

INTER-OFFICE MEMO TENNECO CHEMICALS, INC.

TO M. W. Williams (2) AT Piscataway DATE October 28, 1969

FROM E. L. Kanyok AT Burlington COPY TO H. B. Carr
J. C. Fisher
E. J. Hourihan
G. I. Rozand
File

SUBJECT Mexican Homopolymer Testing

Our Western Electric electrical test (Method 2-4) was run on the six 250-12 type homopolymer resin samples from J. C. Hahn. The results shown below indicate that these samples meet our specification requirements and also are in the same range as normal Burlington 250-12 production.

<u>Lot No.</u>	<u>V. R. Value</u>	<u>Specification</u>
388105	2.48×10^{12}	1.0×10^{12} minimum
388066	2.36×10^{12}	
388110	3.54×10^{12}	
388067	3.25×10^{12}	
388075	3.25×10^{12}	
388096	4.13×10^{12}	

An average of the last 30 production lots in Burlington has been 3.5×10^{12} .

J. C. Hahn indicated that Primex may purchase electrical testing equipment. The equipment used in Burlington is recommended over the equipment used in Flemington. This is the reason why these tests were conducted in Burlington. The details on the required equipment are as follows:

Hydraulic Press

Type - Q-230
 Manufacturer - Pasadena Hydraulic, Inc.
 1434 N. Tyler Avenue
 South El Monte, California
 Capacity - 30 ton
 Platens - 2
 Price - \$1,596.00 (1969)

October 28, 1969

Megohmmeter

Model - 29U

Manufacturer - Electronic Instruments Ltd.
Richmond, Surrey, England

Retailer - Herman Sticht
New York, New York

Accessories - Cable - Electrodes - Weights - 1 amp Fuses - Standard
Resistors

Price - \$780.00 (1969)

E. L. Kanyok
E. L. Kanyok

ELK/rjl

Note: J. C. Hahn already has a copy of Method 2-4.

TENNECO PLASTICS DIVISION

CAPITAL EXPENDITURE REQUEST

Title: Proposed Analytical Quality Control Project No.: _____
Laboratory and Process Development/
Quality Control Office Expansion in
the Burlington Resin Plant

Date: October 28, 1969 Prepared by: H. B. Carr

I. STATEMENT OF REQUEST

\$ is requested for the dual purpose of:

- A. Providing additional laboratory area for a more efficient utilization of present Quality Control facilities.
- B. Meeting additional Analytical Quality Control testing requirements.
- C. Providing office space required for six technical staff members.

The expanded testing capabilities and office facilities are required to permit realization of a minimum \$42,000/year cost savings.

II. DESCRIPTION OF FACILITY

A. Analytical Control Facility

The present homopolymer testing laboratory will be consolidated into the copolymer/plastisol laboratory area. The laboratory supervisor's office presently in this area will be dismantled to provide the required additional space. The present homopolymer testing area will then be utilized for 67 percent of the required space for the Analytical Quality Control facility. For the additional 33 percent space requirement, a facility with heating, air conditioning, utilities, laboratory benches and a hood will be constructed in the rear portion of the former lunchroom area of the administration building. This facility will utilize 23 percent of this former lunchroom area.

B. Office Expansion

The remaining 77 percent of the former lunchroom area will be utilized for construction of two double and two single occupancy offices. The offices will be frame construction with sheetrock exterior and paneled interior and will contain individually controlled, wall mounted air conditioning units.

III. NEED FOR FACILITY

A. Analytical Control Facility

This new laboratory will utilize more sophisticated analytical techniques already established by R & D to:

1. control raw material quality,
2. improve in-process control,
3. perform new and more complex characterization tests necessary to establish and maintain a more profitable product mix.

A description of these tests is attached in Appendix A.

B. Office Expansion

Present office facilities for Process Development and Quality Control are considerably below the accepted norms for an efficient technical operation. Process Development has four engineers working on a variety of projects and one secretary all occupying the same office with only 230 square feet of floor space. The office space requested in this proposal will alleviate present overcrowding and will provide the minimum required office facilities.

