

File Copy

To: R. T. Ferrell

From: J. W. Ware
Date: June 18, 1987

**Interoffice
Communication**

Subject: ABERDEEN MONTHLY PROGRESS REPORT
MAY, 1987

VISTA

There were no injuries recorded during the month of May. As of May 31, 1987, the plant had operated 2,885 days or 3,717,268 manhours without a lost time injury.

PVC resin production for May was 38.1MM pounds. Mechanical downtime in the reactor areas was due primarily to drilling of 741, 742, 743 and 744 condensers, changing the condenser gasket on 400, changing the agitator motor on 700 and replacement of the agitator seals on 300 and 745. Resin production year-to-date totaled 284.9MM pounds. The VCM efficiency for May was 1.00172 pounds of VCM per pound of PVC produced versus a 1.00208 standard. Year-to-date VCM efficiency is 1.00825.

Compound production for May was a new monthly record of 7.9MM pounds. The previous record was set in December, 1986 at 7.5MM pounds. Line I and Line III operated thirty-one days and Line V operated fourteen days during the month. Production was limited primarily by product changes. Year-to-date compound production was 57.9MM pounds. Quality performance for flexible compounds was 0.8% off-grade of which 100% was due to mill scrap. "BC" production was 0.3%.

Dry blend production was 5.0MM pounds for May and 36.3MM pounds fiscal year-to-date. Production was limited primarily by product changes, quality control delays and transfer system maintenance. Quality performance for the month was 99.2% customer grade.

The plasticizer unit operated thirty-one days in May to produce 1.9MM pounds. Year-to-date plasticizer production is 15.2MM pounds.

Six quality involvement teams are currently active in the plant. Control charts for major properties on all resins were issued to the regional sales offices for distribution to customers. The current plan is to issue updated charts on a quarterly basis.

Total energy consumption for May was 116.458 MMM BTUs. The energy consumption per pound of product was 2202 BTUs, resulting in an adjusted CMA reduction of 57.4%. The adjusted CMA reduction for fiscal 1987 year-to-date is 54.3%.

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The total plant variable cost variance for May was \$593.0M unfavorable, resulting from an overall unfavorable price variance of \$649.2M and a net favorable efficiency variance of \$56.2M. The total fixed cost variance for May was \$156.5M unfavorable. The major contributions to the unfavorable fixed cost variance were maintenance materials and contract costs (\$71.6M), operating supplies (\$27.2M), shipping costs (\$20.3M), waste hauling (\$23.3M) and moving/home assistance (\$20.8M).



J. W. Ware

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SAFETY - K. L. Fogg, J. V. Uptain

<u>Occupational Injuries</u>	<u>May</u>	<u>Fiscal Y.T.D. 1987</u>	<u>Fiscal Y.T.D 1986</u>
First Aid	0	6	8
OSHA Recordable	0	6	6
Total Injuries	0	12	14
Number of Restricted Workday Cases	0	2	2
Number of Lost Workday Cases	0	0	0

Injuries by Department

Vinyl Operations	0	2	3
Compound Operations	0	1	2
Maintenance	0	6	6
Laboratory	0	1	0
Receiving/Warehouse	0	2	0
Office	0	0	3
Totals	0	12	14

Injuries by Type

Cuts and Abrasions	0	6	4
Eye Injuries	0	2	1
Burns	0	0	3
Bruises	0	1	0
Strains/Sprains	0	3	3
Stings	0	0	0
Other	0	0	3
Totals	0	12	14

Non-Occupational Injuries

Lost Workday Cases	1	3	6
Days Lost	3	14	66

Safety Record

Last lost time injury 7/5/79
Days since - 2,885
Manhours since - 3,717,268

On May 31, 1987, the employees of the Aberdeen plant completed 2,885 days with no lost time injury.

Topics for the plant safety meeting during the month included: Glassware Safety, Building in Safety During Process Design, Catalyst Handling Safety, Back Injury Prevention, "Hotwork" Control, Review of Accident Investigations, Department Injury Performance Review, The Importance of Safety Awareness and the Use of Personal Protective Equipment, and Maintenance Weekly Safety and Job Reviews.

The Central Safety Committee met in May. Three proposed safety procedures were adopted by the committee.

SAFETY - Continued

Health activity for the month was limited to routine dosimetry; the results of which are shown below:

<u>Chemical</u>	<u><</u>		<u>></u>	
	<u>Number</u>	<u>PEL Percent</u>	<u>Number</u>	<u>PEL Percent</u>
VCM	77	96.2	3	3.8
Lead	20	100.0	0	0.0
Total Particulates	2	100.0	0	0.0

Two of the VCM overexposures were without respiratory protection.

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NUMBER OF INJURIES



QUALITY IMPROVEMENT PROCESS - R. B. Newton

Information about the successes we've seen from the Quality Management Process was presented to the Board of Directors during their Aberdeen visit.

A SPC course about the control charts Aberdeen has prepared for customers was presented to the Saddle Brook and Oak Brook offices.

Control charts for major properties on all resins were issued to the regional sales offices for distribution to customers. These control charts will be issued quarterly.

The following teams are currently active:

1. Railcar Team - Yard operators working on problems customers have with our railcars.
2. Material Handling Team - Warehouse employees working to improve product handling methods to reduce cost.
3. Transfers Team - Warehouse employees working to reduce transportation costs between the plant and the Prairie warehouses.
4. Valve Team - Mechanics trying to reduce reactor downtime caused by valve maintenance.
5. Work Order Team - Maintenance supervision trying to make the work order system more efficient.
6. Time Card Team - Payroll department and Operations shift supervisors trying to simplify the time accounting system to reduce errors.

VINYL - D. W. Hollis, J. M. EdwardsSafety

The Vinyl and Yard Departments operated without any accidents in the month of May.

Shift safety meeting topics for the month were Proper Catalyst Handling and Responsibilities of a "Firewatch".

<u>Production</u>	<u>May</u>	<u>Y.T.D.(Fiscal 87)</u>
1. Production, MM Lbs.	38.1	284.9
2. Daily Production Rate, M Lbs./C.D.	1228	1172
3. Total Charges	950	7203
4. Charges, Reactor Batches/C.D.	30.6	29.6
5. Reactor Stream Factor	91.8	91.4
6. Dryer Rate, Average Lbs./Hr.	8967	9991
7. Dryer Stream Factor	71.5	61.6
8. Accounting Days	31	243

Vinyl Department production for May was 38.1MM pounds.

Reactors

The reactor stream factor for May was 91.8%. Downtime in the reactor area occurred as follows:

- 1) Operational Downtime: Accounted for 42.9% of the total downtime and was due to reactor recovery scheduling conflicts, downtime due to rinsing the chem wash tank, waiting on particle size information before charging, lines plugging, reactor manway O-ring failures and downtime associated with test runs and reactor inspections.
- 2) Maintenance Service Downtime: Accounted for no downtime because the cleaning of the reactor AMS injection ports and inert vent lines was accomplished while the reactors were normally down for other reasons.
- 3) Maintenance Repair/Revision Downtime: Accounted for 57.1% of the total downtime and was due to drilling 741, 742, 743 and 744 reactor condensers, changing the condenser gasket on D-400, changing the agitator motor on D-700, changing the VCM valves on 741 and changing the agitator seals on D-300 and 745.

Dryers

The dryer stream factor for May was 71.5%. Downtime in the dryer area occurred as follows:

- 1) Reactor Limited Production: Accounted for 87.5% of the total downtime. Dryers were shut down when possible for energy conservation.
- 2) Operational Downtime: Accounted for 2.5% of the total downtime and was due to centrifuge plugging, burner flameouts, dryer cleaning and transfer activator problems.

VINYL - ContinuedDryers - Continued

- 3) Maintenance Repair/Revision Downtime: Accounted for 10.0% of the total downtime and was due to major repairs and insulation to #1 dryer inlet duct, changing the socks on #7, #8 and #5 dust collector, repairs to #8 air sweep and repairs to #6 star valve.

Product Quality Summary

<u>Resin Type</u>	<u>Prime</u>	<u>"B"</u>	<u>"H"</u>	<u>% of Total Production</u>
5265	4,005,618	-	-	10.5
5305	2,321,590	-	-	6.1
5385	16,067,536	-	-	42.2
5415	14,262,424	-	-	37.5
5425	-	-	-	0.0
5465	(43,360)	-	-	(0.1)
Debox	-	846,900	-	2.2
Off-Grade	-	-	-	0.0
Sifter Overflow	-	-	88,505	0.2
Pond Resin	-	-	532,980	1.4
Total	36,613,808	846,900	621,485	100.0

Quality performance for May was 98.4% customer grade with 1.6% "H" grade production.

