Plastics

Discontinued with Vol. 9, no. 2

JANUARY 1949

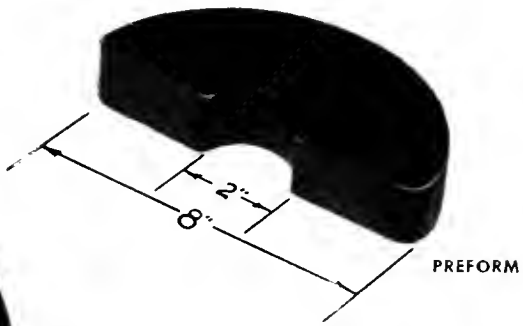
Plastics

a vincent edwards publication

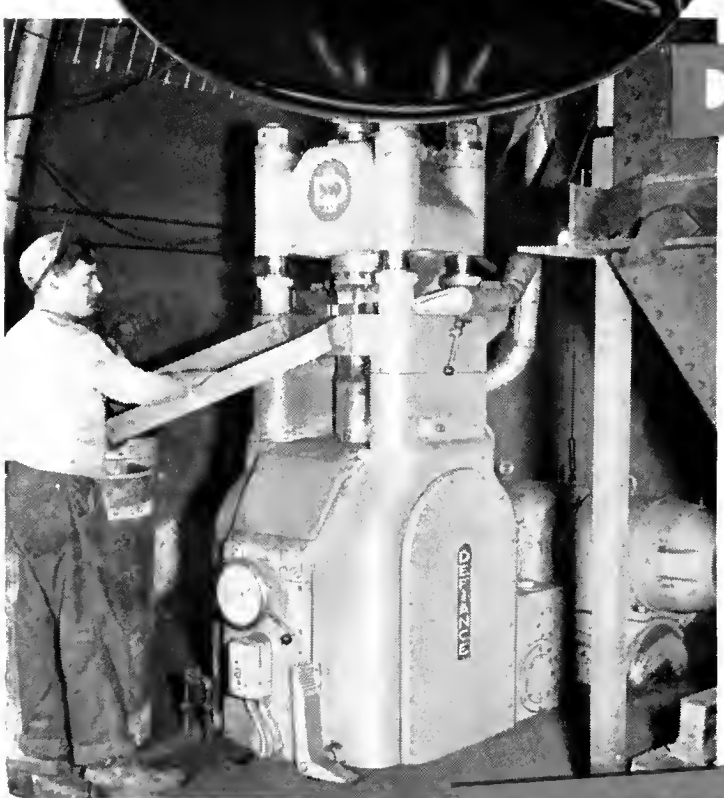
AGITATOR PREFORM PRODUCTION

Increased 790%

FINISHED
WASHING MACHINE
AGITATOR



PREFORM



...WITH DEFIANCE PREFORM PRESS

Modern Plastics Corp. of Benton Harbor, Mich. now makes preforms for 1250 washing machine agitators per hour instead of 140—a *790% increase in production* with a Defiance No. 45 Preform Press!

Formerly, the agitators were molded from a single 8″ diameter doughnut-shaped preform made on a hydraulic press. With the Defiance, two semi-circular preforms are used—each weighing 1½ lb. The No. 45 supplies more preforms in one hour than the old method produced in an 8 hour shift! It empties a 220 lb. drum of material every 3¾ minutes—or 3520 lb. per hour.

Let Defiance help you with your preform problems . . . increase production . . . reduce costs. Write concerning Preform Presses No. 45 with 200 ton capacity; No. 20 with 75 ton capacity; and new No. 153 Tri-Dyne Molding Press. Defiance Machine Works, Inc., 2325 Madison Avenue, Toledo 2, Ohio.

98 Years of Precision Manufacturing

DEFIANCE
PLASTIC PRESSES

Plastics

Vol. 9, No. 1 January, 1949

INDEX

COVER • Swings-Ups, sun glasses with temples and brow bars made of colorful Tenite. Manufactured and distributed by the Meyercord Co., 5323 W. Lake Street, Chicago, Ill. Temples, nose-piece tips, and brow bars are molded by Waterbury Companies, Inc., Waterbury, Conn., of cellulose acetate butyrate Tenite, product of Tennessee Eastman Corp., Kingsport, Tennessee.

MEMBER AUDIT BUREAU OF CIRCULATIONS

Published monthly by Vincent Edwards, Inc., at 342 Madison Ave., New York 17, N. Y. Subscription price: One year, $2.00; 3 years, $5.00; single copy, 50c. Foreign: $5.00 a year; single copy, $1.00. Estoblished 1944. V. Edward Borges, Editorial Director; Norman L. Hersey, Editor; Miriam H. Smith, Art Director; Jomes J. Cadagan, Service Manager. Entered as second class matter May 14, 1948, at the post office at New Yark, N. Y., under the Act of March 3, 1879.

letters to the editor

Dear Sir:

I am in the plastics moulding business here, and in the near future am planning on adding another injection machine to my equipment.

I am planning on building it up myself and am interested in making a three ounce (3 oz.) horizontal type hydraulic system machine.

Could you kindly send me the necessary information on where and how I could get the plans to build the above mentioned machine.

Sabih Orbay
Taksim, Cumhuriyet Caddesi
Istanbul, Turkey

Dear Sir:

In a recent issue of your Plastics magazine, we read with interest, a report concerning new developments on vinyl resin fabrics and electro-coated cottons.

If it is at all possible, we would appreciate your getting in contact with the group preparing this report and have them send us a copy of it so that we may study it with a view to incorporating these materials in several of the products we now manufacture.

Harry T. Douglas, V.P.
Lunn Laminates, Inc.
Glen Cove, N. Y.

This report was released by the Market Research Department of the National Cotton Council, P. O. Box 18, Memphis 1, Tennessee.

Dear Sir:

We are subscribers to your Plastics publication.

Your kind assistance in contacting a manufacturer of plastic dinnerware suitable for hotels and restaurants would be most greatly appreciated.

We ourselves have noticed some plates which carried on the reverse side the mark "made in Boonton." Perhaps this will strike a familiar note.

M. Plotnick
Adonis Trading Corp.
235 Elizabeth Street
New York 12, N. Y.

I believe you are referring to plastic dinnerware made by the Boonton Molding Company, 326 Myrtle Avenue, Boonton, N. J. A few other manufacturers are listed below:

Northern Industrial Chemical Co.
7 Elkins Street.
South Boston 27, Mass.

Hemco Plastics Division
Bryant Elect. Co.
1105 Railroad Ave.
Bridgeport 2, Conn.

Watertown Mfg. Co.
666 Echo Lake Road
Watertown, Conn.

Dear Sir:

We are in need of a liquid plastic material that can be used for coating lithographed pictures. The substance that we are seeking must give the pictures both protection and a clear, high lustre without affecting the colors of the pictures. We would use this material either for brush or spray operation. It would also be helpful if this material had an adhesive quality as well.

We would appreciate your advising us of sources for this material.

Thank you in advance for your assistance.

J. Epstein
Enco, Inc.
242 Fourth Ave.
New York 3, N. Y.

Dear Sir:

We are writing to request your help in locating the manufacturer of a vinyl-coated artificial leather used for upholstery.

The material is made in the United States, under the trademark "Khayamite," in a variety of soft shades, with naturalistic graining, and we are informed that very substantial shipments have been imported into Europe.

Our agents in Switzerland are particularly anxious to have just this brand shipped to them in considerable quantities, but so far, we have been unsuccessful in tracing the source of supply.

We should, therefore, appreciate your kind cooperation.

H. Hillman
Hillman Trading Corp.
92 Liberty St.
New York 6, N. Y.

Dear Sir:

I wish to know the names and addresses of manufacturers of Vinylite and Neoprene tubing to cover electric wires to place underground, and also outdoors from pole to pole. If you have a magazine article on this subject, state in what copy, as I do not know anything about these or other plastics for this use but do know common wire covering will burn, and so will Neoprene after I tested the latter.

Thanking you in advance for the favor.

Ernest Simandl
Steinauer, Nebraska

Dear Sir:

We would appreciate your forwarding to us the following booklets on plastics:

1. Hydraulic and Hand Operated Presses.
2. Short Runs of Injection Molded Plastics.
3. A Businessman's Guide to the Molding of Plastics.
4. Facts About Plexiglas.
5. Fabricating.

We have been requested by a client in the Belgian Congo to obtain for him details and quotations on a machine suitable for the fabrication of plastic ware, particularly for plates, cups and saucers, mugs, bowls and tumblers as well as bangles and buttons of various sizes. We have had little experience in this field and would appreciate your giving us some information on a reliable machine which we believe will be operated by unskilled labor.

We are also interested in obtaining quotations on ground plastics which will be utilized in the manufacture of these plates together with the various dies used. If you have knowledge of a machine such as the one described above we would appreciate your putting us in touch with the supplier from whom we may obtain all the available details.

Your cooperation in this matter will be appreciated.

Anglo-African Shipping Co.
of New York, Inc.
245 Fifth Ave.
New York 16, N. Y.

Dear Sir:

Can you please aid us in locating the distributor for Wama Company, Baltimore, Md.

We would like to obtain several of their coasters as shown on page 25 of your November, 1948, issue. Any consideration shown this request will be greatly appreciated.

Frank Yablon
American Plasticraft Co.
2027 Williamsbridge Rd.
Bronx 61, N. Y.

We would suggest that you write direct to the Wama Company, Industrial Building, Baltimore 2, Maryland.

Dear Sir:

We would like to have the name of the firm that manufactures Plastic Jalousies as shown on page 8 of the November issue of "Plastics."

