

Soap Packaging

E. H. BALKEMA, Colgate-Palmolive-Peet Company, Jersey City, New Jersey

A HOUSEWIFE who picks up granulated soap or detergent packaged in its folding box or a bar of soap in its wrapper is not likely to think of the multitude of instructions that were issued to many people in order that she might have a package that sold satisfactorily and was delivered to her. She has a package that does not leak. It did not break en route to her. The printing is still readable, the package is still intact, and the inks are not scuffed or faded. If she opens the package with wet hands, the inks will not bleed or change color. Moreover this package may have provided the impulse in the first place which caused her to make the purchase. If the design was attractive and the printing job good, it may have created that important "take-me-home appeal."

In order that she may have this package it was necessary to issue exacting instructions to the ink manufacturer, the paper and board mills, the artist, the photo engraver and electrotyper who made the printing plates, the printer who printed the outside wrapper, the folding box manufacturer, and the shipping container manufacturer. It was also necessary to issue exacting instructions to the factory personnel packaging this item in order that all the units would be assembled properly and efficiently.

Importance of Packaging

Recently the Packaging Institute released its Advisory Service Report Number 285. The purpose of this report was to establish a ratio between total direct labor and that part of direct labor which is packaging labor. As a result, we are practically forced to the conclusion that as far as consumer goods industries are concerned, their principal business is packaging, not production of the material to be packaged.

Producers of liquid food products, who participated in this study, reported an average of 47.09% of their direct labor is packaging labor. Producers of packaged plastic foods (ice cream, shortening, etc.) averaged 52% of their direct labor as packaging labor. For powdery and granulated foods the percentage is still higher, and non-free flowing powders, such as mixes, report that 87% of their total labor is packaging labor. Of all the food companies that reported on 39 different operations the percentage of packaging labor to total direct labor is 60.3%.

As we would expect, the toiletry and cosmetic manufacturers run to a higher figure than the food processing industry. When we include those firms that purchase the product sold and hence have 100% of their labor employed as packaging labor, the data from 17 different lines in this field show that 88.3% of all direct labor is packaging labor. If we eliminate from this group all but those who produce their own products, the average is then 83.6%.

Even higher percentages are found in the drug and pharmaceutical industry where packaging of shelf items will average 88.6%.

Figures were not available for soaps and detergents, but the packaging labor may average between 60 and 75% of the total direct labor hours for the more efficient companies.

From these figures, we reach the conclusion that packaging is a bigger job labor-wise than most of us realize.

Selection of Packaging Materials

Now let us consider the selection of packaging materials and their economy. This is a most elusive subject because what is right for one company may be wrong for another. Although it would not be impossible to use the same materials for packaging soup and soap, it would be poor economy to do so. Even within the same industry it is not always possible to use the same materials for similar products having the same end-use. This may be due to different formulas used in making the product, which result in different characteristics of the product. For example, one may be hygroscopic and require a moisture-vapor barrier while the other may be successfully packaged in ordinary non-moisture proof materials.

"What is the effect on the profit and loss statement?" This question has a bed-rock foundation. It will allow a fair and impartial weighing of the facts which will permit the advantages and disadvantages to be tabulated and reviewed. Selection of packaging materials having the most advantageous effect on the profit and loss statement can then be made.

Management wants a perfect package which will increase production, facilitate distribution, properly protect the product under adverse conditions, save money, and increase sales. In actual practice such a package is not economically sound. Also top management does not expect these attributes to be filled 100% for they would refuse to pay the price.

Therefore the desired package is one which will house and protect the product properly under normal manufacturing and distribution conditions and will deliver the product to the consumer in saleable condition. Also this desired package should have built into it "Use Me" appeal and should serve as its own public relations agent.

Competitors' Packages

Frequently a comparison can be made with competitive packages containing a similar product. This practice is most desirable and, if properly analyzed, may point out ways and means of solving difficulties which may permit savings in purchasing and production and/or add to the protection of the product. The interpretation of such an analysis is important. Consideration must be given to your present manufacturing equipment, methods of production, and handling. If competitors are using a different type of packaging equipment, this will be reflected in their packages. There is no one best method to do a particular job.

By all means, make comparisons with competitors in the use of packaging materials, but be sure to analyze correctly the difference so as to take advantage of all the favorable procedures, protection of the product, and handling from the point of manufacture to the point of use.