A total of ten railcars were shipped as "B" grade during the month which represented 8.4% of the 119 total resin hopper cars shipped.

<u>Load Date</u>	<u>Ship Date</u>	<u>Car No.</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
4/09/87	05/01/87	ACFX 36031	Silverline, NC	Debox	Quality
03/23/86	05/04/87	PLWX 44724	Freedom, WI	Debox	Quality
05/04/86	05/07/87	ACFX 97124	Wexford, CA	Pond Resin	Quality
04/23/87	05/08/87	ACFX 36065	Vulcan Plastics, AL	Debox	Quality
04/22/87	05/08/87	VIPX 45871	Vulcan Plastics, AL	Debox	Quality
04/30/87	05/13/87	VIPX 45793	Western AG., TX	Debox	Quality
05/07/87	05/28/87	PTLX 42025	Western AG, TX	Debox	Quality
05/12/87	05/28/87	VIPX 45703	Silverline, NC	Debox	Quality
05/15/87	05/29/87	VIPX 45767	Pacific Plast., OR	Debox	Quality
05/22/87	05/29/87	PLWX 44292	Vulcan Plastics, AL	Debox	Quality

VINYL - ContinuedMonthly Variable Cost Performance

Variable costs for the month were unfavorable at \$750.2M resulting from an overall unfavorable price variance of \$712.1M and an unfavorable efficiency variance of \$38.0M. Resin variable cost for the month was 20.383 cents/lb. versus the budgeted 18.334 cents/lb.

The \$712.1M unfavorable price variance was primarily attributed to higher than budgeted pricing for VCM, \$763.0M, offset by favorable freight pricing of \$22.5M, a favorable natural gas pricing of \$20.0M, and a favorable electricity pricing of \$11.6M.

The \$38.0M unfavorable efficiency variance can be attributed mainly to the unfavorable efficiency variance due to off-grade, \$54.6M; and Alcotex, \$20.6M; offset by a favorable Initiator 223 efficiency variance of \$19.8M.

VCM efficiency for the month was 1.00172 lbs. VCM/lb. PVC versus the budgeted 1.00208 lbs. VCM/lb. PVC.

YTD variable cost efficiency variances in the Vinyl Department totaled \$377.2M unfavorable.

Energy Performance/Progress

1. Plant energy performance for May was 2202 BTU/lb.

General

1. Resin raw material in the 0744 account totaled \$248.9M.

COMPOUND - P. J. Kober, J. E. Nickerson

<u>Compound Production</u>	<u>Operating Days</u>	<u>Production (M Pounds)</u>		
		<u>Month</u>	<u>Average Operating Day Rate</u>	<u>Fiscal Y.T.D.</u>
Line I	31	2746	89	19530
Line V	14	795	57	6585
Line III	31	4362	141	31798
Total		7903		57913

Line I operated thirty-one days in May at an average rate of 89M pounds per day. Major items affecting production efficiency were: product changes, 53 hours; housekeeping, 19 hours; dicer system problems and maintenance, 11 hours; quality problems, 9 hours; and Banbury maintenance, 7 hours.

Line V operated fourteen days during May at an average rate of 57M pounds per day. Major items affecting production efficiency were: product changes and startup time, 29 hours; and maintenance to the single screw hot oil system, 2 hours.

Line III operated thirty-one days during May at an average rate of 141M pounds per day. Major items affecting production were: product changes, 49 hours; preblend feeder maintenance, 14 hours; quality problems, 5 hours; transfer system problems, 5 hours; and dicer system problems and maintenance, 5 hours.

Quality performance for flexible compounds was .80% off-grade of which 100% was due to mill scrap. "BC" production was .25%.

The raw material requirement for flexible compounds was 1.01492 pounds of raw material per pound of compound versus a 1.01201 standard (YTD is 1.00919).

The variable cost variance for compound was \$11.8M favorable with \$32.5M favorable due to price and \$20.7M unfavorable due to efficiency. The efficiency variance due to product mix was \$53.3M unfavorable. The efficiency variance for DIDP was \$18.4M unfavorable due to correction of a previous accounting error. Year-to-date variance for DIDP is \$10.0M favorable.

The 7.9MM pounds of compound produced in May is a new monthly production record which exceeds the previous record (set in December, 1986) by .4MM pounds.

Total compound inventory rose .5MM pounds in May to 7.9MM pounds.

<u>Dry Blend</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	5000	161	36335
Operating Days	31	-	244

COMPOUND - ContinuedDry Blend - continued

Dry blend operated thirty-one days during May at an average rate of 161M pounds per day. Production included 80172C, 80273G, 90172D, RP-421, RP-440, RP-200, 269-192, 269-69, 269-151, 269-203 NAT, 186-74, 269-195, WCF3-2, 223-36, and 269-164.

Dry Blend production was hindered by: product changes, 64 hours; delays associated with quality and lab problems and normal Q.C., 21 hours; transfer system problems and maintenance, 28 hours; cooling blender maintenance, 15 hours; Welex maintenance, 8 hours; and Orbitran weigh computer problems and maintenance, 8 hours.

Quality performance for the month of May was 99.2% customer grade.

The raw material requirement for dry blend was 1.00797 pounds of raw material per pound of dry blend versus a standard of 1.00489 (YTD is 1.01068).

The variable cost variance for dry blend was \$103.1M favorable with \$16.8M favorable due to price and \$86.4M favorable due to efficiency. The efficiency variance due to product mix was \$75.1M favorable. There were no major dry blend raw material efficiency variances.

<u>Plasticizer</u>	<u>Month</u>	<u>Average Operating-Day Rate</u>	<u>Fiscal Y.T.D.</u>
Production, M Pounds	1914	62	15152
Operating Days	31	-	245

Plasticizer operated thirty-one days during May at an average rate of 62M pounds per day. All customer grade production was 610P.

VRP production totaled 171M pounds (8.9%).

The raw material requirement for plasticizer was 1.07102 pounds of raw materials per pound of plasticizer versus a 1.09900 standard (Y.T.D. is 1.09989).

The variable cost variance for plasticizer was \$42.1M favorable with \$13.7M favorable due to price and \$28.5M favorable due to efficiency.

The efficiency variance due to product mix was \$5.7M favorable.

Quality Improvement

Compound operators continue to chart hardness and gravity for all compounds produced on Lines I and III. Some of these charts will be distributed to specified customers starting next month. A volunteer team of operators has been formed to improve our product-change process. Data gathering, generally using charting techniques, continues for several projects such as the dicer blade wear study, the plasticizer reaction rate investigation, etc.

COMPOUND - ContinuedEnergy

	<u>Usage (BTU/Lb.)</u>	
	<u>Actual</u>	<u>Standard</u>
Compound	1697.3	1783.0
Dry Blend	616.6	730.0
Plasticizer	1567.3	1833.5

MECHANICAL DEPARTMENT - T. F. LyonMAINTENANCE - D. A. Miller, G. A. MorganSafety

There were no injuries to Maintenance Department personnel during the month. The monthly safety meeting included a review of recent accidents, accident investigations and a review of personal protective equipment.

Vinyl

The D745 and D300 reactor agitator seals were replaced. The seals ran twelve and nine months respectively before failure.

The condensers on reactors D741, 742, 743 and 744 were drilled and brushed.

The D744 condenser-to-reactor gasket failed and was replaced during the month. One of forty studs was broken off during the work and will be repaired during the October new module shutdown.

The cladding on the D743 condenser lid was inspected after drilling was completed and several cracks in the cladding were noted. A spare lid was installed and repairs to the damaged lid are being planned. Cracks were also noted in the 741 condenser lid. They were not severe enough to require immediate repairs, but will be repaired when the spare lid is re-clad.

The D400 condenser lid gasket failed and was replaced.

A new jacket eductor was installed in D743 reactor. Eight major valves were repaired in the Vinyl reactor area.

Dryer Area

The #7 dryer induced draft fan was replaced during the month with a spare. The fan failure was due to a failed bearing that caused shaft damage, resulting in excessive vibration.