IV. CAPITAL DISTRIBUTION

V. WORKING CAPITAL

Not applicable.

VI. FINANCIAL RETURN

VII. TIMING

The project should be completed two months after approval of this expenditure request.

VIII. ALTERNATE APPROACHES

A. Proposal dated 12/31/68

The original proposal was to utilize 100% of the former lunchroom area for the Analytical Control facility thereby eliminating a need to rearrange the present Quality Control Laboratories. A separate proposal was submitted by the Production Department requesting construction of an extension to the Administration Building for additional office space. While these combined proposals offered immediate solutions to laboratory and office requirements, the cost was high; in excess of \$150M total.

B. Maintain a Laboratory Trailer and Utilize the Entire Lunchroom Area for Offices

As in the recommended approach, 67 percent of the Analytical Control laboratory requirement would be provided for by utilizing the present homopolymer testing laboratory. The present laboratory trailer would then be utilized for the additional 33 percent of required space.

This approach has the advantage of providing more space for offices. However, the laboratory trailer was and is intended to be a temporary expedient. Considering the requirements of the Analytical Quality Control facility from a utilities and safety point of view will not permit the use of the laboratory trailer for this purpose.

XI. APPROVALS

Manager: _____ Date: _____

Director: _____ Date: _____

APPENDIX A

ANALYTICAL QUALITY CONTROL TESTING

1. Raw material and in-process control data required to reduce plastisol reaction cycle times will be provided. These cycle time reductions will result from process adjustments based on quality data for vinyl chloride monomer and DHW-80 emulsifier. It has been established that a reduction of 2 hours in average cycle times for production of 1716, 1730, 1732, and 1742 can be achieved.

Average cycle time savings (DHW-80 type)	= 2 hours/batch
	= 10 hours/day
DHW-80 products as % of Product Mix	= 75%
Cycle time savings/year = $0.75 \times 10 \times 365$	= 2756 hours/year
	(1 plant)
	= 5512 hours/year
	(2 plants)
Plastisol Plant overhead and labor	= \$15.30/hour
Annual savings = $2756 \times \$15.30$	= \$42,167 (1 plant)
= $5512 \times \$15.30$	= <u>\$84,334</u> (2 plants)

2. Additional cost savings will be realized with the utilization of the new testing capabilities to define the exact material losses being experienced at various points in our processes. A quantitative measure of these losses is required to justify and institute corrective action. Examples of material loss areas are a) residual monomer in plastisol latex, b) amount and type of filtration losses, c) suspension resin stripping efficiency and d) recovery system efficiencies.

As an indication of potential savings, each 0.25% improvement in overall yield efficiency would result in an annual savings of \$25,000.

3. In addition to servicing the Burlington Resin Plant, this laboratory will also provide support for the Flemington Plant and the Compound Plant.
4. The new laboratory is needed to routinely utilize and expand raw material tests, in-process tests and special final product tests which have been developed and proven to be successful by R & D and Quality Control in improving plant operations.

Examples of tests that are ready to be instituted on a regular quality control basis are:

a. Tests for Productivity Control

- (1) A Bottle Polymerization test that rapidly characterizes the effect of variable plastisol emulsifier quality will enable Production to make those adjustments necessary to maintain uniform, short reaction

cycle times. This equipment is available, but cannot be set up in the present facilities.

- (2) A Gas Chromatographic test for monomer impurities will be used to control the effect of these impurities on reaction rates.

b. Tests for Raw Material Quality

- (1) It has been established that monomer quality affects final product color and heat stability. The Gas Chromatographic test for monomer impurities will provide data to improve control of monomer and provide the necessary data to permit the plant to operate at a lower and more economical stabilizer additive levels consistent with increasing market requirements for improved final product quality.
- (2) Tests are currently under development to define the effect of other raw materials such as emulsifiers, suspending agents, water, new fast catalysts and monomers being used in new polymer compositions.
- (3) The Burlington Compound Plant does not have the sophisticated test capabilities required to adequately monitor the quality levels of certain critical raw materials (plasticizers, stabilizers). The test capabilities of this new facility will provide this analytical support.

