

PAOLI LABORATORY
RESEARCH AND DEVELOPMENT REPORT
PERIOD OF JANUARY 1963 THROUGH JUNE 1963
TABLE OF CONTENTS

Page 1	Picture of Test Illustrating How Glass Fibers Improve The Fire Endurance of Gypsum Board
Page 2	Forward
Page 3	Market Performance of New Products Patent Information
Page 4	Projects Completed - Stud Adhesive R & D 201
Page 4	Projects Completed - Foam Glass Pellets R & D 210
Page 5	Projects Completed - Acoustical Tile R & D 246
Page 6	Projects Completed - Super Firestop R & D 241 Projects Completed - Laminating Compound R & D 209
Page 7	Projects Completed - Statistical Control R & D 239 Projects Completed - Blue lapids Dust Collector R & D 238 Projects Completed - 2 Hour Fire Rated Partition R & D 251
Page 8	Projects Completed - 2 Hour Double Solid Partition R & D 252 Projects Completed - Effect of Glass Fiber In Board R & D 210
Page 9	Projects Nearing Completion - Thincoat Plaster R & D 219

TABLE OF CONTENTS

Page 10	Projects Nearing Completion	- Glass Fiber Reinforcement R & D 210
	Projects Nearing Completion	- Texture for One Day Joint Compound R & D 243
	Projects Nearing Completion	- Fire & Sound Tests - R & D 249
Page 11	Projects Nearing Completion	- Grinding Methods - R & D 250
Page 12	Projects Underway	- Extrusion Process For Board R & D 21
	Projects Underway	- High Expansion Densite - R & D 132
	Projects Underway	- Ram Process Plaster - R & D 132
	Projects Underway	- Tooling Densite - R & D 132
Page 13	Projects Underway	- Water Repellant for Sheathing R & D 203
	Projects Underway	- Synthetic Joint Compound - R & D 211
	Projects Underway	- Texture for Masonry Ceilings R & D 211
	Projects Underway	- Hammer System - R & D 209
Page 14.	Projects Underway	- Synthetic Gypsum R & D 221
	Projects Underway	- Pre-Fab Panels R & D 223
	Projects Underway	- Trowel Finish Plaster - R & D 228
	Projects Underway	- 1" Core Board - R & D 229
Page 15	Projects Underway	- Radiant Heating Panels - R & D 235
	Projects Underway	- Volumetric Stucco Feeder - R & D 240
	Projects Underway	- Lightweight Roofdeck Unit - R & D 242
Page 16	Projects Underway	- Grabit - R & D 244
	Projects Underway	- 1/4" 2'x2' Ceiling Tile - R & D 246

TABLE OF CONTENTS

Page 16	Projects Underway - Continuous Calcination - R & D 253
	Projects Underway - Inverform Paper - R & D - 254
	Projects Underway - Lightweight Gypsum Board - R & D 255
Page 17	Projects Underway - One Hour Floor & Ceiling - R & D 256
	Projects Underway - Hof-Kor Panel Fire Test - R & D 257
Page 18	Projects Underway - Donn Clip-On Stud - R & D 258
	Projects Underway - Sound Deadening Constructio - R & D 260
Pages 19-21	Pictures to Illustrate the Effect of Glass Fibers in a Gypsum Wallboard Core
Pages 22-24	Pictures Showing Thincoat Plaster Application

FORWARD

This report covers the activities and accomplishments of our research program for the past six months. No basic changes in organization have occurred during this time. We have, however, begun to assign projects to a single individual rather than dividing the responsibility between two people. The former approach was being utilized until such time as the new men had gained sufficient experience and had become familiar with our procedures. At least one priority project has been assigned to each man as well as other projects of lesser priority. Each man is responsible for maintaining progress in his assigned projects. Assistance is provided where necessary by contacting the group leader.

A budget was put into effect in January 1963 in order to make available a record of the total expenditure for R&D and the amount spent for each project. The budgeted versus actual expenditures are being reported quarterly. These will be studied to determine whether our emphasis is being placed in the proper areas and whether our money is being spent wisely. This year's figures should give us a good basis for preparing next year's budget.

The field testing stage of our development programs was revamped during the past 6 months. There have been a number of instances where we have gained little or no information from trials. Another problem has been the difficulty we have had in obtaining field tests. We have brought this problem to the attention of the Sales Department and solicited their cooperation in planning a more effective field testing program. After several discussions, it has been decided to institute a standard procedure for requesting, conducting and reporting results of field trials. To simplify the reporting, a standard report form and follow-up form have been prepared. We trust that these measures will enable our field testing to be conducted more efficiently in the future.

Included in this report are the market performance of products developed through research, patent information, and some pictures illustrating the effect of glass fibers in gypsum. The latter are to be used in promotional literature. The major portion of the report is, of course, devoted to the progress of the various projects.