A new flex boot was installed on #8 dryer centrifuge.

A new pump case was installed on the west fluid bed hot water recirculation pump. The original carbon steel case was destroyed due to corrosion caused by pH excursions in the fluid bed heating system.

The 281/282 silo transfer system large blower was overhauled.

Instrumentation and Electrical

The motor was replaced on the south fluid bed resin blower.

The D743 agitator motor bearings failed and were replaced.

MECHANICAL DEPARTMENT - ContinuedInstrumentation and Electrical - continued

The D700 agitator motor was overhauled and its power wiring was replaced back to the starter due to a ground fault.

Motors were replaced on both the #7 dryer Sweco and the old module dump Sweco.

Compound, Dry Blend, Plasticizer

A new vacuum pump was installed in the Compound Line I dicer house.

The Line I Banbury seals were changed.

The dry blend intensive cooler shaft was repaired and the outboard bearing was replaced.

Tanks 184 and 185 in the plasticizer tank farm were cleaned and inspected. No problems were noted.

The Schenk filter was disassembled and cleaned.

The plasticizer building #2 reactor agitator seal was replaced.

Quarterly preventive maintenance was performed on the Line V and dry blend process controllers.

Completed repairs and modifications to the Line III FCM orifice gate controller.

The Line III #6 dicer motor was rewound.

Utilities

New power factor correction capacitors were installed. The old PCB capacitors were disposed of.

The annual #1 boiler inspection was completed. The back wall of the fire box was replaced and new relief valves were installed.

Capital Project Status - R. E. PolkAFE A5L2 - Plasticizer Modernization Phase I

Materials to tie-in the south PA tank have been received. Installation is scheduled for completion by the end of June. The project will be closed to field charges by 7/15.

AFE D756 - Reactor Jacket Expansion Joints

Installations on D742, D743 and D744 are planned for the weeks of 6-8, 6-15 and 6-22, respectively. Joints for reactors D700 and D745 are to be installed during their respective module outages in August and October.

MECHANICAL DEPARTMENT - ContinuedCapital Project Status - continuedAFE C566 - Master Batch Bulk Resin Handling

Materials to complete punchlist and safety audit items are due by 6/12. Completion of all items is planned for 6/30. The project will be closed to field charges in July.

AFE D606 - Propane Tank Farm Electrical Revisions

Electrical construction is 80% complete and in progress. Materials to replace the sequence controllers on the vaporizers are due by 6/15. Installation is planned for completion by 7/1. The project will be closed to field charges in July.

AFE F537 - Dry Blend Transfer Lines

Design is 90% complete and in progress. Completion is scheduled for the week of 6/15. Construction is planned to begin in July with completion by 9/1.

AFE F786 - Resin Quality Improvement - Permanent Facilities

Construction for Phases I and II is in progress and scheduled for completion by 7/1. Modicon software will be installed during the week of 6/15. Detail design for Phase III has begun at Litwin. Options to resolve MCC locations are being investigated by the plant and GED. A resolution is planned for June.

Contracts - C. A. Clark

A total of seven general service contracts and forty-two register tickets were issued during the month of May.

PROCESS ENGINEERING - V. E. Messick

Resin Quality Improvement Project

- A. Flexible Resin Technology - A test run was conducted to optimize the amount and time of Alcotex injection in order to increase 5415 batch size with good hard particle results. The 5415 batch size is now equal to the old 5425 batch size. A test run was also conducted to evaluate alternatives to bottom addition of Alcotex.

A letter was issued that outlined recommendations for handling Alcotex solution cooldown during hot weather. The dryer temperature control instrumentation is being reviewed with GED to determine if revisions will help reduce hard particle formation.

- B. Rigid Resin Permanent Facilities - Equipment and instrument inquiries are being reviewed. Information on specialty items, piping specifications, tie-ins, and equipment asset numbers were given to GED personnel in Houston. Review of the area plot plans and general arrangement of the building was held in Aberdeen. Assistance was given to the construction group to outline final tie-ins to be made during a vinyl area shutdown in June.

Rigid Calendering Team Activities

Twelve 5305 resin samples were trialed on BASF's laboratory scale calender. Eight of these samples were from an experimental design and four samples had specific recipe changes. The results are being compiled by L. G. Haefner, R&D, and will be used to determine the effect of resin processing variation on calender operation and film quality. Trip reports are being issued by J. G. Cole and E. J. Meyer. SPC charts were begun on six process variables in 5305 production and issued.

Line III Metal Detectors

The Class "A" design for metal detectors on Line III was issued and reviewed in the plant. The metal detector will detect both ferrous and non-ferrous metals. Several customer complaints have resulted from metal contamination.

Blown Film Equipment

The blown film equipment was started up and film was blown from 5305. Currently, cross-contamination measurement procedures are being determined. Baseline cross-contamination data will be established before the separate 700 and 745 reactor dumplines are operational.

Rigid Calendering Resin Antistat Addition System

A Class "A" design for installing an Atmer 129 antistat addition system for 5305 resin was issued for plant review. Atmer 129 eliminates the calender processing variation seen with calcium stearate.

Emergency Power to Initiator Freezers

Operating procedures and operator training were completed for the system supplying emergency power to the initiator freezers.

PROCESS ENGINEERING - Continued

Water Management Project

The Water Management Project was initiated during the month. Plant process engineering will work with PED to define alternative water sources as well as water conservation and recycle options.

RQIP Environmental Team

The sampling program to quantify organic loadings and performance of the plant's wastewater system was started during the month. The goal of the program is to develop a working model of the wastewater system in order to predict the effect of increased organic loading due to RQIP.

PERSONNEL - R. A. Miller

EMPLOYMENT

Allison H. Russell, New Hire
Kenneth G. Akins, Rehire

PROMOTIONS/TRANSFERS

None

RETIREMENTS

None

TERMINATIONS

None

TO/FROM LEAVE OF ABSENCE

None

Aberdeen, Mississippi

MAY, 1987
MONTHLY PERSONNEL REPORT

Salaried Employees 76 *

Hourly Employees 168

Total Employees 244

Employees (Hourly)

New Employees 0

Terminations 0

Minority Employees # %

Salaried 8 11%

Hourly 65 39%

Total 73 30%

Hourly Min. Hired 0

% Min. Hired 0

Hourly Min. Term. 0

% Min. Term. 0

DEPARTMENTS	PAR	# EMPLOYEES	MIN. EMP.	% MIN.	NEW HIRES	YTD	TERM.	YTD	TURNOVER	YTD
Warehouse	<u>14</u>	<u>16</u>	<u>7</u>	<u>44</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Gen. Plant	<u>16</u>	<u>13</u>	<u>6</u>	<u>46</u>	<u>0</u>	<u>7</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Maintenance	<u>39</u>	<u>38</u>	<u>8</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Laboratory	<u>22</u>	<u>24</u>	<u>5</u>	<u>21</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Compound	<u>33</u>	<u>40</u>	<u>28</u>	<u>70</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Vinyl	<u>32</u>	<u>32</u>	<u>9</u>	<u>28</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Plasticizer	<u>4</u>	<u>5</u>	<u>2</u>	<u>40</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>

Number of Applicants:

Month 6 Year to Date 23

APPLICANT BREAKDOWN:

Minority 4 % Minority 67

Female 1 % Female 17

Hires (Hourly) :

Month 0 Year to Date 7

Terminations (Hourly) :

Month 0 Year to Date 2

Overall Turnover 0

Projected Annual Turnover 2.9%

* Includes 1 temporary employee, one Co-Op Engineer and 1 Summer Engineer.

OVERTIME AND ABSENTEEISM

Department	Straight Time Hours Worked	Overtime Hours Worked		Overtime as a % Of Straight Time	Absence Hours Lost	Absence as a % of Straight Time	
		Controllable(1)	Non-Controllable(2)			Sickness	Other
WAREHOUSE	2633.00	201.75	36.00	9.03	21	.76	.04
MAINTENANCE	4683.75	376.00	8.00	8.20	20	.17	.25
LAB	3507.00	262.00	118.00	10.84	167	4.11	.65
COMPOUND	6206.25	730.00	251.25	15.81	70	.77	.35
VINYL	5807.00	798.25	216.00	17.47	26	.00	.45
PLASTICIZER	707.75	57.25	24.00	11.48	40	5.09	.56
UTILITY BOILER	624.00	51.00	24.00	12.02	00	.00	.00
GENERAL PLANT	662.25	22.25	----	3.36	162	24.16	.30
TOTAL	24831.00	2498.50	677.25	12.79	506	1.68	.36

- (1) Controllable Overtime - all overtime excluding overtime due to working regular hours on a holiday and working the sixth day in operations.
- (2) Non-Controllable Overtime - that overtime due to working regular hours on a holiday and working regular hours on the sixth day in operations.