Allowable Cost

There is a relationship between the cost of packaging materials and the sales price of the packaged

merchandise when the same or similar items are being considered. Each class of merchandise which is produced by two or more suppliers usually has a similar type of packaging material. Spray soaps are usually sold in paperboard folding boxes, bar soaps in wrapped packages, watches in set-up boxes, ketchup in bottles, tooth powder in metal cans, cigarettes in packs, and scouring cleanser in paper cans.

The market desired also has a bearing on the cost of the packaging materials. For luxury items sold in exclusive stores, more money is available from the sale of merchandise for packaging. Also fancy packaging may be required to move the merchandise at the higher price. Some high-priced bar soaps in fancy wrappings and set-up boxes are good examples.

However if it is a straight run-of-the-mill type of merchandise, such as soaps and detergents, then the primary purposes of the packaging materials are to house properly and to protect the product from the point of manufacture to the point of use. All other features that can be built into this type of packaging materials are plus values, and many such values can be incorporated at little or no expense.

Economy vs. Protection

The selected packaging materials should provide adequate protection for the normal life of the product, plus a reasonable margin of safety. This is real economy, and, if it is not closely adhered to, legitimate complaints can be expected. Slipshod methods, while still being used, are not condoned.

The story of the Ajax Cleanser can illustrate the points of plus values and economy. This cleanser required a moisture barrier as the product is hygroscopic and will cake if allowed to absorb moisture from the air. Many methods of securing a moisture barrier were tested. This included wax on the inside, asphalt-laminated board stock, and many others. The present foil outside canister liner proved to be the best from the viewpoint of protection of the product and was the least expensive. At the same time the foil adds that "take-me-home" appeal and permits the can to act as its own sales agent. The primary purpose of the foil is moisture protection, the other values are extras.

Money could be saved by replacing the foil with paper, but this would be poor economy for the paper would not provide adequate protection.

Bar Soap Packaging

What could be less glamorous than a bar of hard-working laundry soap? We are likely to find it on the ledge of a laundry tub or in the bottom of a scrub pail. The packaging materials must be engineered to protect it properly from the point of manufacture to the point of use. They must enhance also the sales promotion and marketing. This is true for all packaging materials used to house soap and detergent products.

Laundry soaps for domestic consumption are usually packaged with an inner wrapper and an outer wrapper containing a moisture barrier. This inner wrapper is used to prevent the outer wrapper from sticking to the bar of soap and causing an unsightly appearance as the bar dries and shrinks.

The outer wrapper, where a moisture barrier is used, is generally two sheets of paper laminated with

wax or paper wax-coated. Laundry soap has a high moisture content, and the moisture barrier sheet is used to slow down the escape of the moisture and to prevent shrinkage, warping, and the general deterioration of the soap from an appearance viewpoint.

Milled soap, because of the difference in the method of manufacture and its intended use, is handled in a different way. It is most likely to be found in the bathroom and may sometimes be found in milady's bureau to impart its delicate aroma to her garments. It is for the use of the guest as well as the members of the household, and therefore every effort must be made to protect its desirable characteristics.

First consideration must be given to the inner wrapper. Its function is to help retain the perfume and to protect the soap from the effects of light. Either too little or too much perfume retention is not good. Heat-sealed foil wrappers which allow little or no escape of the perfume have not met with customer acceptance. Glassine, waxed papers, plain papers, and to some extent pliofilm, cellophane, and other materials have been used or tested for this purpose. Formerly, the ends of the bar were not covered by the inner wrapper. Today there is a growing tendency to extend the inner wrapper to cover these ends. With this method there is very little space for the perfume to escape as the ends are held in position by the outer wrapper and the pressure of one cake on another in the shipping case.

Usually a stiffener is placed over the inner wrapper, and it covers the four sides of the bar. This stiffener is usually a specially made stock some 9 to 15 thousandths of an inch in thickness. It must have very definite stiffness characteristics to satisfy the protection requirements and, at the same time, permit its use on high-speed automatic wrapping machines. The purpose of the stiffener is to protect the bar of toilet soap from marring during handling and shipment. The outer wrapper carries the brand name and the sales story. Plain and coated papers have been used for these wrappers.

The foregoing brief discussion describes the conventional way of packaging toilet soap. There are many other ways of wrapping milled soaps, such as in a folding carton, in a shell with an outside wrapper, special candy types of wrappers, and others. They all have the same general problems of perfume retention, protection of the product, and the carrying of the brand name and sales story to the buying public.