C. O. Wilson
P. O. Johnson Co., Inc.
15 William St.
New York 5, N. Y.

These were made by the Tropical Awning Shutter Company of Miami.

Dear Sir:

We are subscribers to your magazine "Plastics" and would appreciate it if you could advise us where to obtain a list of manufacturers of unsupported Vinyl sheeting in this part of the country. We would appreciate such information very much.

Thanking you, we are

M. Lloyd Platzker, Pres.
Spartan Industrial Corp.
51 Chambers St.
New York 7, N. Y.

standardization

Representatives of the Plastics Industry interested in plans to standardize numerous types of measuring devices attended a meeting of the American Standards Association. The American Home Economics Association urged that manufacturers of measuring cups and spoons follow the U. S. Bureau of Standards suggestions of 1926.

chemical industry expansion

During World War II, $25 billion were spent for new industrial plants and equipment in the United States, according to Dr. Robert S. Aries, adjunct professor of chemical engineering at the Polytechnic Institute of Brooklyn. Possibly 2/3 of this represented convertible capacity that has been used for post war production.

In the three years since the end of the war approximately $18 billion have been invested in manufacturing facilities, of which chemical process industries were the largest single group, investing almost $5 billion.

coating for wallpaper

A vinyl copolymer water emulsion compound that makes wallpapers water repellent, washable and resistant to fading has been developed by H. R. Graff Co., Inc., of New York City under the trade name of Vylon W. This plastic coating is made in two types, a high lustre and a dull satin finish, either of which can be put on the paper either before or after the design has been applied.

plastics change

Chemical technology is always changing. Plastics is an excellent example of this. It will be remembered that prior to the war, cellulose plastics were the leaders of the industry; vinyls are now holding down the number one spot. And cellulose has a competitor now, polystyrene, although hardly heard of before the war, is right along with cellulose.

product labeling

Informative product labeling can help eliminate much of the ignorance, carelessness or indifference that now exists in regard to plastics products, says George H. Clark, vice president of The Formica Co. He urges that label information should include: what the product will do, what it is made of, how it is used, how it is cared for, and who makes it.

new du pont chemical plant

Purchase of one tract and exercise of an option on another, 1,700 acres in all, in the Guadalupe River valley, near Victoria, Texas, for a projected chemical plant has been announced by E. I. du Pont de Nemours & Co.

The Ammonia Department has concluded preliminary engineering studies of the site, with a view toward building there a third plant to make chemical intermediates for nylon.

production

Total industrial production in the first ten months of 1948 as measured by the Federal Reserve Board Index averaged 91% above the 1935-39 average rate. Output was about 3% greater than the corresponding period of 1947. It probably represents nearly full capacity of the existing industrial machine under today's conditions.

extruded welting

A new application of vinyl chloride type resin is being exploited in the production of a new kind of welting for the shoe industry. Shoe welting—the narrow strip around the edge of the sole, to which the upper is joined—has previously always been made of leather. The new plastic strip makes possible for the first time a really waterproof shoe. The vinyl-resin base welting is made from the Glenn L. Martin Co.'s "Marvinol" under a patent of the Wright-Batchelder Corp. of Boston and produced in a continuous strip extrusion by the Okonite Co. of Passaic, N.J. Since leather welting has always lacked uniformity and since its production has involved splitting of the hide, much is expected of the plastic welting.

nylon for fishermen

The Du Pont Company has announced commercial production of nylon monofilament in 50- and 60-pound tests to meet certain requirements in leader material for salt-water sport and commercial fishermen and charter boat captains.

Availability of monofilament in the heavier diameters will enable all salt-water fishermen, who frequently use 6-, 10- and 15-foot leaders for certain type of fishing, to take advantage of nylon's strength, flexibility, and resistance to rust and kinking.

product evaluation

In an effort to upgrade the quality of plastic items reaching consumer markets, Dow Chemical of Canada, Limited has announced a planned Product Evaluation Program. This program meets the need for better understanding of plastics, their advantages and limitations and is intended to help eliminate misapplication of plastics materials.

The Evaluation Committee is formed of Dow Technicians experienced in the correct application of plastics and their design and fabrication. Articles submitted by moulders across Canada are studied by this technical panel on 4 basic points. First, is plastic as good, or better, than any other material for this application. Second, of all plastics available, is the particular material chosen best suited for the job. The third and fourth points concern the design and the workmanship of the finished product. If the article meets the high standard of the Committee with ratings of good or excellent on all four counts, it becomes an Evaluated Product.

Certain Evaluated items will bear a Styron label which is a Hallmark of Confidence in these products. All Evaluated articles are given publicity in the form of mailing pieces sent to buyers across Canada. National advertising in leading consumer and trade magazines helps to publicize a selection of Evaluated articles.

The enthusiasm with which the program has been received and supported by both moulders and buyers indicates the advantages of such quality control assistance. Dow cannot hope to carry the program alone, but is convinced it is a step in the right direction and spotlights the need for proper use of materials, intelligent design and merchandising.

du pont introduces

NEW ACRYLIC FIBER

Du Pont has made its first detailed report disclosing the properties of "Orlon" acrylic fiber, a new synthetic textile fiber, through Dr. Joseph B. Quig, assistant manager of the Development Section of the du Pont Rayon Department's Technical Division, who stated that the research "objective of developing an outstanding industrial fiber has been reached."

In apparel fabrics and for domestic applications, Dr. Quig said, there were possiblities of "Orlon" being used for window curtains, shades, rainwear, umbrella fabric, outdoor jackets, sports clothing, dress shirts, woven lingerie, and tricot fabrics.

Probable industrial applications would be in filter fabrics, awnings, auto-top deckings, tents, tarpaulins, outdoor furniture, sails, electrical insulation, harvester aprons, agricultural and mine belting, chemical and marine cordage, diaphragm fabrics and nets of all kinds.

" 'Orlon' acrylic fiber became a reality," it was disclosed, "with the discovery of suitable organic solvents which can be employed for preparing solutions of polyacrylonitrile."

"Five years of searching market exploration," Dr. Quig said, "has convinced us that 'Orlon' is an industrial fiber of the first order. On the other hand, 'Orlon' continuous filament yarn is the most silk-like synthetic fiber, while 'Orlon' staple is the most wool-like synthetic fiber of which we have knowledge. 'Orlon's' resistance to outdoor exposure is so good that we feel it is the best fiber we know of, natural or man-made, for outdoor uses."

fiber's properties

High dry and wet tensile strength, high resistance to stretching, high flex life, rapid drying, bonding to resins and rubbers, dimensional stability to heated gases and liquids, resistance to acid and acidic fumes at high temperatures, resistance to insects, molds, mildew, and other micro-organisms were among the outstanding properties listed for the new fiber.

"Since nylon," said Dr. Quig, "has greater abrasion resistance, retains a greater percentage of its strength in air at higher temperatures, and has much better resistance to alkalies than 'Orlon,' it is apparent that 'Orlon' will supplement, rather than compete with nylon in the industrial and domestic fabric fields."

On an outdoor exposure test of yarn involving "Orlon," silk, nylon, linen, cotton, and viscose process rayon, Dr. Quig said that "Orlon" retained 77% of its strength at the end of one-and-one-half years after all of the other fibers had failed.

In soil-burial tests with sisal, treated and untreated manila and cotton, jute, hemp, and nylon, "Orlon" retained 90% of its original strength and was superior to the other fibers, he reported. Dr. Quig also reported exceptional bulking power surpassing that of wool.

ideas

cut absenteeism

Awarding prizes for being present and on time by means of drawing lucky tickets which are awarded for two weeks perfect record, has cut absenteeism at General Motors' Delco Division to a bare minimum.

materials handling

"I always looked for economies in a plant's materials-handling system first," said a recently retired consulting engineer. "Usually found some ways of realizing amazing savings there, too," he added.

ice-breaker

One plant we know always posts on its bulletin board a brief listing of each new employee's previous jobs, home town, hobbies, education, etc. Gives oldtimers a chance to open up conversations with the newcomers.

good workers

Two new surveys have shown that Savings Bond buyers through the Payroll Savings Plan are better workers, stay on the job better, and are better producers.

catch 'em young

"What Does Your Daddy Do?" is the subject of one company's recent contest to interest workers' children in the plant. Prizes were awarded for best essays or drawings. Contest aroused much community interest as well as fostering a growing labor force.

publicity

Factory management should remember that what might be just publicity to them can be news to the editor of the local newspaper. There are a great many ways for a company to get its name into a news column and it doesn't have to happen just once a year when a dull report of the past year's business is printed.

A smart executive will take advantage of every opportunity to get his company's name into the paper. If written up and sent to the paper, the following items stand a good chance of being printed: promotions, social affairs of employees, such as picnics, banquets or dances, any prize contests run by the company, installation of new equipment, building or moving, unique employee services, and so on.

rumor has it

There is hardly a plant that doesn't have its share of rumors which cause unrest, discontent, and ill-will. To combat this situation, Sylvania Electric Products Co., Towanda, Pa., put into effect a Rumor Clinic, which has been highly successful. Boxes have been placed around the plant where employees may, anonymously if they wish, submit the rumors they have heard. Special forms are also supplied on which to write the questions they wish answered. All questions and rumors are answered in a special column in the plant's house organ.

employees have good ideas

Every plastics manufacturer can make use of good ideas and every manufacturer possesses a potential source of such ideas in its own employees. People in the plant should be encouraged to show how production can be increased, costs lowered, the products improved. It helps morale as well as business.

incentive pay

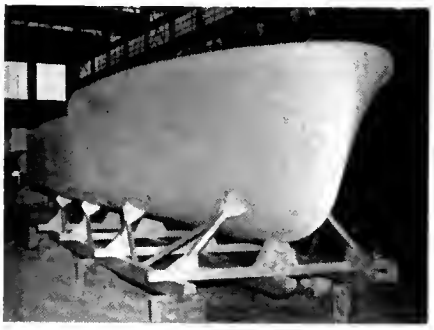
Incentive pay for producing workers is most successful, many plastics men report. They have found that increased production per worker offsets the cost increase and allows a larger overall profit margin.