ENERGY CONSERVATION - F. G. Jeanson

I. Plant Operations

Total energy consumption for May was 116.458 MMM BTUs. Energy consumption decreased to 2202 BTU/lb. from 2388 BTU/lb. in April. An adjusted CMA reduction of 57.4% was obtained for the month. The adjusted CMA reduction for fiscal 1987 is 54.3%.

II. Plant Energy Conservation Program

Maintenance

There were six energy related items completed in May. All six of these items were steam leak repairs.

III. Boiler Operation

<u>Boilers</u>	<u>Combustion Efficiency %</u>	
	<u>May, 1987</u>	<u>May, 1986</u>
No. 1	83.3 ⁽²⁾	(1)
No. 2	83.4 ⁽³⁾	83.5
No. 3	83.1	83.4

Note: (1) Boiler number one was not used during the month.

(2) Boiler number one was operated fourteen days during the month.

(3) Boiler number two was operated seventeen days during the month.

ENERGY CONSERVATION DATA

<u>Month</u>	<u>1987</u>	<u>1986</u>
	<u>May</u>	<u>May</u>
<u>Production, MM Lbs.</u>		
Resin	38.1	36.5
Dry Blend	5.0	5.9
Compound	7.9	5.4
Plasticizer	1.9	2.0
TOTAL	52.9	49.8
<u>Natural Gas</u>		
Consumption, MSCF	54906	53091
Conversion, BTU/SCF	1020	1020
Energy Consumption, MMM BTU	56.004	54.154
Energy Consumption, BTU/lb.	1059	1087
<u>Electricity</u>		
Consumption, MM KWH	6.0453	5.3856
Conversion, BTU/KWH	10000	10000
Energy Consumption, MMM BTU	60.453	53.856
Energy Consumption, BTU/lb.	1143	1081
<u>Propane</u>		
Consumption, M Gal.	0	0
Conversion, BTU/Gal.	92000	92000
Energy Consumption, MMM BTU	0	0
Energy Consumption, BTU/lb.	0	0
<u>Total</u>		
Energy Consumption, BTU/lb.	2202	2168
Energy Consumption, MMM BTU		
Actual Unadjusted	116.458	108.010
Actual Adjusted	95.345	84.776
1972 Base Period	223.742	207.984
<u>CMA Reduction (%)</u>		
Adjusted	57.4	59.2
Unadjusted	47.9	48.1
Fiscal 1987 Year-to-Date	54.3% Adjusted	
Performance	44.6% Unadjusted	

ENVIRONMENTAL - R. A. Frohreich

Water

All wastewater discharge parameters were within NPDES limits during May.

The Bureau of Pollution Control sampled all four discharge points. They will check the samples to determine if NPDES discharge limits are being met.

The April chronic bioassay results were issued to the State. A significant mortality was found in the 50% and 100% effluent. Additional acute bioassay testing will be conducted in June to try to determine what is causing the toxicity.

Air

The application for the renewal of the plant Operating Permit is being prepared.

Waste Management

One truckload of waste oil was shipped to Stauffer Chemical Company.

One truckload of reactor culls was shipped to Sun Polymers.

Miscellaneous

The annual environmental meeting was attended this month.

TABLE I
WATER COMPLIANCE WITH
NPDES PERMIT PARAMETERS

		Flow	BOD		COD		Sus. Solids		Diss.	NH ₃	pH
		GPM	PPM	LB./DY.	PPM	LB./DY.	PPM	LB./DY.	O ₂	LB./DY.	
Oct. -	Ave.	1010	6	77	26	311	14	165	7.4	2.7	7.6
	Max.	1207	10	120	33	404	23	281	8.0	7.3	8.0
Nov. -	Ave.	1031	15	183	33	406	23	281	8.2	0.1	7.6
	Max.	1075	17	213	42	527	37	464	9.1	0.1	7.8
Dec. -	Ave.	987	23	268	71	846	13	179	7.6	2.0	7.3
	Max.	1350	46	373	110	1284	24	302	8.6	4.7	7.8
Jan. -	Ave.	1062	15	194	53	662	18	231	9.6	2.1	7.7
	Max.	1300	20	310	57	775	28	434	10.3	4.6	7.8
Feb. -	Ave.	858	14	142	42	431	10	99	10.0	4.9	7.7
	Max.	900	26	266	75	766	13	140	10.6	9.3	8.0
Mar. -	Ave.	903	11	119	38	409	19	206	8.8	4.0	7.8
	Max.	970	21	217	50	541	35	362	10.5	7.6	8.3
Apr. -	Ave.	990	8	93	42	505	33	407	9.1	2.5	8.0
	Max.	1177	10	121	56	680	78	986	11.0	6.1	8.3
May -	Ave.	1049	8	104	31	384	8	101	7.7	8.8	8.0
	Max.	1243	11	116	40	515	11	142	7.8	17.8	8.6
June -		Ave.									
		Max.									
July -		Ave.									
		Max.									
Aug. -		Ave.									
		Max.									
Sept. -		Ave.									
		Max.									

NPDES Permit Limits - December 1 through April 30

Ave.	-	32	431	-	1462	-	674	> 6.0	13	6.0 - 9.0
Max.	-	43	800	-	2713	-	1396		28	

NPDES Permit Limits - May 1 through November 30

Ave.	-	26	357	-	1212	-	674	> 6.0	13	6.0 - 9.0
Max.	-	40	744	-	2523	-	1396		28	

LABORATORY - H. G. ColemanSafetyA. Safety.

There were no injuries reported during the month. D. S. Cox led this month's safety meeting; the topic was "Safe Handling of Glassware".

B. Customer RelationsCustomer Contacts

Southwire Company - The problems with SWC's dry time test method have been resolved. They were actually using a lower charge volume and a higher plasticizer addition temperature than their procedure indicated. We are running their dry time test on each shipment along with their volatiles test (45 minutes at 105°C). A correlation will be developed with our standard tests.

Twitchell - Twitchell's application (fiber coating) appears to be very sensitive to hard particles. We will attempt to select low HP resin for them and will check HP's on each compartment.

Requests for Corrective Action

There were no RCA's received in May.

Customer Problem Reports

<u>Date</u>	<u>Customer</u>	<u>Product</u>	<u>Reason</u>
5/07& 5/22	Times Fiber Chatham, VA	38601 Black	High hard particles.
5/21	Precision Trim	14941 Black	Pitting and burning.
5/22	Dayton Extruded Plastics Springboro, OH	269-151 WHT145	Color too yellow; high torque.
5/27	Flexible Technologies Abbeville, SC	17121 CB50 18031 CB50	Gels; "crow's feet". Stringers.

Waivers Issued

<u>Customer</u>	<u>Product</u>	<u>Reason</u>	<u>No.</u>
H&W Plastics	5385	Bulk Density	1 HT
Hoechst Celanese	5305	Static Flow	5 RC
IPC (Intex)	5305	Static Flow	1 RC
Nibco	5305	Static Flow	2 HT

LABORATORY - ContinuedC. Development Lab SummaryRVCN of In-Process Samples

The following is a summary of residual VCM results on in-process samples. None of the reactor daily averages exceeded 400 ppm during the month of May, 1987.

	Reactor Slurries	Drier		Blend Tanks	
		5265	5305	5265	5305
Number of Samples	960	65	49	85	30
Average ppm, VCM	212	1.7	1.0	18.7	6.4

RVCN of Shipment Samples

The following is a summary of the residual VCM analysis of shipment samples for the month of May, 1987.