c. Tests for In-Process Control

- (1) Recovered monomer quality affects both productivity and product quality. The facilities of this laboratory will provide the analytical capabilities necessary to monitor and control this variable.
- (2) Current Quality Control test capabilities are inadequate for quantitatively defining the level of in-process materials losses. The more sophisticated test capabilities of this laboratory will permit the on-site testing required to quantify these losses. Corrective action can then be instituted by Manufacturing.

d. Tests for Finished Product Quality

- (1) Residual monomers (vinyl chloride, vinyl acetate, alpha-olefin, trichlorethylene) affect resin processing and the safe handling of resin during bulk storage and transit. The test capabilities of this new facility will monitor and quantify the residual monomer levels.

- (2) The exact polymer composition of co- and terpolymer which is required to predict resin processing characteristics and the application properties of the fabricated end product will be determined.
- (3) This new facility will assist the Compound Plant in monitoring the control of compound composition.

QUOTATION

AGE Scientific Supply Co., Inc.

Servicing The Heart Of The Chemical Industry

1420 LINDEN AVE., E. LINDEN, N. J.

MAILING ADDRESS
P. O. BOX 127, LINDEN, N. J.

PHONE
N.J.: WAbash 5-3300
N.Y.: ORegon 7-7575

TO: Tenneco Plastics Co.
River Road
Flemington, N. J.

DATE October 16, 1969

Attn: Mr. J. C. Fisher

cc: Mr. Herbert Carr

With reference to your inquiry of , No. 1600 , we are pleased to quote our current prices which include packing, F. O. B.

When ordering please refer to our Quotation No. . Our terms are Net 30 days, prices quoted are firm, subject to acceptance within 30 days.

ACE SCIENTIFIC SUPPLY CO., INC.

per

Nathaniel Schurer

ITEM NO.	QUANTITY	OUR CAT. NO.	DESCRIPTION	UNIT PRICE	EXTENSION
	1 each		Assembly including: 1 each Desk #7555, 1 each Desk #7542, 2 each Chairs #800, 1 each File Cabinet #2604, 1 each TG S47-16 Storage Cabinet with sliding glass doors, 1 each TM S 35-22 Storage cabinet with sliding steel door, 2 each UT 59-37 Utility Table with H frame legs; 1 each #SAC-5-B Fume Hood with D11E exhaust blower, 1870 CFM, fixtures: air, gas, vacuum, cold water and cup sink, 2 duplex single gang 115 volt receptacles.	3224.80	\$3,224.80
2	1 each		L shaped wall assembly comprising: 1-AB35 with 1 set of legs, LF35H, LE35H, toe space filler 12" wide, LCU 32H with 600-50C Durcon sink (24 x 16 x 8 inches deep) with R155 hot and cold water fixture, R525 lead drain, R575 "P" trap, 17" toe space filler, LF35H, LE35H. Top type AX Colorlith. 2 each GS 35-36 wall cabinets.	1533.60	\$1,533.60
COLORITE 016343					

QUOTATION

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ACE SCIENTIFIC SUPPLY CO., INC.

per _____

QTY.	QUANTITY	OUR CAT. NO.	DESCRIPTION	UNIT PRICE	EXTENSION
	2 each		Center Table Assembly, similar to CR-201, Base units: 3 ea. LH35H, 2 ea LL 35H, 1 ea. AD47. Top AX colorlith. Complete with reagent shelf and fixtures, without cup sink and water fixture. Similar to CR 200.	1710.00	\$3,420.00
3 (a)	2 each		Center Table Assembly, as described above, but only with electrical fixtures as described in CR 200.	1497.00	2,994.00
(b)	2 each		Center Table Assembly as described above, with reagent shelf.	1360.00	2,720.00
Note: items 3, 3(a) and 3(b) are quoted as alternates.					
FOB: Delivered Terms: Net 30 days Delivery: 4 to 6 weeks					
COLORITE 016344					