Many retailers are giving plastics manufacturers much promotional help. Simpson's in Toronto ran this full-page ad to call attention to the store-wide plastics show which was planned in conjunction with Canadian Homes and Gardens Magazine. The store has also set up a plastic disc which will serve as a guide to plastic merchandise in the store.

Mass productian of small ships like this for the Navy is eagerly awaited by the U. S. Bureau of Ships.

laminated plastic boats

economical, strong and seaworthy



The bulk dimensians of this hull are appraximately thase af a 6-tan maving van laid an its side. Since the hull is monolithic, there are no seams to caulk.

The hull is 28' 9" in length, with a beam of 10' 3" and a depth of 6', weighing about 2600 pounds.

Plastic boats, long a dream, have become a reality. The first two of the 28-foot hulls were completed by the Winner Co. and are the first monolithic plastic hulls of this size with integrally molded decks and permanently pigmented outer surface ever produced.

In order to provide a basis of comparison, the Navy contracted for plywood boats of similar design and installed the identical power plants in each.

Probably the most important advantage plastic boat construction has over the present-day set-up is that practically any hull form, no matter how complex, can be made by this method. It is true that the finished hull must be capable of being withdrawn from the mold. Of course, the mold may be split, if enough boats are to be built to cover this expense.

Maintenance of the hull is practically eliminated since the hull is monolithic, with no seams to caulk or fastenings to loosen. Because the resins are pigmented with the proper colors during the molding process, there is no need for painting, and cleaning is a simple matter.

A considerable reduction in weight has been achieved in the construction due to the use of the plastic materials.

characteristics of material

The hulls were produced from low pressure 'polyester type resins reinforced with fibrous glass in a mat form. This combination produces a structural material with one-half the flexural and tensile strength of steel and three times that of wood (Douglas Fir). In comparison, flatwise it was two-thirds of steel; edgewise one-third of steel, and in each case in excess of three times that of wood. In shear it was one-fourteenth of steel but 3 to 12 times better than wood. Its weight is 20% that of steel.

1949 will be biggest yet

plastics industry enthusiastic

▲

▲

▲

PERCY N. SCHERR,
President
Thermoplast Fabrics Corporation

From day to day, the use of plastic fabrics is expanding, since consumers who have had the opportunity to use quality materials began to realize the many outstanding properties of this material, and the various uses for which it is so exceptionally well suited. One of the fields where 1949 will show a definite expansion is the drapery and decorative field. We feel sure that more and more people will feel better towards printed plastic drapery fabrics. This is especially so in industrial areas where a great deal of dust and dirt accumulates. They are rich looking and relatively low priced, they do not have to be dry cleaned, and actually represent a help to the housewife from this angle.

Further expansion is looked for in the use of decorative plastic materials for notions and a variety of articles where quality and beauty are of great importance.

Last, but not least, we wish to stress again that the consumer should look for quality and insist on same, since plastic fabrics today are not sold by count or yarn like cottons and rayons, but strictly by its thickness, respectively weight.

Our company has always made great strides towards giving the public the best possible material at a fair price. The result of this policy has been very gratifying, inasmuch as our product, which we merchandise under the registered trade name "Bonded Beauty" plastic fabrics has had a continually good distribution.

WALTER GEIST,
President
Allis-Chalmers Mfg. Co.

The forthcoming year is a most difficult one to predict from a business standpoint. We are inclined toward an optimistic viewpoint. There are definite indications that the pent-up demand of the war years has been satisfied in some of our lines; yet, in allied fields, the demand continues strong. However, with both sides of this picture in mind, we feel that any business which has neglected its sales force during the sellers' market will begin to feel the results of that neglect during the coming year.

We also are faced with many imponderables such as continued shortages of material, the troubled international situation, further possible inflationary round of wage increases, and the attitude of the government toward business. Any one or combination of these factors could have an effect on business in 1949. Our predictions as to what will happen are no more authentic than any one else's and our crystal ball is just as cloudy as the next fellow's. But, as indicated above, we feel that the need for the majority of our products is so great that we can look forward to a year of great productivity unless we come face to face with untenable situations.

To a large degree, we faced many of these problems in 1948 and came through with a relatively good year. We can do the same in 1949 unless our problems become greatly aggravated.

LAUREN B. HITCHCOCK
Vice President
The Quaker Oats Company
Chemicals Department

As you probably know, we are not resin manufacturers, but supply fairly large quantities of raw materials, principally furfural and furfuryl alcohol, to the resin industry.

In recent years we have noted a growing activity in the development of specialty products based on the unusual and valuable properties of furfural and furfuryl alcohol resins. This trend is continuing at an increasing rate, with a number of new products based on furan resins reaching the market in 1949.

Several of the specialty applications developed by a number of different producers in 1947 and 1948 will grow into volume uses in 1949.

In summary, we wish to report that numerous resin manufacturers are depending more and more on furfural and furfuryl alcohol because they are readily available, low cost raw materials on which to base new resins with special properties. Since furfural is derived from agricultural residues virtually unlimited in extent, the manufacturer is freed from the problems of shortages and price fluctuation that have marked his other principal raw materials recently. Some of the larger producers have already initiated long range research programs on developing furan resins to their own particular requirements, because of this economic security.

GEORGE H. CLARK
President
S.P.I.

The 1948 production of synthetic resins, from which most plastics are made, is estimated at 1,400,000,000 pounds, compared with 1,251,299,000 pounds the previous year, and 130,358,652 pounds in 1938. The dollar volume of all plastics products for 1948 is estimated at $1,000,000,000.

In the plastics molding field, there was a slight reduction in sales of molded products for 1948. This figure is estimated at $200,000,000, a drop of approximately 5 per cent from 1947. Thermoplastic products were up, but this increase was offset by a drop in the value of thermosetting product sales.

Plastic materials are going into the manufacture of larger and larger products. Improved materials and larger injection molding presses particularly have made it possible to produce such products as sections for automobile dashboard panels, radio cabinets and refrigerator parts. Magnifiers for all sizes of television sets are produced from acrylic plastics.

Injection molding presses of 16-ounce, 32-ounce, and 40-ounce are now quite common, while a few years ago an 8-ounce press was considered large. Estimated number of companies doing injection and compression molding in 1948 is 475 and 818, respectively, compared with 200 and 400 in 1941. The estimated number of extruders of plastics materials is 100 in 1948 versus 60 in 1941.

Vinyl plastics, in the form of film and sheeting, expanded tremendously for tableclothes, place mats, window curtains, bedspreads, mattress covers, furniture covers, food bowl covers and baby pants, with many new prints being introduced for shower curtains, aprons and draperies.

Upholstery material made of vinyl has also enjoyed a much broader use. Sofas, chairs, stools and desk tops are assuming a new look with their vinyl coverings. The consumption of vinyl flooring has been affected by the activity in building construction during the year.

DAVID E. STOKES

F. J. Stokes Machine Company

We here feel fairly optimistic about the outlook for '49. This is based on trends shown in recent months, and also on the forecast and optimism shown by the material manufacturers. Coupled to this we think that plastics has grown tremendously in stature during the past few years and that now it has become accepted as one of the major manufacturing materials. We see no major changes for 1949 but that there will be a continuing effort on the part of the manufacturers to install more efficient equipment and increase productivity. To supply this need we are continuing our efforts to design and build equipment requiring a minimum of operating costs and increasing output.

F. C. MEANS

Plastics Machine Division
Fellows Gear Shaper Company

We do not anticipate any radical changes in the plastics industry in the year ahead and are viewing the state of the industry with a guarded optimism. We firmly believe that the industry still has a long way to go, but feel that at the moment in our field at least—that of injection molding machinery—there will be some small expansion and rejuvenation of facilities for this type of work. We are manufacturing a 3 ounce and 8 ounce machine and expect shortly to bring out a 12 ounce model. We expect the usual seasonal slump after Christmas in the novelty field, but look forward to a gradual and healthy growth in the number of industrial applications. This is not expected to be of any band wagon proportions since each job must be studied to be certain that the application is right as regards material and design. The demand for extremely large equipment is evident particularly in the refrigeration industry for the molding of refrigerator panels and trays, but at this time we do not anticipate offering units of the size required, namely, 40 ounces and over. The continued shortage of metals should assure a continuing demand for articles molded of plastics and the improvements in materials and general know how of the industry should assure us that such articles as reach the market will be of a consistently higher quality than was evident during and just after the war. This should reflect creditably upon the industry.

H. E. BUECKEN,

Manager
Plastics Machinery Division
National Rubber Machinery Co.

Judging from past and recent sales, the extrusion trade seems to hold its own as far as individual fields are concerned but the trade itself seems to broaden, i.e., thinking of the new and numerous articles recently introduced. This includes, particularly, the packaging industry.

E. B. CARLSON,

Sales Manager
Allied Products Division
Columbian Rope Company

We feel that there is going to be considerable interest shown in the manufacture of large molded parts such as chairs, instrument cases and the like, using reinforcement material in connection with polyester resin.