<u>Product</u>	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>	<u>5425</u>	<u>Debox</u>	<u>Dry Blend</u>	<u>Pond</u>
No. of Samples	69	65	35	50	3	20	39	12
Average RVCN, ppm	0.6	0.3	0.2	0.1	0.1	0.4	0.3	0.5

D. Resin Process Capabilities (CPK) - Regular (Dryer) Samples

	<u>5265</u>	<u>5305</u>	<u>5385</u>	<u>5415</u>	<u>5465</u>
Bulk Density	0.70	0.13*	1.57	1.21	
Inherent Viscosity	0.41	0.92	0.46	0.67	
"L" Color Value	2.24	6.56	3.25	4.22	
"A" Color Value	2.17	8.33	-----	-----	
"B" Color Value	1.22	1.50	3.33	4.00	
% on Pan (vs. 2% max.)	1.33	4.56	4.11	4.22 (0.89)	No Production
% thru 140m	1.33	1.18	1.21	3.04	
Drytime	-----	-----	0.33	0.67	
Mets IR (vs. 95% of control)	-----	-----	-----	1.15 (0.69)	
Hard Particles (% > 10)	-----	-----	2.6	12.5	

* 5305 bulk density is low because of an effort to reduce antistat at Hoechst's request.

LABORATORYE. Compound Quality Summary

	<u>Adjustments</u>	<u>Rejections</u>
	<u>M Lbs. (%)</u>	<u>M Lbs. (%)</u>
Hardness	21.00 (0.27)	26.74 (0.34)
Specific Gravity	7.00 (0.09)	- (-)
Color/Clarity	- (-)	4.50 (0.06)
Hard Particles	- (-)	12.00 (0.15)
Heat Stability	5.00 (0.06)	- (-)
Contamination	- (-)	3.00 (0.04)
Dicing	- (-)	22.63 (0.29)
Metal	- (-)	7.50 (0.09)
Total	33.0 (0.42)	76.37 (0.97)

F. Dry Blend Quality Summary

	<u>Rejections</u>	
	<u>M Lbs.</u>	<u>(%)</u>
Stability	3.9	(0.08)
Partial Box	0.5	(0.01)
Color	13.0	(0.26)
Fusion Torque	9.9	(0.20)
Misc. (combinations)	11.4	(0.23)
Total	38.7	(0.78)

G. Miscellaneous

1. Beginning this month, we are reporting hard particles at five and seven minutes rather than three and seven. All three-minute results for the past six months have been "50+". It is hoped that the five-minute results will prove to be more useful and meaningful.
2. In-Plant TCLP testing began in May. Initial results indicate that our resins should pass the TCLP limit of 50 ppb maximum in the extract. The limit on 5265 appears to be in the 10-15 ppm range (dry resin), while all other resins tested fall in the 2-2.5 ppm range. Apparently, VCM diffuses more readily during the leaching process from the more porous resins. Work will continue in June.
3. The saturation level of water in 108P plasticizer was determined to be 0.098% at 75°F, which is less than our specification of 0.1%. Colder temperatures reduced the solubility, but the extent was not quantified.
4. Work was initiated this month to collect some background data on resin (specifically 5305) blown film analysis. Initial results indicate that cross-contamination is currently a problem (no startling revelation!) and that one must use a clean, new container to gather samples.

SHIPMENTS BY PRODUCT - M LBS.

MAY 1987

FISCAL
YEAR-TO-DATE

A

RESIN	26,792	215,900
PLASTICIZER	681	6,129
DRYBLEND	4,538	36,456
COMPOUND	7,448	58,065
TOTAL	39,459	316,550

NUMBER OF SHIPMENTS BY MODE:

	RAILCAR	VISTA BULK	TRUCK VAN	TRAILER ON A FLAT CAR	COMMON CARRIER	CUSTOMER PICK-UP	CONTAINER	TOTAL
RESIN-Bulk	118	37			6	102		263
Package			2		9	2		13
Export			1					1
PLAST.-Bulk	4	2			1			7
Package								
DRYBLEND-Bulk	22	15			1			38
Package			3		4	1		8
Export								
COMPOUND-Bulk	18	6			2			26
Package			38		30	34		102
Export					1			1
TOTAL MAY	162	60	44		54	139		459
OCTOBER	116	41	51	2	52	160		422
NOVEMBER	146	64	39	2	64	135		450
DECEMBER	133	46	29	1	48	133		390
JANUARY	193	68	44	3	89	147		544
FEBRUARY	154	50	45	3	56	143		451
MARCH	181	60	56		64	129	3	493
APRIL	150	53	46	4	44	140	1	438

ENERGY USAGE

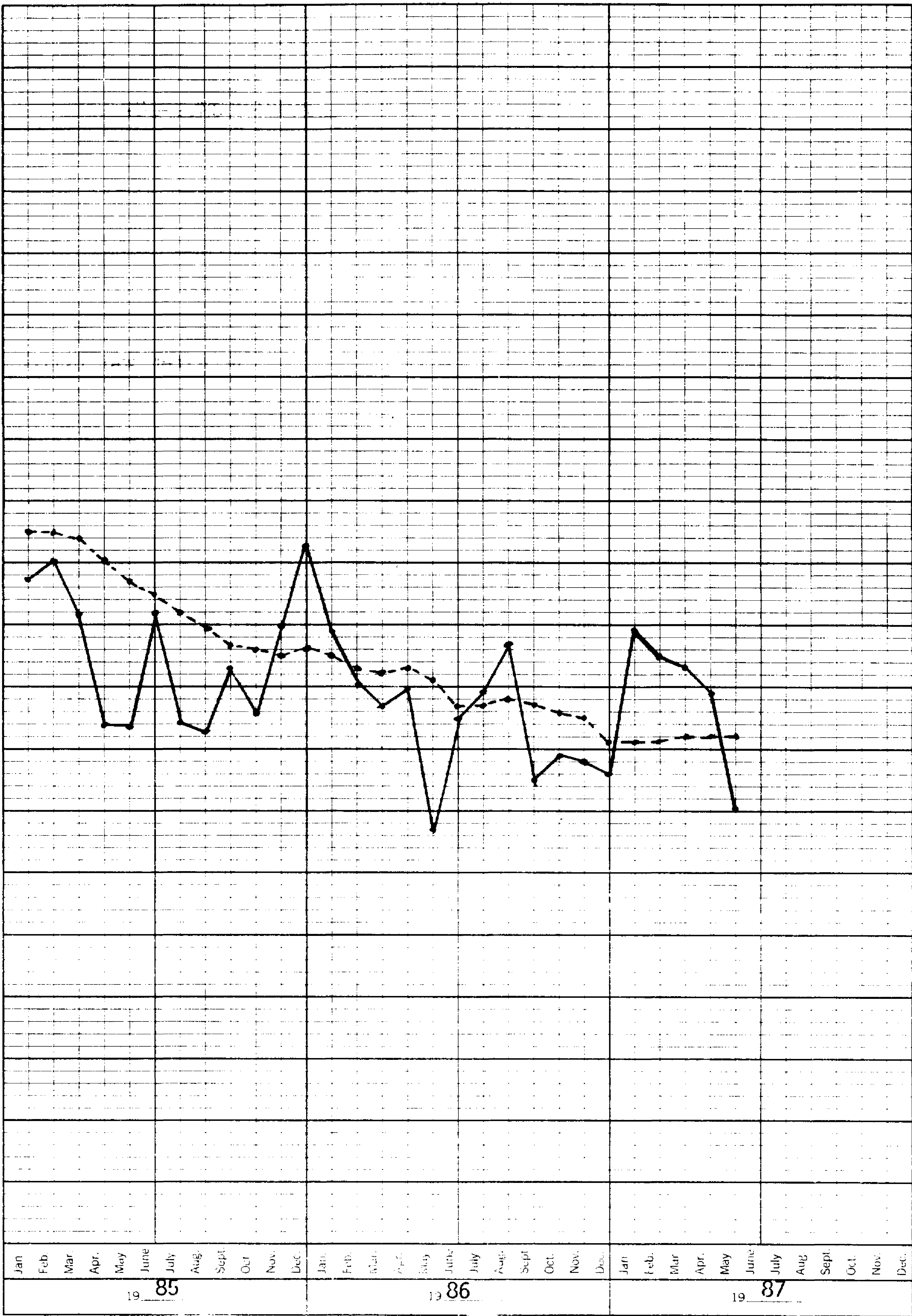
A

46 3290

BTU/LB.

3500
3000
2500
2000
1500

3 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



Monthly

12-Month Moving Avg.

