natural	0	76.1	0	8				
3200-2 Natural	0	38.9	0	1				
3210 Natural	0	694.0	0	46		30.4		2
3210-2 Natural	0	217.8	0	13				
3211-2 Natural	0	39.5	0	1				
3300 Natural	0	2914.1	0	102		251.0		7
3300-2 Natural	0	47.1	0	1				
3310 Natural	108.7	1261.6	3	62		91.3		6
3310-2 Natural	0	370.5	0	17				
3311 Natural	0	15.0	0	1				
3311-2 Natural	0	47.0	0	1				
3200 Black	0	265.3	0	8				
3210 Black	123.0	224.5	7	12		19.5		1
3210-2 Black	57.0	102.2	3	5		25.5		1
3300 Black	1057.8	3653.1	12	49	70.4	194.2	2	5
3300-2 Black	0	19.1	0	1				
3310 Black	52.3	361.4	3	21		34.7		2
3310-2 Black	72.0	172.8	5	11		20.4		1
3311-2 Black	0	54.4	0	2				
3300 Color	95.2	217.9	8	17	47.6	47.6	4	4
3210-2 Color	21.1	21.1	1	1				
3310 Color	0	122.7	0	8				
3310-2 Color	69.8	69.8	4	4				
3311-2 Color	0	53.7	0	4				
J225	0	9.7	0	1				
J226	0	7.5	0	1				
J227	0	13.0	0	1				
J228	0	13.0	0	1				
TOTALS	1791.9	11559.6	54	448	118.0	714.6	6	29

QUALITY WAIVERS

6.6 6.2
 Month YTD

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TABLE IX
Nylon Quality Summary

	<u>JUNE</u>		<u>Year to Date</u>	
	<u>M Lbs</u>	<u>Percentage</u>	<u>M Lbs</u>	<u>Percentage</u>
Gross Production	2203.0	100.0	15074.4	100.0
Total Packaged Off Specification	623.3	28.3	5145.7	34.1
Quality Waivers	433.1	19.6	4336.8	28.8

TABLE X
Nylon Experimental Products

<u>Product</u>	<u>Production</u>	<u>Releases</u>
N181	442,800	422,400
N186	198,000	186,000
N184	44,000	44,000
N249	39,900	17,000

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TABLE XI

Analysis of Nylon Packaged Off Specification

<u>Defect</u>	<u>JUNE</u>			<u>Year to Date</u>		
	<u>Lots</u>	<u>M Lbs</u>	<u>% of Production</u>	<u>Lots</u>	<u>M Lbs</u>	<u>% of Production</u>
Relative Viscosity	6	123.3	5.6	111	2667.7	17.7
Volatiles	8	160.0	7.3	81	1830.5	12.1
Ash Content	4	89.2	4.0	12	228.0	1.5
Discolored Pellets	3	32.4	1.5	8	63.3	0.4
Off Size Pellets	0	0	0	3	81.0	0.5
Natural Color	18	317.4	14.4	30	637.6	4.2
Tzod Impact	0	0	0	14	316.9	2.1
Nucleant	2	34.8	1.6	11	208.5	1.4
Copper	0	0	0	2	42.5	0.3
Black Specks	5	43.5	2.0	5	43.5	0.3

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TABLE XII

Nylon Releases

Formulation	Releases				Quality Waivers			
	Quantity (M Lbs)		Lots		Quantity (M Lbs)		Lots	
	June	YTD	June	YTD	June	YTD	June	YTD
1000-1 Natural	0	354.4	0	18		41.3		2
1000-2 Natural	101.0	1340.0	5	67	40.1	264.8	2	14
1000-4 Natural	0	611.1	0	31		116.4		6
1003-1 Natural	188.0	365.9	9	18				
1003-2 Natural	0	907.0	0	46		142.5		7
1200-1 Natural	0	221.4	0	21		117.7		11
1300-1 Natural	0	58.0	0	3				
1310-1 Natural	11.0	11.0	1	1				
1310-2 Natural	299.8	917.3	15	47		78.3		4
1310-4 Natural	0	331.3	0	16		97.4		5
1400-2 Natural	0	63.0	0	3				
1403-2 Natural	0	32.9	0	1				
1500-2 Natural	55.2	320.1	3	11		130.7		4
1503-1 Natural	0	284.3	0	9		252.2		7
1503-2 Natural	362.0	1266.2	20	48	245.9	1072.7	13	38
1600-2 Natural	0	103.0	0	4		74.7		2
1603-2 Natural	0	24.9	0	1				
1000-2 Black	0	195.9	0	6		134.3		4
1003-2 Black	106.8	348.3	4	14	52.8	266.4	2	9
1310-2 Black	0	246.4	0	7		185.2		5
1503-1 Black	0	39.2	0	1		39.2		1
1503-2 Black	300.9	1584.8	9	46		603.7		16
1603-2 Black	57.1	108.8	2	4	19.9	42.9	1	2
1503-2 Color	0	72.6	0	6				
1603-1 Color	0	209.4	0	18				
1603-2 Color	0	12.6	0	1		12.6		1
N181	422.4	830.8	20	40	21.6	21.6	1	1
N184	44.0	62.0	3	4				
N186	186.0	302.0	18	31	52.8	61.8	5	6
N198	0	41.2	0	2				
N224	0	1209.4	0	60		63.7		3
N243	0	627.6	0	32		250.7		13
N245	0	175.6	0	9				
N249	17.0	17.0	2	2				
N269	0	342.0	0	18				
N270	0	148.1	0	7				
N273	0	147.5	0	7				
N355	0	804.9	0	42		227.6		12
N357	0	315.6	0	5		38.4		1
TOTALS	2151.2	15053.5	111	708	433.1	4336.8	24	174

QUALITY WAIVERS

20.1 28.8
 Month YTD

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