We can furnish raw material for such applications and have found that molders are interested.

Hundreds and hundreds of items are being made in plastics and 1949 will see an added number. Here is a successful item where unbreakable ethyl cellulose is used for the flashlights' cases and shatterproof palystyrene for the lens. Made by Bright Star Battery Co., Clifton, New Jersey.

Today's BOOKS

A. S. T. M. STANDARDS OF PLASTICS. This greatly amplified fourth edition gives in their latest approved form the more than 100 specifications and tests covering a wide range of plastics and related materials. There are 11 recommended practices including practices for accelerated weathering; impact resistance; molding specimens of amino plastics, phenolic materials, and phenolic materials for use in electrical tests; and designation of numerical requirements in standards.

Also included in this book is a descriptive nomenclature for plastics and standardized terms relating to plastics, conditioning and weathering, methods of testing, rheological properties of matter, and specific gravity.

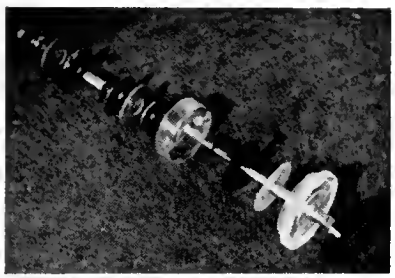
A. S. T. M. Standards on Plastics. American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. 610 pages. Price: $4.50.

PRINCIPLES OF HIGH-POLYMER THEORY AND PRACTICE. This textbook covers materials composed of molecules of high molecular weight, whether they be fibers, plastics, rubbers, surface coatings, or adhesives. It demonstrates how the fundamentals of chemistry, physical chemistry, rheology, mechanics of materials, and manufacturing techniques may be applied universally to the materials in question. The authors stress comparison with metal products.

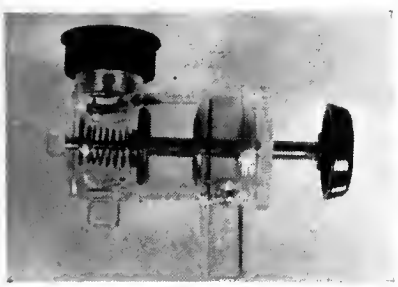
The idea behind the book "is to give insight into underlying phenomena and to preserve the broad viewpoint throughout so that, for example, what the reader learns about fibers, he will immediately recognize to be translatable also to plastics, rubbers, surface coatings and other high-polymer products.

Principles of High-Polymer Theory and Practice. Alois X. Schmidt and Charles A. Marlies. The McGraw-Hill Book Company, 330 West 42nd St., New York 18, N. Y. 742 pages. Price: $7.50.

YOUR BUSINESS IS OUR BUSINESS, WRITE THE EDITOR YOUR VIEWPOINTS.



PLASTIC SYRUP DISPENSER



A new Canada Dry fountain syrup dispenser is a plastics unit which provides a pre-measured or continuous flow of syrup through a single push-button control.

Incorporating 10 plastics parts molded by the Plastics Division of the General Electric Co.'s Chemical Department, the new dispenser delivers a measured ounce and reloads automatically when the valve is released. It measures 7¼" in width, is 16" high and holds a standard gallon jug. A padded clamp base holds it securely to counters.

All parts of the new dispenser which come in contact with the syrup are molded of polystyrene plastics. The case is molded of Monsanto's Lustron in green and white to conform to Canada Dry's trademark colors. Transparent valve parts are molded of Dow's Styron while the knob and screw cap are of G. E.'s phenolic materials.

The complete dispenser is composed of 26 parts including six stainless steel valve parts and a die cast aluminum base.

COST-SAVING POLYETHYLENE FILM

ideal packaging medium

Because it offers savings in costs and improved protection, polyethylene film is rapidly assuming importance as a packing material in the rubber tire industry. A survey of its customers by the Plax Corporation, Hartford, Conn., which manufactures polyethylene film under the brand name Plaxpak, reveals that the versatile plastic is being used to wrap new whitewall tires, tube patches, rolls of camel-back retread, and rubber chemicals and to protect white sidewalls before vulcanizing. Many other uses are being explored and under development.

The physical and chemical characteristics of polyethylene film offer an ideal packaging medium for these rubber products, while affording a lower cost in square foot coverage over materials previously used. Benefits are most pronounced in its use for camel-back, where it serves as an envelope for individual rolls of tire retread and as a backing between the layers.

features

Because of its extremely low rate of moisture-vapor transmission, the Plaxpak envelope keeps the camel-back "fresh" and at the desired degree of consistency during storage. Forming an airtight, transparent and chemically-inert "cocoon," it minimizes the effect of varying temperatures and retards aging.

Other features of the plastic envelope are its high strength, the fact that it is grease-proof and not affected by alcohols or acids at room temperatures. These properties provide packaging protection that guards against practically all of the conditions, normal and accidental, prevailing in a retread establishment.

"layflat" tubing

Plax is supplying the film for this envelope in the form of seamless "Layflat" tubing. The roll of camel-back is inserted in the tubing, which is cut and then heat-sealed at the two open ends. Within this protective envelope, the camel-back is then placed in a cardboard shipping carton.

As a backing within the roll, the film prevents adhesion of the layers. In addition, it peels off easily.

As pictured here, a single worker can maintain high-speed production when products are finished with electrostatic spray equipment.

electrostatic processing of plastics

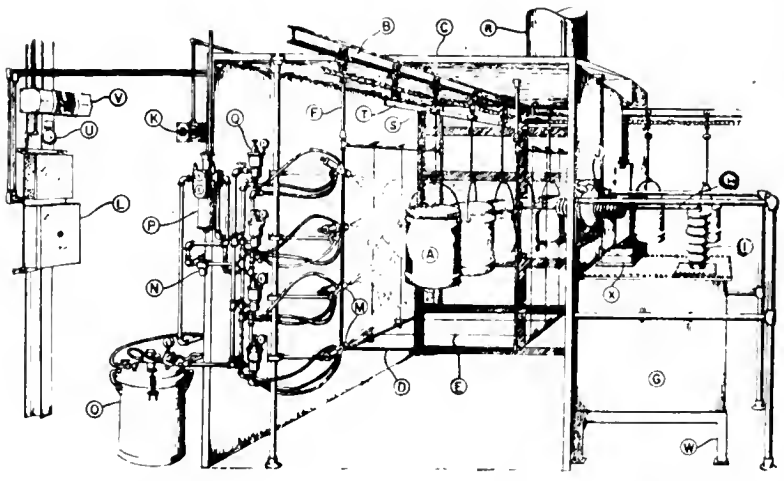
By THOMAS A. DICKINSON

Since ancient times, physicists have repeatedly demonstrated the ability of organic materials to acquire static electrical charges of either positive or negative polarity in a variety of circumstances. But, curiously enough, methods of utilizing this well-known physical phenonmenon are still in a state of comparative infancy.

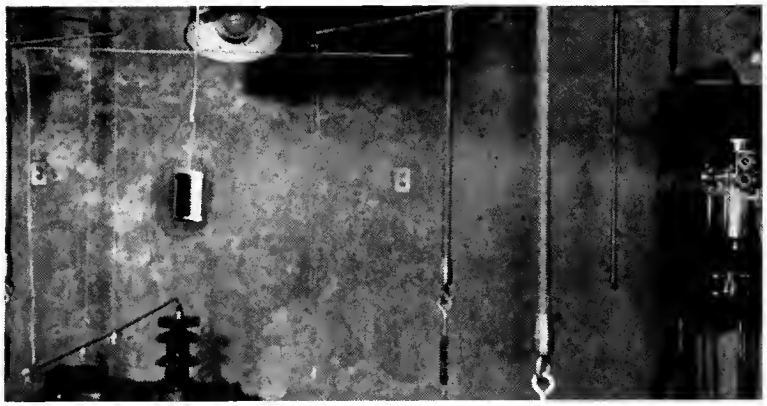
As yet, it is in fact difficult even to predict many of the potentialities of electrostatic processing techniques. However, the practical usefulness of such methods now appears to have been definitely established by the development of the process known as electrostatic finishing—whereby resinous coatings are polarized by spraying through a high-voltage electric field, so that they will be attracted to the surfaces of a grounded article much the same as metallic particles are attracted to a deposition surface in an electroplating solution.

In its current form, electrostatic finishing is a mass production process for the application of coatings to both metallic and non-metallic articles (which are polarized via an electrically-grounded conveyor set-up); and, in this capacity, its advantages may be briefly summarized as follows:

(1) It minimizes the large quantities of sprayed materials that would otherwise be lost in applying organic coatings.

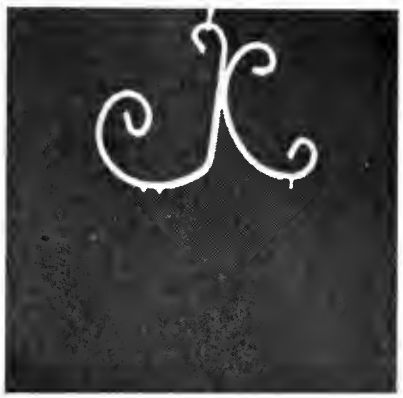


Shown in this diagram are components of a typical electrostatic finishing setup: (A) Articles to be coated, (B) Conveyor, (C) Spray booth, (D) Discharge electrode, (E) Ionizing wires, (F) Insulators, (G) Voltage pack, (H) Conductor, (I) Outlet bushing, (J) Lead-in bushing, (K) Control switch, (L) Control Panel, (M) Automatic spray guns, (N) Manual air valve, (O) Storage tank for coating materials, (P) Air transformer, (Q) Fluid regulators, (R) Exhaust system, (S) Pulley, (T) Drag bar, (U) Signal bell, (V) Constant voltage transformer, (W) Stand, (X) Terminal box.