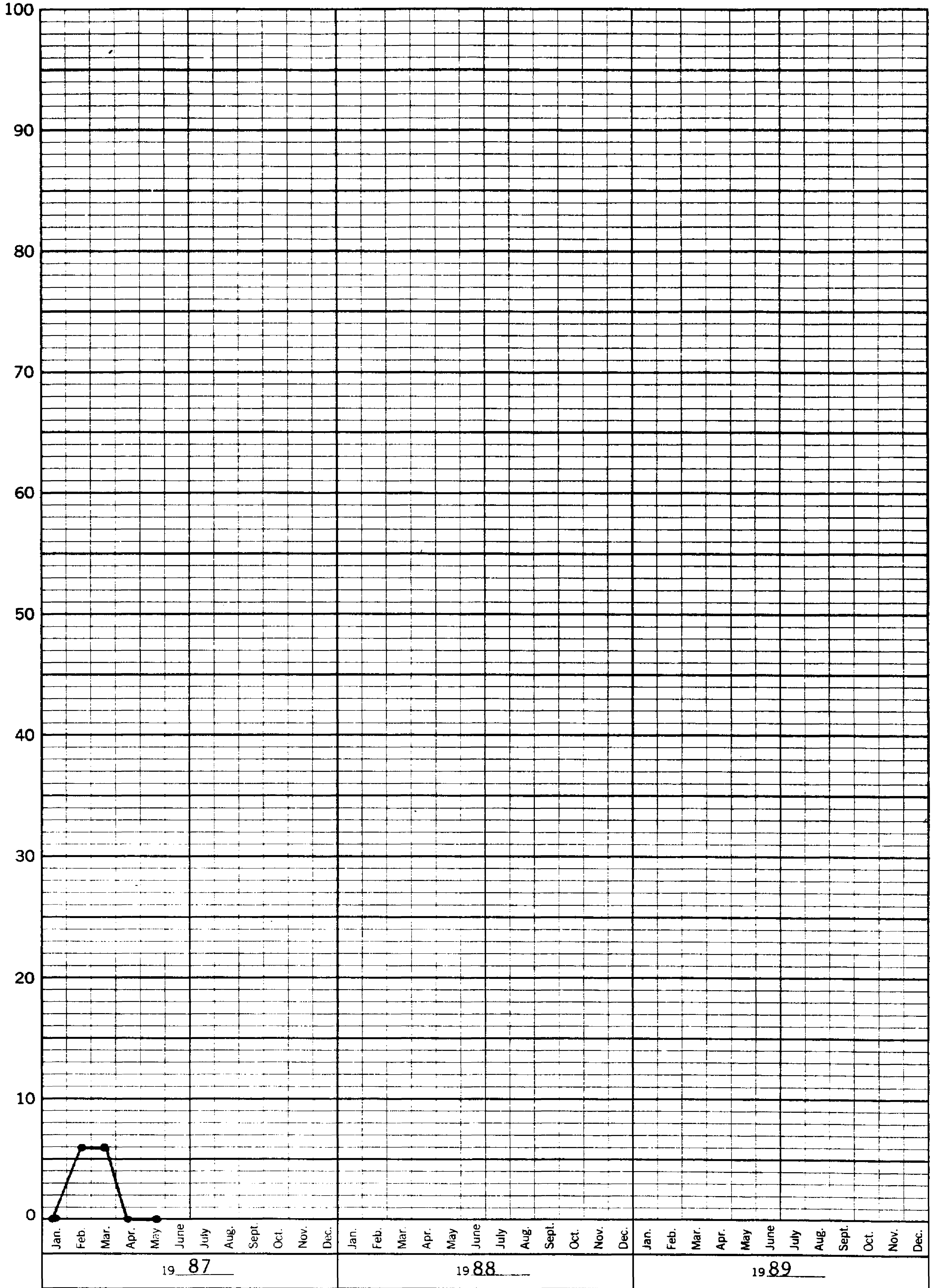
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MONTHLY HOURLY TURNOVER

A

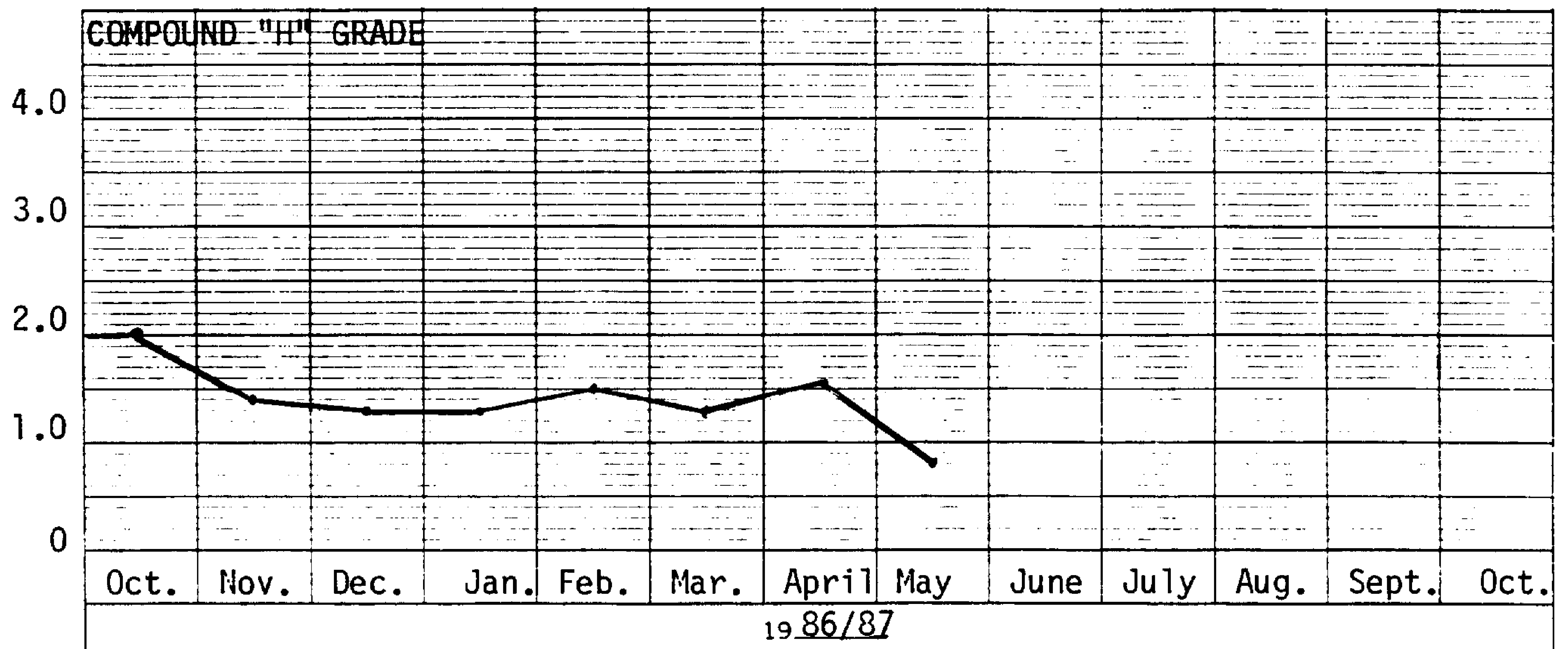
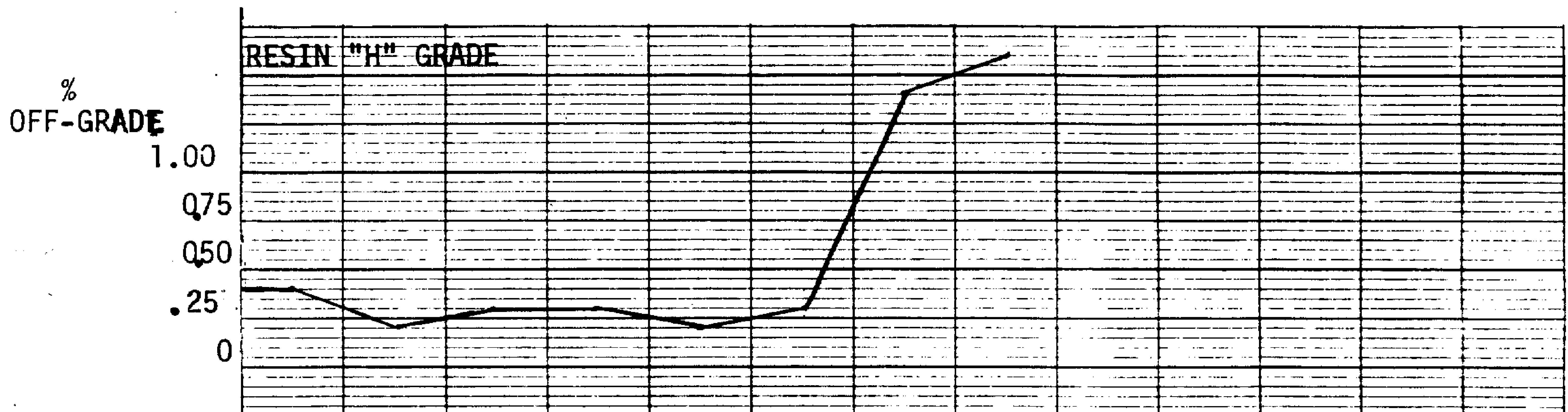
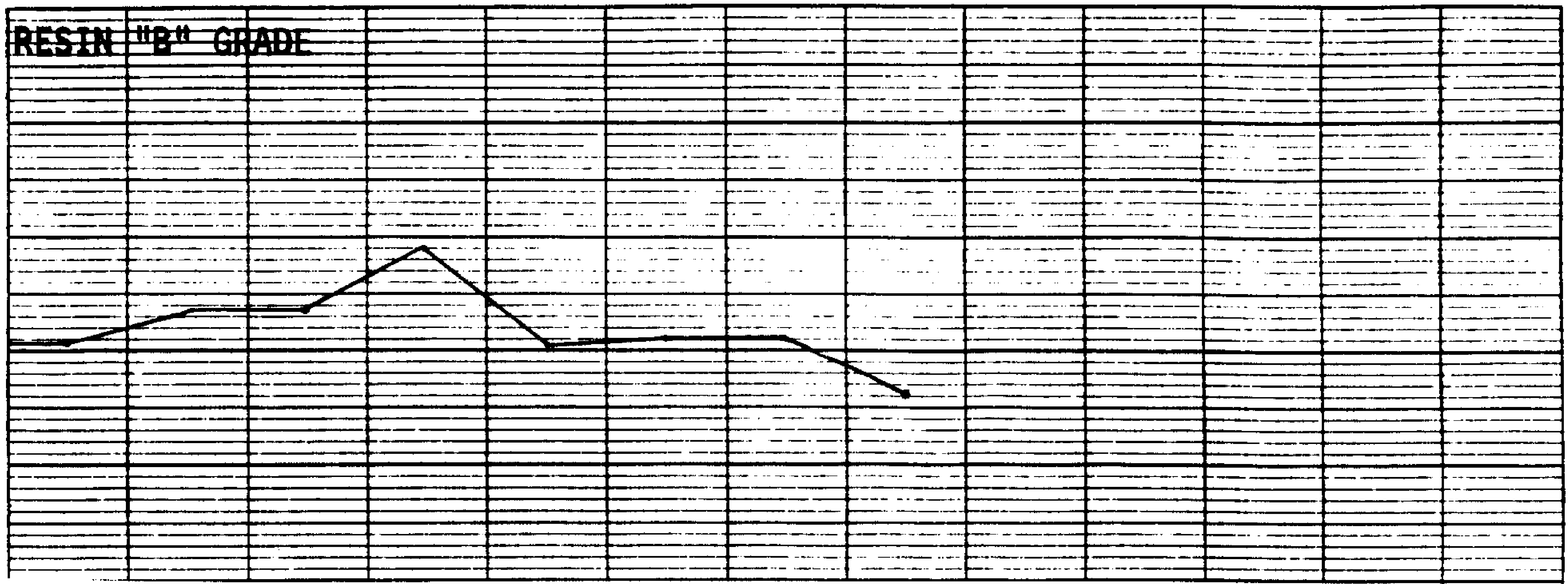
46 3290

