GEORGIA-PACIFIC CORPORATION
BESTWALL GYPSUM DIVISION

R&D REPORT FOR LAST 6 MONTHS OF 1965

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FORWARD

This report covers the activities and accomplishments of the Research Department for the past six months. Since this is the year-end, some of the figures shown encompass the results for all of 1965 as well as for the six month period.

The total research budget for 1965 was $184,000. The total expenditures were $186,790 and the approximate distribution of this expenditure is shown on page 4 . The total budget for 1966 will be $210,000 and plans are to proportion this expenditure in approximately the following manner:

Fundamental or exploratory investigations	15.0%
Wallboard and Joint System	12.6%
Lath and Plaster	3.8%
Industrial Gypsum Products	9.6%
Fire, Sound, and Structural Systems	24.5%
Acoustical Tile	10.3%
Plant Problems	1.6%
Other	5.8%

The budget provides for the addition of two new men, one of which has already been obtained. Mr. Maturo, was transferred to Paoli from the Grand Rapids plant and will be handling all of the research on industrial gypsum products. Another addition to the Research Staff is planned later in 1966.

The market performance of new products on page 2 shows the sales and estimated gross profit from the products which have been developed through research. The graph on page 3 shows the growth of Bestwall sales and profits from research since 1961. These figures do not include cost savings, product improvements, or the effect of such work as fire and sound testing. The sale of Firestop continues to increase with 1/2" up 157% and 5/8" up 15.6% in 1965 compared with 1964 sales. Joint System production, an area where a lot of effort has been devoted to product improvement, shows an increase of 5.1% in sales not including Ready Mix which has also gained. A new product called "Triple Duty Joint Compound" will be released nationwide after undergoing comprehensive field testing and finally being marketed in four sales districts to further evaluate its potential. Even with such a limited distribution, approximately 800 tons of Triple Duty were sold during the past 6 months.

The main section of this report is devoted to progress of the individual projects during the past six months. Those which have been completed are listed first, followed by those which are nearing completion, and finally those in which work is underway.

1965 MARKET PERFORMANCE OF NEW PRODUCTS

PRODUCT	SALES VOLUME	LAST SIX MONTHS GROSS SALES	ESTIMATED GROSS PROFIT
Dens-Cote Base (all)	8460 M sq.ft.	$ 351,227	$ 91,696
Dens-Cote Plaster (all)	1665 tons	98,612	11,251
Tile Backer Board	1278 M sq.ft.	98,875	29,884
Tru-Grain Wallboard	523 M sq.ft.	36,059	3,404
Firestop 120 Tile	443 M sq.ft.	59,557	12,532
Triple Duty Joint Comp.	800 tons	141,840	23,236
Ready Mix Joint Comp.	39,501 cans	154,172	5,228
One Day Joint Comp.	125 tons	35,316	6,153
Bestex A, B and C	14,385 bags	36,516	874
Model Densite	17 tons	807	274
Ram Process Plaster	6.6 tons	650	278
High Expansion Densite	1.1 tons	59	-
Dens-Cote Tape	11,579 rolls	12,145	4,862
Tile Backer Tape	227 rolls	1,608	746
Grabit Adhesive	137 tons	11,217	3,116
TOTALS		$1,038,660	$193,534

YEAR 1965

SALES VOLUME	GROSS SALES	ESTIMATED GROSS PROFIT
14,223 M sq.ft.	$606,683	$172,493
2698 tons	160,809	17,837
2091 M sq.ft.	161,651	50,407
809 M sq.ft.	54,051	4,151
755 M sq.ft.	102,846	22,893
915 tons	162,540	29,296
60,840 cans	239,819	17,286
346 tons	74,543	14,215
17,915 bags	50,067	2,247
35 tons	1,659	557
6.6 tons	650	278
1.2 tons	64	-
20,806 rolls	21,040	8,301
436 rolls	3,042	1,532
191 tons	20,105	6,273
	$1,659,569	$347,766

PROJECTS COMPLETED

1. DRY VINYL JOINT COMPOUND - R&D 211

Objective:
To develop joint system products with vinyl or other synthetic resin binders.

Investigation:
This product was under development for about four years without any degree of success. At one point the objective was a vinyl topping compound, but Sales advised us that they were not interested in this product, and dropped the project from their list. In spite of our previous lack of success and the low level of sales interest, two factors caused us to continue the experimentation. One factor was the sharply increasing cost of casein, which started early last year. The increase in casein cost induced us to consider other binders, even the higher priced vinyl binders. The second reason was a formulation breakthrough made by Mr. Morrone which permitted certain previous bonding limitations of vinyl joint compounds to be overcome.

After successful field testing with one customer, the vinyl joint compound was tried by other contractors in the Wilmington Sales district. Finally it was released for sale in the entire district. Some slight formula modifications were made from time to time to improve the product. After a few months, the product was released for sale in the Brunswick, Detroit, and Cleveland sales districts to gain field experience in different climates. It was sold at a price slightly higher than our regular joint compound. During the past 6 months, 800 tons of dry vinyl joint compound has been sold in these limited market areas. Just recently, successful field trials were held in Chicago and on the West Coast. All of this experience has shown good acceptance for the product. Ageing and other testing in the Laboratory indicates that the product has no significant weakness.

Conclusions:
On the basis of the experience and testing which has been so successful, it has been decided to release the product nationally under the trade name "Triple Duty Joint Compound". The contractor advantages we plan to promote are:

a. The single product can be used for taping, finishing, and texturing operations.

b. It has lower shrinkage than regular casein products.

c. It is easy to sand.

d. It has excellent application properties.

e. It has complete viscosity stability.

f. It has outstanding resistance to spoilage.