A cylindricol container is sprayed without the use of a polarizing electric field. Only these particles that directly strike the container surfaces are usefully expended, and the aft container surfaces will have to be turned to face the spray gun before a complete coating will be applied.

A cylindrical container is spray finished via a strong electric field. Electrostatic attraction of the polarized coating particles for the grounded container surfaces permits the simultaneaus finishing of all container surfaces from a single direction. Particles on the container surfaces that do not face the spray gun would normally be waste materials.



Articles that have been dip-coated frequently acquire tear drops that won't drain from their lower edges prior to drying, as illustrated here.

A high-voltage grid is used to "detear" a dip-coated article. Note streamers of excess materials.

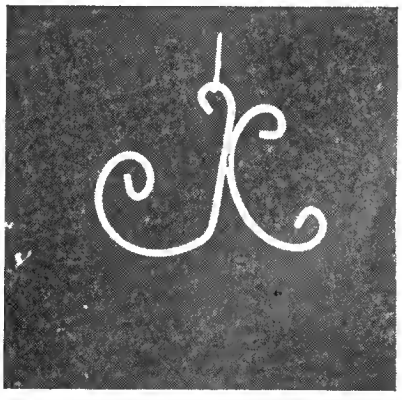
(2) It enables a single operator to provide all the human labor required to maintain high-speed production in spray booths making simultaneous use of three or more pneumatic guns.

According to officials of Miller Brothers Company at Los Angeles, these advantages have been sufficient to produce savings of as much as $100 per hour in a number of large-scale finishing operations.

To some extent, electrostatic finishing has thus far been subjected to a psychological disadvantage because it necessitates the use of a 100,000-volt direct current. However, repeated demonstrations have proved it does not create an inherent fire hazard or endanger operating personnel (since the requisite voltage may be supplemented with less than 0.010 ampere, so that it will have slightly less "kick" than the current in an average household electrical circuit).

The voltage is usually derived from a standard source of alternating current by means of transformers and radio-type rectifying tubes of standardized commercial designs; and, to eliminate the final possibility that a dangerous "sparking condition may be accidentally created, the current is passed through a No. 2050 Thyratron tube enroute to the discharge electrodes which polarize sprayed coat-

substantial savings can be realized in large scale finishing operations



As shown here, a dip-coated article can be dried or cured after it has been electrostatically "deteared" without unsightly blisters due to the presence of excess caoting materials.

ing materials. Function of the Thyraton is to stop the flow of power to operational circuits if and when there is a dangerous increase of amperage (a sure sign of trouble), simultaneously halting all spray booth operations and ringing a signal bell so that the operator will know immediately what has happened.

Spray guns are mounted as necessary for automatic operations on fixtures within the electrostatic spray booth so that the ejected coating particles will be polarized before reaching conveyor-grounded articles by passing through the aforementioned discharge of electrodes (each of which comprises a sequence of fine ionizing wires stretched across a rigid metal frame, which is mounted on electrical insulators). Accumulations of solvent vapors are removed from the spray booth atmosphere as necessary by standard wet or dry ventilation units.

applications in plastics industry

Although electrostatic spray equipment is at this writing most prominent in organic finishing work, recent tests indicate that the same or similar processing units may soon find a number of applications that are of greater importance to the plastics industry. For example:

(A) In the manufacture of unsupported films or sheet products, resinous compounds can be sprayed on conveyor-borne ferrotype plates as strip coatings which can be readily removed from the plates after drying or curing. If spray guns are carefully regulated with air transformers and fluid regulators, extremely thin films can be consistently produced to meet exacting dimensional specifications. Sheets and hollow shapes can be built up to greater thicknesses, if necessary, by the application of several coatings one over the other on appropriate forms.

(B) In the fabrication of inexpensive metal molds, and in the metallizing of plastic articles, alloy particles can be polarized by spraying through ionizing wires in order to minimize quantities of waste materials and to facilitate the adhesion of homogenous metallic deposits on non-metallic surfaces.

(C) In the production of pulp and related types of preforms for compression molding, processing costs may be reduced by pneumatically passing resin-impregnated fibers through a polarizing field so that they will be evenly deposited on grounded metal forms—thus eliminating the need for beating, felting, and drying equipment.

"detearing" process

Closely related to electrostatic finishing, although it requires a different type of equipment, is the so-called "detearing process"—which has greatly increased the usefulness of the dip-coating technique in mass production finishing work. It consists of utilizing a horizontally-positioned, high-voltage grid to withdraw the "tear drops" that would not normally drain from the lower surfaces of dip-coated articles prior to drying. The articles themselves are of course, polarized via an overhead conveyor which carries them over the grid; and, as indicated by accompanying photographs, the detearing action is highly effective.

High-voltage grid units of the types used in detearing may also prove to be useful in "dearing" the molds for cast plastics—thus eliminating the need for expensive vacuum plates or special casting centrifuges. It cannot yet be stated that such work has been acomplished by plastics fabricators, although it is a noteworthy fact that various ceramic manufacturers now use electrostatically deaired molds to improve the production of articles such as sewer pipes with high-speed presses.

In most of the electrostatic processing methods that have thus far been proved to be practical, the polarity of processed materials is more or less temporary. However, it has been an established fact for at least 25 years that organic materials can be permanently polarized if solidified from the fluid state in a strong electric field. In fact, a number of attempts have already been made to develop fabrication techniques and applications for polarized plastics (technically known as electrets); and, while results to date are both fragmentary and inconclusive, there is every reason to believe that such work will eventually become an important branch of the plastics industry—particularly in the molding and casting of parts for electrical and electronic products.

PRODUCT IMPROVED —COSTS REDUCED

through use of plastic material

The case of this postal scale is tough and strong enough, according to the molder, to support a 200-lb. man.

The newly designed postal scale introduced by Hanson Scale Company of Chicago, is an outstanding example of how a product may be improved and costs reduced through the use of modern plastic materials. The beautiful grey marbelized case is of Lustron plastic, molded by Victory Manufacturing Company of Chicago. Its beauty of design and finish make it an attractive addition to any office desk. Even more important to the maker, the case is tough and strong, strong enough to support a 200-pound man.

This strength is necessary to fully protect the scale mechanism which, for maximum sensitivity and accuracy, is assembled as a separate unit, then placed in the case. The plastics case is also practically immune to temperature changes, which caused distortion in the metal case which it replaced.

Another savings was in finishing operations. The Lustron plastic case has a natural, gleaming lifetime lustre that requires no finishing operations after being molded. The old-style metal case had to be enameled, at added cost. It was also subject to scratching in shipment, as well as in use. This led to a certain percentage of returns, which have been eliminated by using the plastic case.

The combined savings effected through the use of this plastic case have enabled the manufacturer to offer a greatly improved scale at no increase in price, even though his other manufacturing costs have increased.

PLASTIC PRESERVATIVE COATING

offers new preserving and packaging to horticultural field and fresh-food packing industry

Goodrich has developed a plastic coating which offers the vast horticultural field and fresh food packaging industry a new and original technique in preserving and packaging. The use of the material, called Good-rite vinyl resin latex, will enable horticulturalists and packaging specialists to minimize spoilage and wilt which annually has resulted in thousands of dollars damage to fruit, vegetables, and a host of edible and decorative products. Three years of intensive research has preceded its introduction commercially, W. S. Richardson, president of the company, has stated.

A preservative coating of Good-rite vinyl resin latex, actually a "package" in itself, will prolong the life of flowers, vegetables or trees for hours, days and even weeks. By virtue of the continuous relatively impermiable film which it forms, the material actually seals in the moisture so vital to plants and produce if they are to remain "fresh" after they are cut and picked. A case history illustrates this unique sealing ability: Cut evergreen trees sprayed and kept in a room with a minimum temperature of 85 F. appeared forest-fresh for 10 days and longer, and dropped only a thimbleful of needles in 15 days, while similar trees, untreated, lost many of their needles in three days, and were, within a week, practically bare.

A colloidal dispersion of vinyl resin in water, Good-rite vinyl resin latex dries quickly at ordinary room temperature and forms a transparent odorless film less than one-thousandth of an inch thick. It may be applied with a spreader, roller or brush, sprayed on with either a hand or mechanical sprayer or used as a dip.

The variety of applications foreseen for the new product include: a preservative coating for Christmas decorations; a supplement in insecticidal and fungicidal mixtures, greatly prolonging the useful life of many of these materials, increasing their effectiveness and allowing others to be usable when by themselves they are ineffective; a protective coating for trees, bulbs, roses and perennials, preventing them from dehydrating during transplanting, shipping and display; a supplement with 2,4-D making the use of this material safer, permitting kill of plants otherwise impossible with 2,4-D alone.

LUMITE UPHOLSTERY FOR DENTAL CHAIRS

New Lumite woven plastic material has entered a new field in its use as upholstery covers over dental seats and backs of chairs. Made by the Lumite Division of the Chicopee Mfg. Corp., Lumite is produced from saran, a vinylidene chloride product. The upholstery goes well with a modern, well-equipped dental office. Besides its cleanability and wearability, the smooth surface prevents the patient's garments from clinging to the chair, which adds greatly to the patient's comfort.

These new long wearing, all-purpose, lightweight, flexible mitts, of Vinylite plastic, give hands complete freedom of action. These Mitts are manufactured by Servette Corp., 595 Madison Ave., New York City, and retail for approximately 25c a pair. They are unaffected by grease, acids or stains and protect both Milady's hands and manicure.