K+E 3 YEARS BY MONTHS X 100 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.



ABERDEEN PLANT QUALITY PERFORMANCE

10/01/86 - 09/30/87

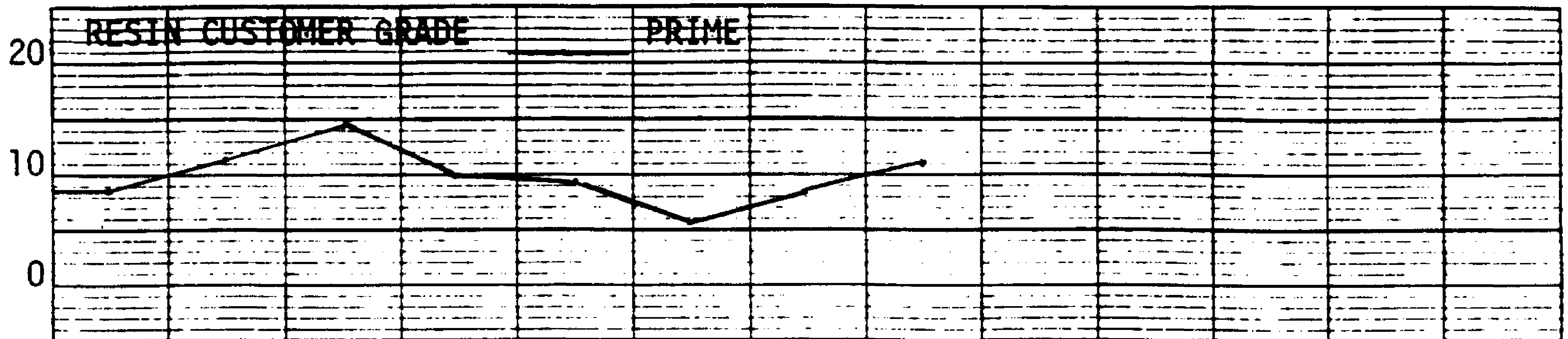


ABERDEEN PLANT INVENTORIES

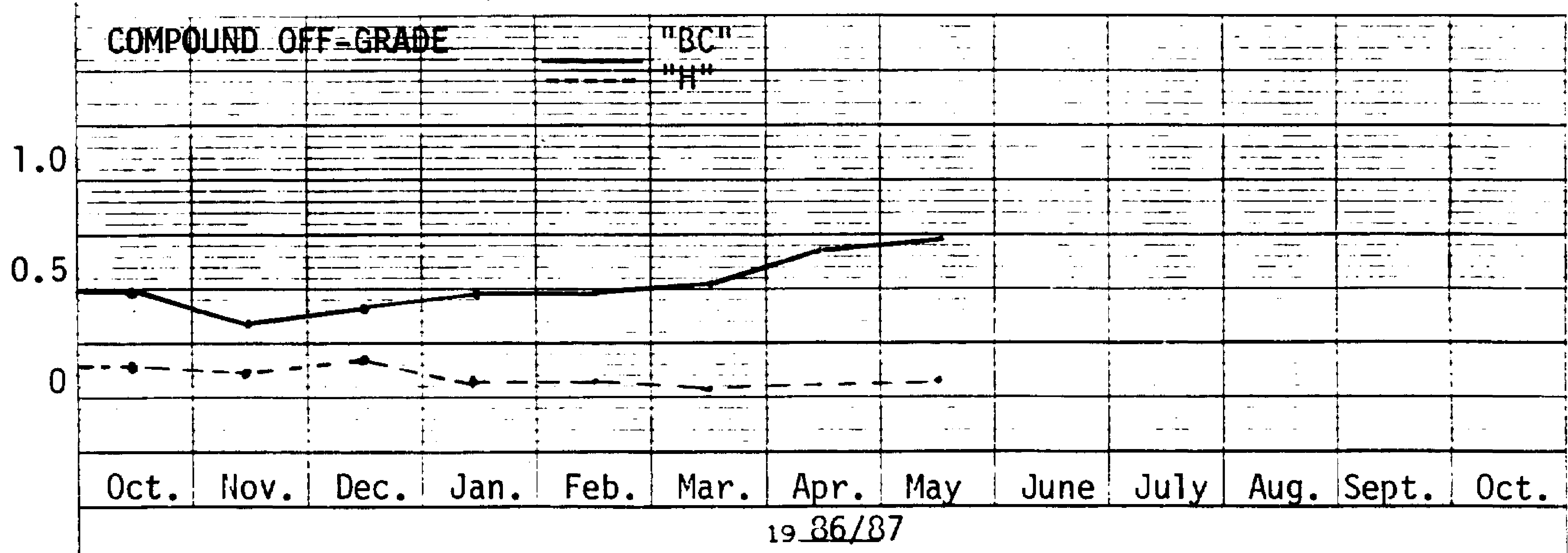
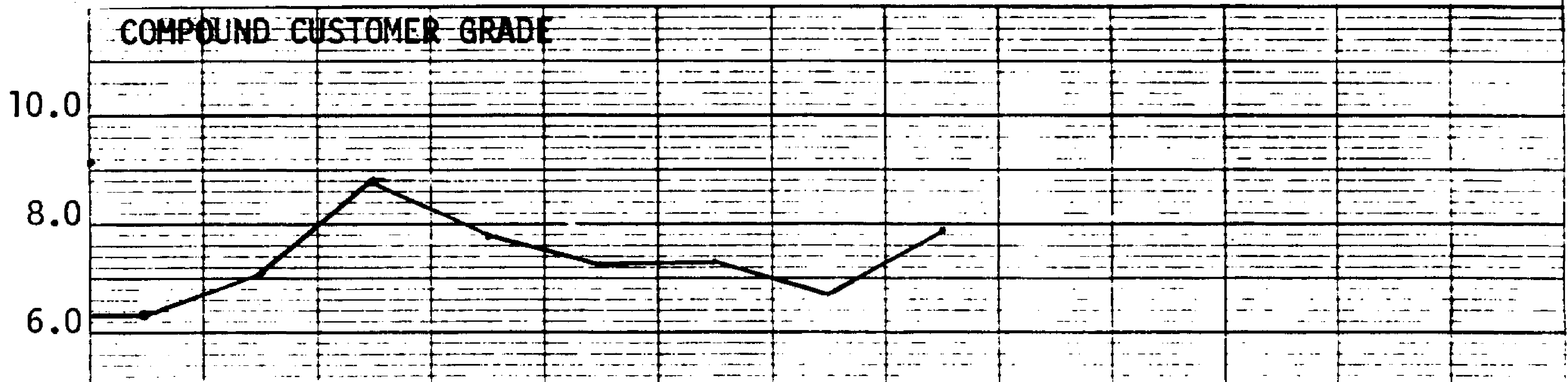
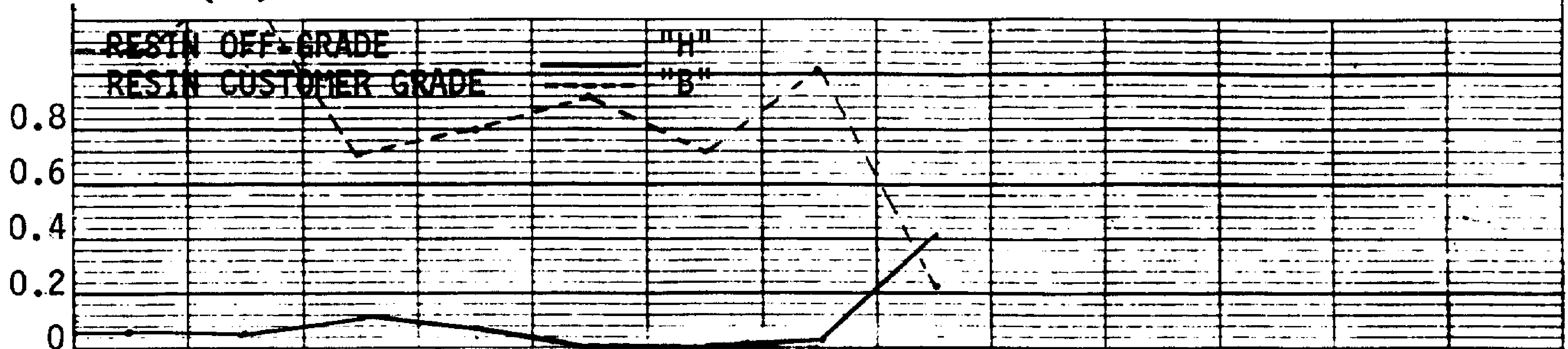