MARKET PERFORMANCE OF NEW PRODUCTS

JANUARY THROUGH JUNE 1963

1. FIRESTOP 120 CEILING TILE

Amount Sold	--	122,000 sq. feet
Dollar Sales Volume	--	\$16,215
*Gross Profit	--	\$ 5,349

2. GRABIT MASONRY ADHESIVE

Amount Sold	--	9 Tons
Dollar Sales Volume	--	\$ 1,739
*Gross Profit	--	\$ 1,019

3. ONE DAY JOINT COMPOUND

Amount Sold	--	634 Tons
Dollar Sales Volume	--	\$113,953
*Gross Profit	--	\$ 33,063

Total Sales Volume of New Products -- \$131,907

Total Gross Profit of New Products -- \$ 39,431

*Estimated by Ardmore Cost Department

PATENT INFORMATION

Patents Issued: None

Patents Applied For: Method of Processing Synthetic Gypsum

Patent Applications Being Prepared: One Day Joint Compound
Grabit Masonry Adhesive

PROJECTS NEARING COMPLETION

1. Thincoat Plaster - R & D 219

Objective: To develop a competitive thincoat lath and plaster system.

Status of Investigation: The original objective was to have one product for both smooth and textured surfaces. Such a product was developed and field trials were commenced. It became apparent during our field testing that smooth finishing properties were more important and textured finishes appealed only in certain markets. In view of this a second formula was developed in which the texturing properties were sacrificed in order to improve the smooth finish application. This product was found to be much more acceptable for those who desired a smooth surface. The former product will be retained for use where textured surfaces are desired. A number of successful field trials have been completed and we have recommended that both products be released for sale in limited markets. Our thincoat plasters have certain advantages over other thincoat products, and can be priced competitively while still maintaining a favorable profit margin.

Paralleling the thincoat plaster development were our efforts to impart the proper suction characteristic to our T. C. pinholath. This has been resolved to the point where all plants are capable of producing a satisfactory lath to be used with our thincoat plaster. Advertising photographs taken during one of our field trials are included in this report.

2. Ready Mix Joint Compound - R & D 211

Objective: To develop a ready mixed or paste type joint compound to be competitive with other similar products on the market.

Status of Investigation: Several field trials of a product containing a dry binder system have been conducted. Other than a few adverse comments on workability, the performance of the product has been satisfactory. On the basis of the trials, we received orders for 1500 pails of the product. The economics of our ready mix are still not completely favorable, and we are striving to improve this situation. We are somewhat limited in this direction because the fixed costs of the container and the freight represent a large percentage of the cost of the product. This leaves the formula and the processing for us to work on. We are even limited here as the improvement in both of these areas is limited since certain possibilities for cost reduction will require large initial expenditures for equipment. Judging from the emphasis Sales has given this project, it appears imperative that we continue to seek a practical solution to the problem. Our present thinking is that if we could install a small operation with minimum expenditure, it would enable us to effectively assess the market potential as well as possible cost savings. This would require that Management approve a low profit item, even if only on a temporary basis. Based on this experience, the market potential would then dictate the wisdom in considering certain equipment expenditures necessary to improve the profit margin.

PROJECTS NEARING COMPLETION

3. Glass Fiber for Wallboard Reinforcement - R & D 210

Objective: To be able to approve several types of glass fiber, particularly 799 (Muzzy Mix) for use in our wallboard.

Status of Investigation: From this evaluation of fiber types we found that types 710, 804, and 799 all were better than the 863 we were using because of improved dispersion characteristics, and that 799 was a special improvement because it offers greater reinforcing value per lb. of fiber. This evaluation has progressed to the point where all of the glass fiber used in our board is either 710 or 799. This work then became intermeshed with an investigation being conducted by the Manufacturing and Process and Control Departments to evaluate the effect of paper fiber. It was found that the regular amount of 799 glass fiber was equivalent to the standard amounts of paper fiber and 863 glass fiber. Some trial runs were made at Wilmington, but due to cutting problems with 799 fiber, an increased amount of 710 fiber was used and the paper fiber eliminated. Doing away with the paper fiber appears to permit machine speed increases on the order of 10% without changing the characteristics of the board. This will be carried further at other plants. In the meantime, 799 glass fiber is still a superior fiber and we are continuing with our effort to enable all plants to use it. Improved quality or further cost savings, or both, are inevitable through the use of the 799 binder glass fiber.

4. One Day Texture Problem - R & D 243

Objective: To find a means of eliminating the need for a primer over One Day Joint Compound prior to texture application.

Status of Investigation: The sale of One Day has been limited because we have had to recommend a primer prior to any joint system texture application. National Gypsum has issued a similar precaution because of the same drawback to their setting type joint system. Two approaches have been studied. The first is to develop a texture which will do its own priming, and the second is to develop a topping which will alleviate the necessity for priming regardless of the texture used. After considerable experimentation, a texture has been found which we believe will eliminate the need for the primer. The development of a topping for use over One Day has not been completed as yet. We are proceeding with field trials of the texture as quickly as possible, since we feel this will greatly enhance the sale of One Day Joint Compound.

5. Accumulation of Fire and Sound Test Data - R & D 249

Objective: To gather all available fire and sound test data on the various constructions and put it into a usable reference form.