A new technique in plastic molding developed by the Plastics Division of General American Transportation Corp. brings to the home a completely comfortable plastic chair. The striking appearance of this new line of furniture is made possible by a process which sandwiches upholstery material between layers of plastic, thus keeping it permanently bright and colorful, protected against cigarette burns and scratches.

new plastic merchandise . . . .

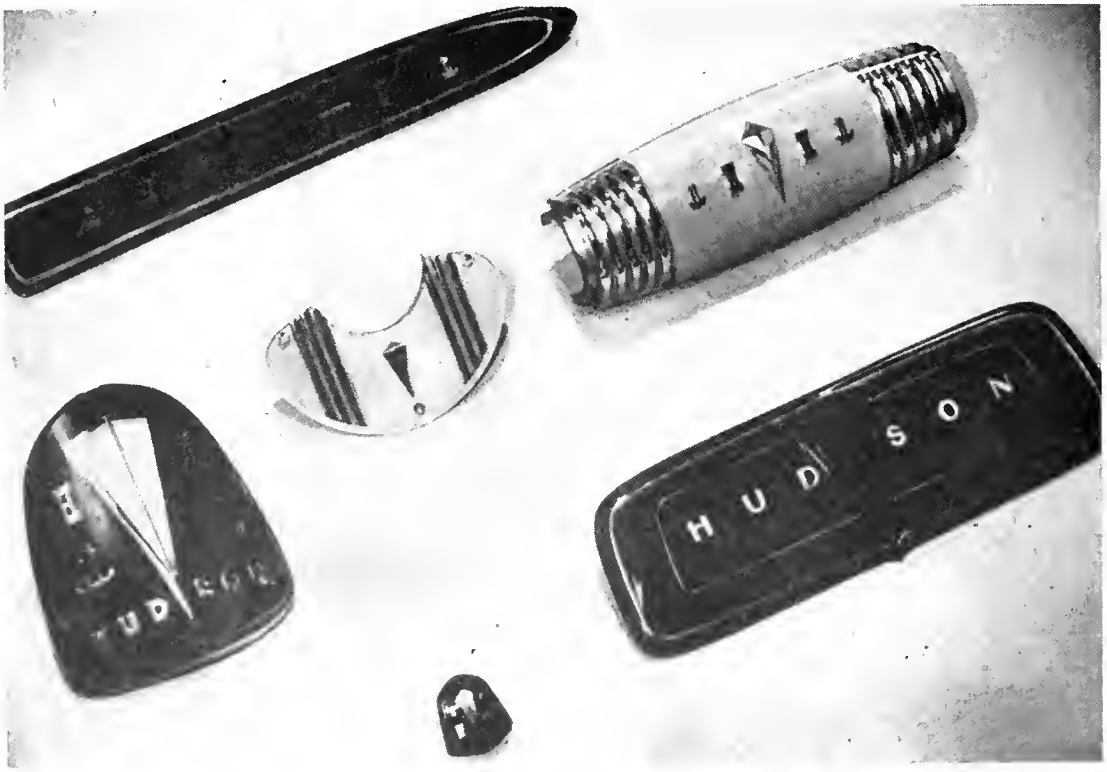
"Junior Claset Pole" manufactured by Nursery Plastics, N. Y. C., of extruded cellulose acetate plastic rod by Hercules Powder Co.

This modern toy bathroom set made up of four pieces is made of Styron, made by Dow Chemical Co. It is a product of the Ideal Novelty & Toy Company of New York City. Boxed, the set sells for $1.00.

Jungle machete handle, canoe cushion, and garden hose are made from Geon plastics manufactured by B. F. Goodrich Chemical Co.

Vimlite, a Celanese plastic coated mesh, in compact and cigarette case, a product of Lin Bren Products Corp., Mamaroneck, N. Y.

Celanese Forticel is used for the housing of the IBM wireless translating system. A radio device, it provides translations of speech.

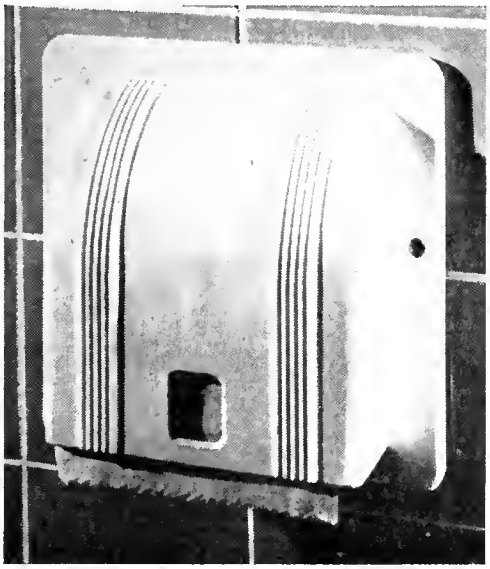


Hudson automobile parts molded of Plexiglas V, Rohm & Haas molding powder, by Gits Molding Corp., Chicago.

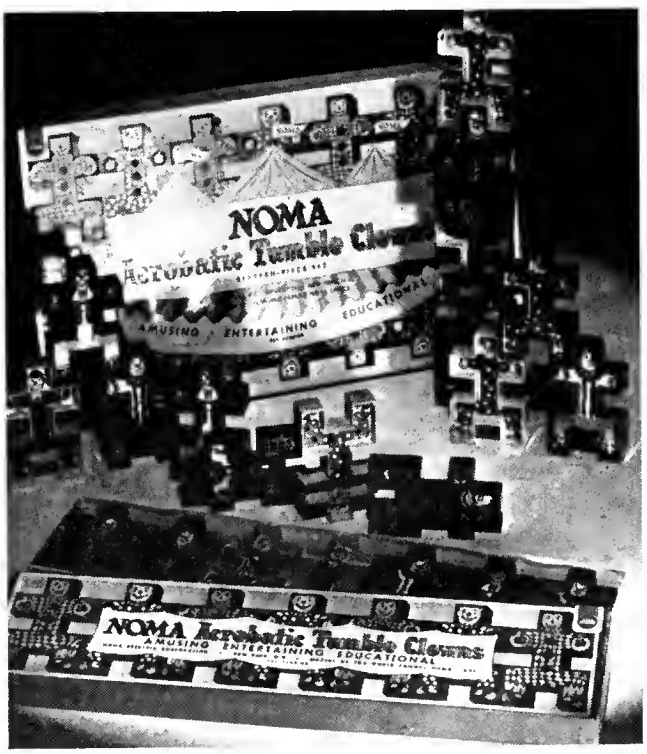
A palm-sized skate sharpener made of Tenite, a product of Tennessee Eastman Corp. Slots on opposite sides of the lightweight plastic square contain bits of "Carboloy," a sharpening agent. The Aladdin Skate Sharpener is manufactured by New England Carbide Tool Co., Cambridge, Mass. Molding is by The Morningstar Corp., Cambridge.

"Vanity Poke," a purse-sized camb and brush in a faille drawstring bag is available from the Owens Brush Co., Toledo, O. The small flare-type, nylon-bristled brush and matching comb are in clear Lucite.

This Hyd-A-Roll toilet tissue dispenser, of Tenite, by Tennessee Eastman Corp., was designed by Ulberg Mfg. Co., Portland, Ore. The item is molded by Gront & Roth Plastics, Inc., Portland, Ore.



This package designed for children's jewelry has a re-use value of being a small purse when jewelry is removed. Molded of Monsanto's Lustron, it has a carrying chain and snap lock. It is molded by Bruner Ritter Co., Bridgeport, Conn.



Tumble Clowns, made of Dow Chemical Co.'s Styron, interlock in fascinating acrobatic poses. A box of seven sell for $1.00 or a box of 16, approximately $1.98. They are products of Noma Electric Corporation, Bronx, N. Y.

NEW plastics merchandise

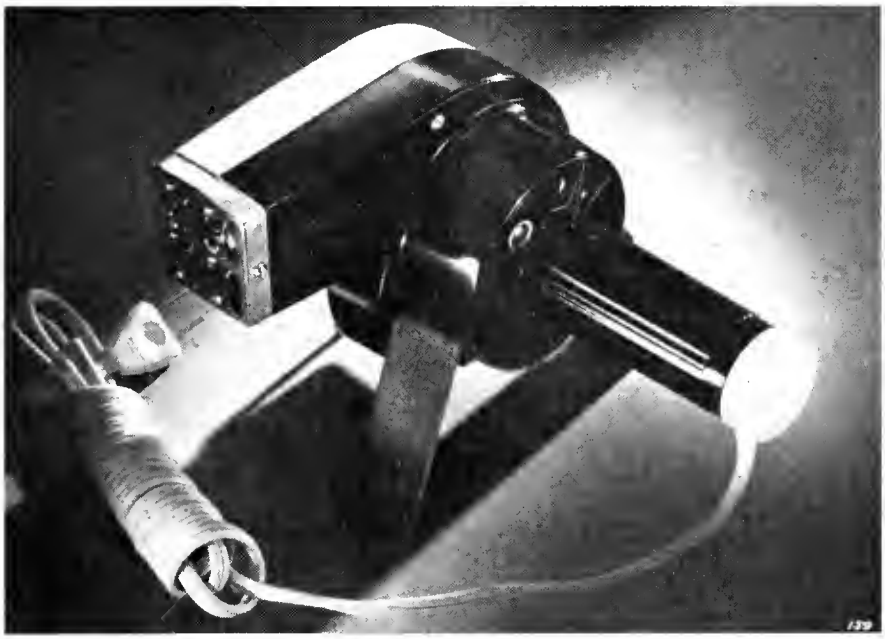
Made of Vinylite plastic film, this plastic clown is manufactured by Kestral Corp., 33 Lyman Street, Springfield, Mass.