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10/01/86 - 09/30/87

MM
POUNDS
PRIME



(1.4)



19 86/87

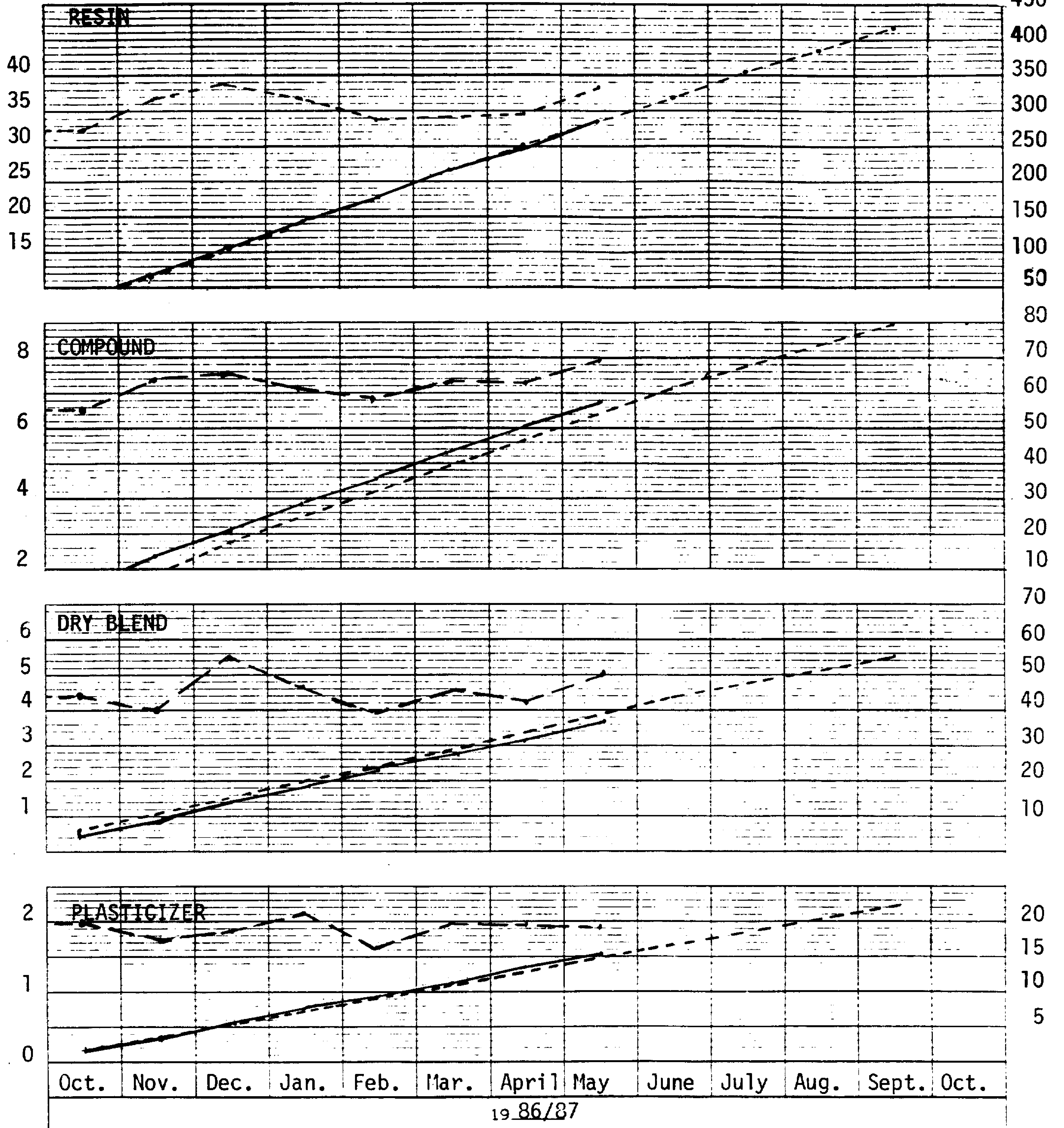
ABERDEEN PLANT PRODUCTION

10/01/86 - 09/30/87

A

MM POUNDS
MONTHLY

MM POUNDS
CUMULATIVE



----- Budget
 - - - - Actual
 _____ Cumulative

VAB.0001191376

ABERDEEN PLANT EFFICIENCY

10/01/86 - 09/30/87

A

POUNDS OF RAW MATERIAL/POUND OF PRODUCT