Flake, Spray, and Granulated Products

Problems of a different nature confront us in the packaging of flake, spray, or granulated soaps. Previous to the last war much heavier weight boards were used for cartons than are now considered necessary. It is entirely possible that still lighter weight boards will be used in the future.

Generally speaking, custom has fairly well standardized sizes and types of packaging materials. It is true that some use bleached manila-lined stock, white patent-coated stock, or clay-coated stock while others use a tightly wrapped package. This choice is based upon the thinking of the manufacturer, the design used, and the job he desires his packaging materials to accomplish.

Usually the non-moisture proof type of carton can be used for these products. However special products

may require special treatment, such as the wax outer wrap or some type of asphalt content board.

The synthetic detergents offer still another set of problems. There are many formulas for making these products. Some are more hygroscopic than others. Therefore some can be packaged in regular cartons while others require moisture protection.

Where moisture protection is required, it is usually obtained by means of a wax or an asphalt barrier incorporated into the carton wall. The wax lamination is more expensive than some types of asphalt barriers, but it does a better job of preventing transfer of moisture. In the past, consideration has been given to packaging hygroscopic products in plain cartons and then placing these cartons in a shipping case with a moisture-barrier liner, such as two sheets of liner stock laminated with asphalt. Here again the manufacturer must make a choice of the type of packaging materials which he believes will properly protect his product.

Packaging Department Functions

Soap, like many other items, is a daily necessity in our every-day life. Much of it is sold in the self-service markets, and it is in this type of market that the package first meets the customer face to face.

Maybe the package meets the shopper as an old friend through being introduced by advertisements or a TV show. It is the function of the Art Department to build into the design of the package that "take-me-home" appeal, a friendliness all its own, and at the same time, psychologically instill in the mind of the customer that the package contains merchandise of top quality. That is the kind of packaging that is so very important in today's merchandising.

American manufacturers, as pointed out at the 1952 A.M.A. Spring Meeting, are now producing more than 250,000,000,000 product packages per year. The average housewife opens 575 cans per year in her kitchen and a yearly grand total of 1,696 packages of all kinds. Many of these are packages containing soap.

It is no longer sufficient that the product be of good quality and represent good value. Today packaging and the design play a major role in its success or failure. They have become very important tools of management in the race for broader distribution through retailing channels. Therefore it is most important to start out with the right package for it accompanies the product to the point of use. It must attract the customer, identify the product and brand name, tell its story, and close the sale.

The design of packaging materials for soap items is a composite problem. It must be broken down into each of its parts, and if each is correct, then the finished package will serve its purpose.

The brand name, trade mark, and illustrations all give the package distinct characteristics which can be used to focus the merchandising effort. A quality product with a strong brand identification and a close tie-up with advertising to promote sales will outsell one lacking this combination.

The colors used in printing the package are important. It has been said that sight controls 87% of one's impressions and 85% of one's deliberate movement. The use of color can affect man's work, his emotions, and his purchases. It is easy to see therefore that the correct selection of colors in effectively reproducing

the art work is essential in building "Buy Appeal" into the packaging materials.

Under today's merchandising methods color is as important as the trade name. The proper selection of colors helps to build into the finished packaging materials the ability to act as its own sales agent at the point of sale or use.

People are getting older. Many of them wear glasses. This demonstrates why the type used for the copy must be carefully selected and of such a size that it is easy to read. A clear sans serif type, which is a block letter, is especially good for descriptive copy and directions and can be printed easily on most packaging materials in use today.

The package must be designed to look as big as possible and give the impression that the customer is getting the maximum quantity for the money. The package must have an up-to-date look. The package must be easy to open.

The package must be built to house properly the product, that is, if required, protect it against loss or absorption of moisture, perfume loss, and spoilage. The package should also be pretested under normal shipping and storage conditions before being used for wide distribution.

After the package to be used has been determined, the specifications for the packaging materials must be written. If one were to attempt to furnish specifications for all the raw materials, tools, and equipment used in the manufacture of packaging materials, one would find oneself involved in a hopeless and unnecessary task. Experience will show where specifications of this sort are needed. In some instances it may be found that a reference to a material by a trade name will be sufficient specification since trade specifications may be in existence which will define the branded material. Where experience shows that specifications are needed, such specifications should be prepared carefully and issued to all concerned. All orders for material covered by each specification must refer to it by number.