The Streamline Button Co., 234 W. 39 St., New York, puts out this automatic needle threader housed in a carrysome case of Lumarith.

Baby Chef, Jr., is a new plastic baby bottle warmer featuring an automatic safety shut off. Electric Steam Radiator Corp. of Paris, Kentucky.

The Contant Level Oiler and Gravity Feed Oiler are manufactured by Gits Bros. Mfg. Co. The reservairs are made of cellulase acetate butyrate Tenite, product of Tennessee Eastman Carp.

This Goldilacks story set-up, made with Vinylite plastic records and cardboard cutouts, is produced by Family Games, Inc.

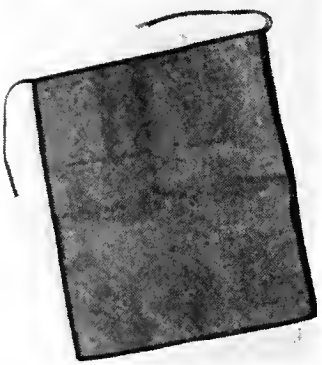


Two plastic materials are combined in this electric dryer by the Le Jahn Mfg. Co., Huntington, W. Va., a Durez phenalic compaund and a melamine malding campound. The parts were custam malded by Internatianal Malded Plastics, Inc., Cleveland.

Made of Lustran, these plastic candlelamp shades are molded by the Rogers Plastic Carp., North Wilbraham, Moss. They emit twa-tane lighting effects and may be cleaned with a damp clath.

Snap brim hats are beige cottan fabric caated with Mansanto's vinyl butyral by the Archer Rubber Ca., Milford, Mass. They are made by the Sure-Fit Hat Ca., 835 Braadway, New Yark 3, N. Y.

This handy kitchen mallet has a rugged aluminum head and a handle injectian malded with Koppers Ca.'s ethyl cellulase, manufactured by Plastic Metal Mfg. Ca., Chicago, Illinais.



Constructed of flexible, durable and washable Lumite waven plastic mesh, this bug screen is made ta keep insects aut of the car radiatar. The material is green waven plastic, 18 x 14 mesh, 20 inches across and 24 inches in depth. It retails fram $1.29 to $1.95.

abrasion-wear characteristics of modified-wood laminates

Part II

By
E. C. O. ERICKSON, Engineer
W. F. FAULKES, Jr., Engineer
R. C. WEATHERWAX, Chemist

Forest Products Laboratory
Forest Service U. S. Department of Agriculture

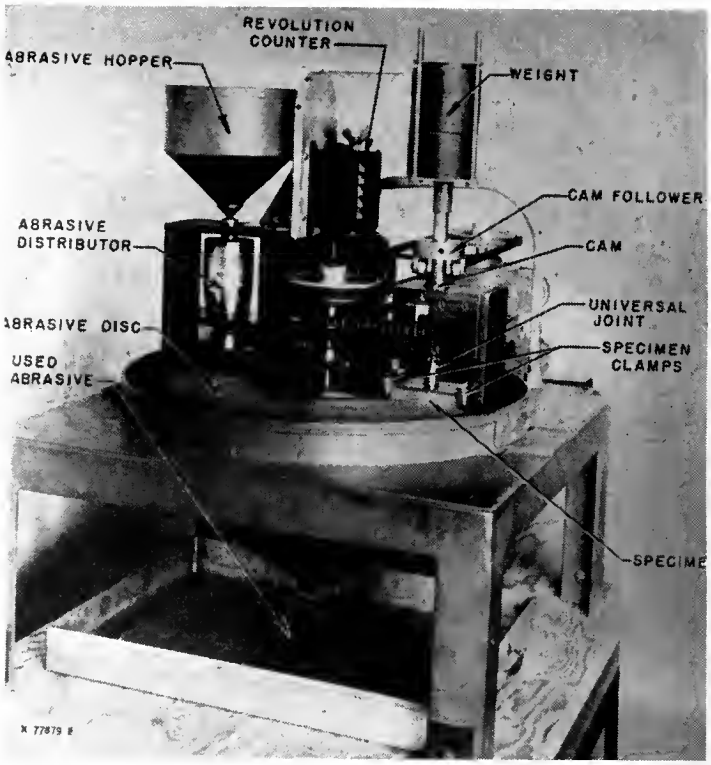


Figure 2. Navy wear-test machine with standard-size specimen in test position.

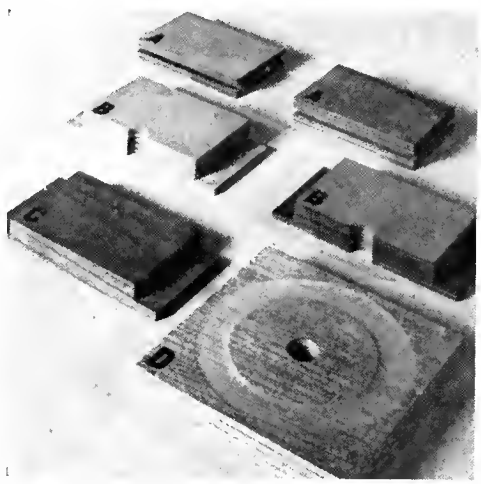


Figure 1. Wearing-surface views of abrasion specimens. Navy wear-test specimens: A, group 1; B, groups 2 and 3; C, normal wood. Taber abraser specimen: D, groups 2 and 3.

Standard Navy-machined test specimens are 2 inches wide by 4 inches long, and are machined to provide a 2- by 3-inch wearing surface and a ½- by ⅛-inch thick clamping flange at each end. Group 2 and 3 specimens (obtained from Taber specimens) were standard except for absence of a half-circle segment of ¼-inch radius at one edge in the center of length. Group 1 specimens were 2 by 3 inches with clamping notches lengthwise on each side at the center of thickness.

Taber-abraser specimens were 4 to 4¼ inches square with a ½-inch-diameter drilled hole at center of square. Group 2 and 3 Taber specimens were subsequently cut in two and machined smooth to provide Navy-machine specimens.

All specimens were conditioned at 75 deg. F. and 50% relative humidity prior to test. However, group 3 specimens had been oven-dried following Taber tests and later reconditioned before testing on the Navy-machine. Following conditioning, Navy-machine test specimens having cupped or uneven surfaces were dressed to present a plane surface on both sides. The several types of specimens tested are shown in Figure 1.

navy wear-test machine

The Navy wear-test machine employed in this series of tests is pictured in Figure 2. In this machine abrasive action is provided by revolving a horizontal steel disk covered with a loose abrasive, against which a weighted specimen bears. Both disk and specimen revolve clockwise at a fixed rate. The 14⅛-inch-diameter disk revolves at 23.5 revolutions per minute, and the flexible shaft to which the specimen is attached revolves at 32.5 revolutions per minute. The specimen shaft is loaded with a 10 pound weight and is lifted and dropped 1/16 inch

by means of hardened-steel cams, twice per revolution of the shaft. Free abrasive grits of a commercial grade No. 80 aluminum oxide are supplied to the disk in the path of the specimen at a rate of 46 grams per minute. A fairly uniform thickness of abrasive is maintained by the combined action of the disk and specimen that causes the grits to move outward and eventually off the disk as the test progresses. Only new abrasive of uniform sharpness was used throughout. None of the abrasive was reused in this series of tests.

Each specimen was subjected to at least 100 revolutions of the disk before recording any actual wear data. Thus, subsequent thickness measurements provided differences between uniform or similar surfaces. Wear data represents the average difference between five thickness measurements made with a 0.00.-inch dial gage on the diagonals ½ inch in from each corner and at the center of the 2- by 3-inch wearing surface.

The general procedure was to weigh and measure each specimen before test and after every 50, 100, or 200 revolutions of the disk, up to limits of 250, 500, or 1,000 revolutions, respectively, depending upon the rate of wear and proximity of the glue line. It was considered inadvisable to pass these tests through or to terminate them in the glue-line area because exploratory tests on yellow-poplar laminates indicated that the rate of wear was retarded or significantly decreased while passing through the glue line. Consequently, comparative values of wear in inches per 1,000 revolutions represent some extrapolated values based on slope of revolution-wear plot of at least five increments of 50, 100, or 200 revolutions.

taber abraser

Taber abrasion tests were conducted on a Taber abraser (fig. 3) employing CS-17F calibrase wheels and 1,000-gram loads in accordance with Method

Figure 3. Taber abraser with typical modified-wood specimen in test position. (CS-17F calibrase wheels and 1,000 gram loads.)

No. 1091, Federal Specifications for Plastics, L-P-406a. Specimens were tested in a room maintained at 75 deg. F. and 50% relative humidity. Loss in weight was recorded following 500, 1,000, and 1,500 revolutions, after first tracking each specimen under approximately 100 revolutions of the machine. Comparative values are based on the weight of material removed per 1,000 revolutions.

results and discussion

Results of abrasion tests of matched samples of modified-wood laminates prepared in three separate studies involving different fabrication techniques are presented separately in table 1, 2, and 3, respectively.

Table 1 presents Navy-machine wear data for modified basswood, yellow birch, sugar maple, and rock elm, based on 1,000 revolutions of the abrading disk.