The latter two advantages are of greater interest to contractors, since Triple Duty can be mixed in large quantities and put into pails for subsequent use - like Ready Mix. The company advantages for this product are:

a. A more consistent product can be furnished, because synthetics are more uniform than casein. This should result in fewer complaints.

b. The product is more resistant to being affected by adverse weather conditions and the like, so this should also contribute to a reduction in complaints.

c. Easier and better manufacturing control can be achieved, because it requires fewer ingredients and there is no alkaline reaction to control, as we need to do with casein products.

d. There is a better profit potential. Although there isn't much difference in the cost of Triple Duty and regular joint compound at the present time, the price trend for casein is rising and the price trend for vinyls is falling.


TRIPLE DUTY
BESTWALL
TRIPLE DUTY
WALLBOARD
JOINT COMPOUND
(AN ADHESIVE)
A Vinyl Base Material
CAUTION
NET WEIGHT 25 LBS.
GEORGIA-PACIFIC
GYPSUM DIVISION
GENERAL OFFICES • PAOLI • PENNSYLVANIA
WALLBOARD
TRIPLE DUTY

2. READY MIX - R&D 211

Objective:
To improve the quality and cost structure of Ready Mix Joint Compound.

Investigation:
In the last report it was noted that a new Ready Mix formula was being field tested in St. Louis. During the past six months the field testing was extended to Brunswick. Subsequently, both the Fort Dodge and Brunswick Ready Mix operations were converted to the new formula because of better acceptance in the field. Recently, Akron was also converted to the new Ready Mix.

Conclusion:
Since the new formula was adopted, our complaints on Ready Mix have largely disappeared, and the new product has received much better acceptance even by those who were satisfied with the old formula. In addition to the improved acceptance, the freeze-thaw and cold bonding properties have been improved. A raw material savings of $.20 per pail also has been realized which will benefit the profit picture.

3. DENS-COTE PROJECTS - R&D 219

Objective:
To improve our Dens-Cote line by developing new products and by finding new uses for the current products.

Investigation:
A formula consisting of tubed stucco, graded sand, and a small amount of lime was developed to be used as a basecoat application of a two-coat system. The finish coat is the same lime-putty gauging which is used over regular basecoast plaster. Field testing was conducted in the Detroit and Syracuse areas, and the reaction to this product was quite favorable.

In cooperation with the Purchasing Department, an improved glass fiber tape was found. This tape is J. P. Stevens 10 x 10 mesh as opposed to the Owens-Corning 7 x 11 mesh, which we have been furnishing. The J. P. Stevens tape is stiffer and therefore easier to handle than the old tape. A number of rolls of the new tape were tried in the field and received very good acceptance. This was done in the "nick of time", as Owens-Corning has just announced that they are withdrawing from the glass fiber tape business.

Another facet of thincoat plaster which has been undergoing investigation is its application in radiant heating systems. This system involves the application of Dens-Cote Base to the ceiling joists; stapling the electric

SUMMARY

The last six months and full year gross sales resulting from products developed through research were $1,038,600 and $1,659,569 respectively. The corresponding gross profits were $191,534 and $347,766. Other annual sales increases which we believe have been favorably affected by research efforts were: 1/2" Firestop - up 157%; 5/8" Firestop - up 15.6%; Dry Joint System - up 5.1%; and Ready Mix - up 290%. The research projects completed during the past six months, that should result in more sales volume, are as follow:

1. The development of a vinyl binder joint compound called "Triple Duty". The formal release of this product will be announced at the G. D. C. I. Convention in March.

2. The improvement in quality and cost of our ready mix joint compound. This new formula has been adopted and we believe that it is a contributing factor to our increasing ready mix sales.

3. Successful fire tests have produced new fire rated assemblies and a 5/8" Firestop version of our Tile Backer board. This Firestop Tile backer has been added to our Underwriters' listed products and will be promoted for partitions where water resistance and fire protection are both required.

4. One new product was added to our Dens-Cote family and a new application for Dens-Cote was approved. The new product is "Dens-Cote Base plaster", which is the first coat material of a two coat system. The normal lime-putty guaging is used for the finish coat. Texture Finish Dens-Cote, developed in 1964, has been approved for use in radiant heated ceilings.

5. Sound transmission ratings were obtained for ten different partition assemblies. Most of these were tests mutally sponsored by Owens-Corning and Georgia-Pacific. These partitions consist of Fiberglas Noisestop and Firestop applied to metal studs. In addition to the financial assistance in conducting the tests, we will have the benefit of Owens-Cornings' efforts to add to our own in promoting these partition systems.

Looking ahead, a 1966 research program has been planned which should protect our future, as well as providing for our immediate needs. Some of the objectives of this program are:

1. To provide a sound technical basis for producing a lighter weight wallboard.

2. To gain a better understanding of our products and processes through the use of the polarizing microscope.

3. To improve the fire endurance properties and the economics of our Firestop products.

4. To pursue the development of such new products as a fire rated gypsum acoustical tile, a combination gypsum/plywood stud, and a precast gypsum firedoor filler.

5. To improve our predecorated product line and our Industrial gypsum product line.

It is felt that we are currently making good progress in all areas with the exception of structural systems and components. This weakness will be overcome when we can hire an d train a mechanical engineer. This addition has been incorporated into our 1966 budget. Some new Laboratory furniture and equipment have also been included in next year's budget. This will enhance our abilities and provide for more efficient use of our space. Research is primarily a long range approach to the profits of the company. This may be demonstrated by the fact that the original research on Firestop and Densite, two current mainstays, was conducted over ten years ago. By the same token, it may take a number of years before our present research work begins to pay off.