The producers of plain paper, printed wrappers, cartons, folding boxes, corrugated shipping cases, or any other item of packaging materials have the right to expect complete information which will permit them to produce the desired finished product. This information must be complete if the purchaser expects to get what he wants. A previous sample with a few verbal remarks is not sufficient.

In many instances duplicate purchases must be made from several suppliers and may even have to be made by different buyers located across the continent from one another. It is necessary therefore that this information be put in writing in the form of Purchase Specification. Such a specification should be prepared by an experienced package engineer. We have in our Purchase Specifications for a printed carton the following information:

1. Identifying number. When a change is made in appearance or construction of the package, a dash number is added.
2. Specification number. A new number is assigned each time any change is made in specification even though this change may not affect the appearance of the package.
3. Specification number it superseded. This number is most important as it permits the supplier to check the specification and to determine whether a record of all changes has been furnished to him.
4. Title or name of the item.

5. Drawing number for art work.
6. Drawing number for mechanical drawing.
7. Size.
8. Stock specifications.
9. Colors used in printing.
10. Style or type of packaging materials.
11. Grain direction of the paper or board stock.
12. Identification markings that are to appear on printed packaging materials.
13. How to prebreak score lines.
14. How to set perforating score rules.
15. Tests which carton must pass and "Laboratory Standard Practice Instruction" numbers for the test procedures used in making and interpreting the tests.
16. Reason for latest change.
17. How to pack cartons for delivery.

Color Control

The purchasing specifications usually state that the printed item is to be "As per approved color sample." These approved color samples are called standard color charts. It is important that the part of the packaging materials, which the public sees, should be of a consistent color, regardless of the number of suppliers producing the materials. As previously stated, color is as important an identification factor as the trade name and carries with it an indication of the quality of the product.

It is not enough to have visual samples of the desired color with its acceptable dark and light limits. The visual samples will fade, drift, or burn with time and thus result in another color. This change, for pastel colors, has been known to take place in a few months.

The G. E. Spectrophotometer is used to show in chart form the exact color approved by management, including its dark and light limits. These charts are used periodically to check the color of the visual samples. They will indicate when the visual samples need replacing. The same charts are used to determine if the new visual samples are the same as the previous ones at the time they were approved.

Standard Practice Instructions

In discussing "Purchase Specifications," we mentioned the subject of "Standard Practice Instructions" for making the specified tests. These show the method to be used in conducting the tests and how to report the results. The "Standard Practice Instructions" do not show the specified results. These are shown on the "Purchasing Specification."

Purchasing Department Functions

By the time the package engineer has the Art Work, Purchase Specification, Mechanical Drawing, Color Standard, and Standard Practice Instructions, he has quite a package to deliver to the Purchasing Department which, in turn, must furnish all to the supplier. All of these items are really a part of the Purchase Specification, and while it may seem to the novice that all of this is "just too much bother," a careful thinker and a man with experience will see that all are necessary.

Specifications, such as have been described, cannot be written without flaw or omission the first time. Experience and deliveries of faulty packaging materials constantly will suggest revisions and additions. This constant revision of specifications as well as the

incorporation of changes in the style and design of the package is a big part of the job of the package engineer.

The Purchase Order contains additional information such as quantities, prices, and the delivery schedule. Therefore it should be considered as part of the specification. It is necessary to give this additional information to the supplier of the packaging materials in order that he may deliver an order effectively. This information must be in writing and is therefore a specification.

Frequently it is necessary to make changes in the original Purchase Order. To accomplish this, we use a Change in Order form which shows the purchase order number. This form eliminates the necessity of writing letters concerning individual orders.

Assembly Into Finished Package

After all the component parts of a package have been specified and delivered, one might think the assembling of the package would be very simple.

The woman who bought the box of granulated soap or detergent took it for granted that the box contained the product answering the description printed on the box. She also took for granted that it contained the proper weight. She did not have occasion to concern herself that the correct corrugated case and glues had been used. Yet all this was necessary to deliver the product.

Therefore, a "Packing Specification" is necessary to inform the Manufacturing Department for each product and size, the packaging materials to be used, the product to be used, the filling weight, the stock number, the packing unit, the method of packing, and the codes to be used in marking the individual packages and the shipping case.

Troubles on Packaging Lines

This program may seem complicated, and some of the steps may seem unnecessary. However if any of the steps are eliminated, the machine operators may have plenty of trouble on their hands. Even when every step is followed faithfully, trouble can be encountered. It is impossible to set up safeguards against all the things that can go wrong in the production and use of soap-packaging materials.

In the use of folding boxes on the packaging machines there are trade practices within the folding box industry to help us determine if the folding boxes are of good quality. We also have the specifications that were furnished to the printer.

The board stock should be within the tolerances for thickness and weight. For thickness, a variation not to exceed one point either way is possible. A variation in weight is permitted to the extent of not more than 5% either way.

You are cautioned however that you cannot use the Standards adopted by members of the National Paperboard Association, effective July 1, 1934 (reprinted November 1, 1937) as being correct for all board mills. Some of the more modern mills cannot meet these standards, and they produce white patent-coated boards at weights as much as 10% below the adopted Standards. However this lighter weight board is accepted generally in the trade. Therefore be careful when criticizing the weight of the board stock. Use the Standards only as a guide.

All score lines parallel to the glue lap should be prebroken. This can be done on the folding and gluing machines at little, if any, extra expense and will add materially to the ease with which the packaging machine can handle the folding box. The Number 2 and Number 4 score lines coincide with the 180-degree folds of the flat glued box. Therefore they are broken 180 degrees. The Number 1 score, or glue lap, should be prebroken 180 degrees. The Number 3 score should be prebroken not less than 90 degrees, and it is desirable to have it prebroken about 160 degrees. This prebreaking operation consists of folding the box at the score lines and then folding it back to its original position before it is glued.

A simple method of detecting prebroken scores is to shine a flashlight at a right angle to the score with the light beam parallel to the board stock and to look at the score under a magnifying glass. A prebroken score will usually show a break or rupture in the back liner at the center of the score line and/or a ragged edge or rupture at the side of the score line next to the light source. Also a correctly formed score line will raise evenly on the inside of the folding box when adjacent sides are folded at a right angle.

All score lines perpendicular to the glue lap must be deep enough to weaken the stock and thus permit a clean fold along the score line when the folding box is used on the packaging machines. Light score lines result in a bend, rather than a clean fold, and will cause glued-end boxes to tend to open along the score lines due to the spring in the stock. This will cause sifting at the corners.

Warped folding boxes are most difficult to use on production equipment. Whenever they are found, the reason for the warping should be investigated. Some of the primary reasons for warping are green stock, improper packing, or poor storage conditions.

The way the board stock takes the glue is important but difficult to determine. Each manufacturer of glue and each board mill has its own tests. Recently a committee was formed in the Packaging Institute to study adhesion. Colgate's best test to date is the performance on the packaging machines under actual operating conditions.

These are but a few of the problems encountered in using folding boxes. Many of the same problems apply to paper packaging materials. In addition,

with paper packaging materials are many other problems such as finish of the stock, curl, and the ever-present problem of differences between two stocks of the same trade classification produced by different paper mills.

My associate, Mr. Baldwin, relates the following experience in the Navy Printing Plant at Washington, D. C.:

During World War II the Navy's Bureau of Supplies and Accounts issued a booklet to Supply Officers giving them advice on securing initial supplies for a ship newly commissioned. One paragraph referred to the buying of printing and contained a statement along the following lines: "When placing an order with a printer, it must be carried in mind that the printer is completely devoid of good judgment. He will print a fly speck if it appears on your copy. Be sure to give him complete information and clear and accurate copy." The reference to the printer's judgment is annoying, but through experience one learns that it is not the printer's role to use judgment insofar as copy and specifications are concerned. He must have complete instructions.

Conclusion

In conclusion, I am presenting a list of questions. These will help you in understanding the packaging problems and thus aid you in developing better packaging materials.

1. Are you satisfied with your packaging materials?
2. What do you expect from your packaging materials?
3. Are you sure you are not over-packaging or under-packaging your merchandise?
4. Do your packaging materials permit
 - a) economy in their production?
 - b) economy in the packaging operation?
 - c) economy in handling?
 - d) proper protection of your merchandise?
5. Have you checked the foregoing by means of test runs and test shipments?
6. What written information or specifications have you given the suppliers?
7. Does your supplier know what you want?
8. Is your supplier giving you what you want?
9. Are you continuing your search for better quality?
10. Are you continuing your search for more efficient applications which will reduce your cost?
11. Do you use adequate and controllable color standards?
12. Does your package act as its own sales agent and properly impress the user?
13. Do you study the effect of your packaging materials on your profit and loss statement?