Table 2 presents Navy-machine wear data for modified basswood, yellow birch, sugar maple, Douglas fir, yellow-poplar, and Sitka spruce, laminates, together with corresponding abrasion data from 1,000 revolutions of the Taber abraser.

Table 3 presents Navy- and Taber-machine wear data for yellow birch and Douglas fir treated with urea and phenolic-type resins.

Thus separate studies involving basswood and maple are presented in table 1 and 2, Douglas fir in table 2 and 3, and yellow birch in all three.

All values of specific gravity are based on weight and volume of test specimens at time of test, following conditioning to equilibrium weight at 50% relative humidity and 75 deg. F., and include moisture content ranging from 2.4% in the high-resin-content materials to 5.8% in the untreated laminates. The indicated resin contents ranging from 14 to 64% are based on the dry weight of untreated veneer, and do not include the bonding resin used in assembly.

Values of wear in inches and corresponding weight loss from Navy abrasion tests represent the results of a single test at the indicated specific gravity. Comparative values of weight loss from Taber tests are the average of two tests. Wear-resistance parameters N and T, representing reciprocal values of Navy wear and Taber weight loss, respectively, are included to facilitate comparisons of relative resistance of the several species at corresponding densities. Superior resistance is thus indicated by values of greatest magnitude, rather than by values of least magnitude as provided by actual test data.

navy wear-test data

All birch and maple data in table 1 and the birch data in table 3 represent actual or adjusted values resulting from 1,000 revolutions of the abrading disk. A few values were adjusted to conform to the average slope of the wear-revolution data taken at successive increments of 200 revolutions, when data for intermediate increments were not proportional to the actual data at 1,000 revolutions. Most of the basswood and yellow-poplar data of table 2 are approximations obtained from a straight line projection of the average slope of data taken at 50-revolution increments up to 250 revolutions. The balance of wear data given represents extrapolated values based on average slopes from 100-revolution increments between zero and 500.

rule, over 100 different parts for the F-84 Thunderjet are now being manufactured economically from low-pressure molded reinforced plastics. As a matter of fact, over 140 parts have met the test of suitability within the past year. Of these, however, 40 have suffered the fate of many other aircraft parts and have become obsolete.

best in electrical applications

So far, molded laminates have found their best use in electrical applications such as boxes, covers, panels, miscellaneous enclosures, wire guards, fairleads, etc., and in replacing metal parts difficult to fabricate or assemblies comprised of a number of detail parts. A study of the available methods, materials and material properties will undoubtedly uncover many more valuable applications both in the non-structural and semi-structural categories.

two methods

Two methods are presently employed in producing molded laminate parts. Bag Molding, identical to that used in molding tools, is the oldest and least efficient method. Mated Die Molding is a considerable improvement both in economy and quality over Bag Molding.

The use of relatively dry resin impregnated glass cloth permitted the introduction of stack precutting and simple preforming. Although this is a higher cost material, the advantageous handling properties offset the increased expense. The extensive use of preforming permits faster die and mold cycles and makes possible easier molding of those parts which cannot be drawn directly from flat sheet.

In heated die molding, further economies can be obtained by using less expensive glass mat instead of woven glass cloth and combining it with liquid resins right in the die. In parts which do not require the use of a preform, it is possible to save up to 70% in material costs.

bag molding

Because of the obvious advantages of die molding, a large majority of molded laminate parts at Republic are made that way. Bag Molding, however, is effectively employed (1) in the early production stages to expediate parts to the line until dies are ready, (2) in hose cases where the parts are not readily adaptable to die molding, (3) where the total number of parts to be made do not warrant the cost of dies.

The break-even point of dies vs. bag molds ranges between 100 to 150 parts since the cost of the average die which requires 40 to 50 man-hours to manufacture is offset by savings in production time of 0.1 hour in die molding vs. 0.5 hour in bag molding.

Continued development in the production field will keep pace with the wider acceptance of laminates and will seek improved finishing methods, simpler die construction, lower cost materials and preforming techniques, as well as improvements in physical and surface properties.

If it is interesting to you, it is to us.
Send it to the Editor.

PLASTICS PACKAGES

build sales appeal

Indications are that plastics will become more widely accepted as a packaging material, according to Carl Cobbledick, packaging director of Egmont Arens Associates, industrial design firm. Mr. Cobbledick feels that manufacturers' resistance to plastic packages has been based on their higher unit cost. "Such resistance is not justified in the light of the greater sales appeal of the plastic package.

"Though higher unit costs prohibit the use of plastics for every packaging job, there are a number of factors which combine to make plastics desirable. Manufacturers should ask themselves if any of these factors are present in their own marketing picture, and if they are, seriously consider the adoption of plastics in their packages and containers."

Mr. Cobbledick summarizes these factors as: 1. Possibility of increasing sales by converting a planned purchase item into an impulse purchase item; 2. Building demand and brand loyalty through containers with re-use value; 3. Merchandising the line with matched-set containers which will stimulate the consumer to buy the whole line in order to complete the set; 4. Prestige and novelty of plastic packages where such prestige will help the manufacturer move his product.

When any one of these factors, or a combination of them, is applicable to a particular product, the fact of higher unit cost will often be found to have little meaning in the total sales plan, Mr. Cobbledick notes.

Mr. Cobbledick cites as an example the nail lacquer and lipstick container recently designed by Egmont Arens Associates for Chen Yu. The last three factors were involved and contributed to Chen Yu's decision to use high temperature styrene plastic as a packaging material. "The Tea Cup containers we designed for Chen Yu, each holding a bottle of lacquer and a lipstick, are given the looks and durability for long re-use on the dining table or as a notion receptacle on the dresser by their plastic constitutions. The use of styrene also made it possible to produce the containers in a variety of attractive colors and to mold on the top a distinctive clover pattern identified with Chen Yu. The plastic package also up-graded the product sufficiently so that it may be bought as a gift."

Mr. Cobbledick urges that plastics should be considered first as a merchandising aid and only second as a group of materials. "The package today is not just a container for the product. It must move the product off the shelf, contribute to its effective use, and win friends for the manufacturer."

The Shellie Nurser, introducing a completely new method of infant feeding, is sold in kit form. The kit contains 2-three bottle racks; six nipples, inner and outer rings, and Shell-caps; a bottle expander; and a roll of Shellies, the collapsible and disposable bottles.

extruded film forms new nursing bottle

The first really new development in infant nursing in more than 80 years has been introduced by the Shellmar Products Corp., Mount Vernon, Ohio. The innovation is the Shellie Nurser—a flexible, bag-like bottle which is made of polyethylene plastic film. This lay-flat tube is heat-sealed at one end and attached at the other end to a sterile nipple with two rings, one plastic and the other metal. Easy to assemble, Shellies are equipped with plastic caps which insure the sterility of the nipple and at the same time render the whole bottle leakproof.

Shellies were invented in the first place to release nurses from the tedious chore of washing and sterilizing glass bottles. However, an even greater advantage that resulted was the fact that the bottle collapses as the infant nurses. Thus, there is no back-pressure, no air for the infant to swallow; no more effort or exertion for the infant is required than in normal breast feeding.

Shellies are unbreakable, safe, economical and convenient. They can be nursed from any position—soft and light, they eliminate danger of injury during feeding. They save space, since one hundred empty Shellies take up less space than one 4-ounce glass bottle.

polyethylene and melamine

The Shellie Disposa-Bottle is made of polyethylene, a soft pliable material extruded at a temperature of more than 400 deg. F., thus insuring sterility. The term "Shellene" will be used to refer to the polyethylene used in Shellies. The walls of the bottle are approximately .002 of an inch thick. The extruded "Shellene" tube is sealed off at intervals to form 8 oz. and 4 oz. bottles with a heat sealing bar. The bottles thus formed are sterilized in the manufacturing process and sealed against contamination. They are not opened until they are filled before use.

The outer locking rings and the Shell-Caps are made in pink or blue melamine. They can be boiled or sterilized without dimensional distortion, and are completely free of phenol, which may be injurious to the infant's skin.

sanitary precautions

Shellies are sealed and packaged in a room which is as sterile as a hospital operating room. Trochlorethylene-glycol is sprayed into the air conditioning system. In addition, powerful G-E germicidal lamps of the latest type are also used directly on the film and packages and also throughout the room. Employees don sterile outer clothing before entering this room and are given weekly physical examinations.

Each batch of Shellie Disposa-Bottles is given a code number as produced, and bacteriological examination is made of the film, both inside and outside surfaces. No batch of Shellies will be released for shipment until that partciular code number has been cleared from a bacteriological standpoint.

shellie nurser kit

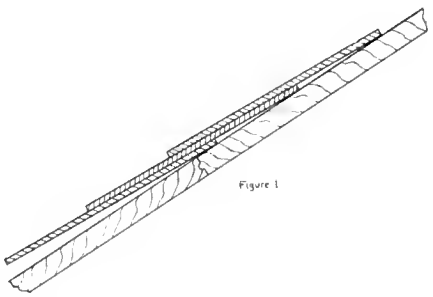
The Shellie Nurser will be sold in a complete Shellie Nurser Kit containing:

Two 3-bottle racks for assembling and storing.
Six "natural-action" nipples.
Six aluminum inner rings.
Six plastic outer locking rings.
Six plastic Shell-Caps.
One bottle expander.
100 Shellie Disposa-Bottles.

The Shellie Disposa-Bottles, which are used once and then thrown away, are joined to the nipples, after filling, by means of the two sets of rings. Shellies will cost about one cent apiece. The Shellie Nurser Kit will be available in pink, blue or white plastic parts.

transparent plastic shingles

By D. A. DEARLE



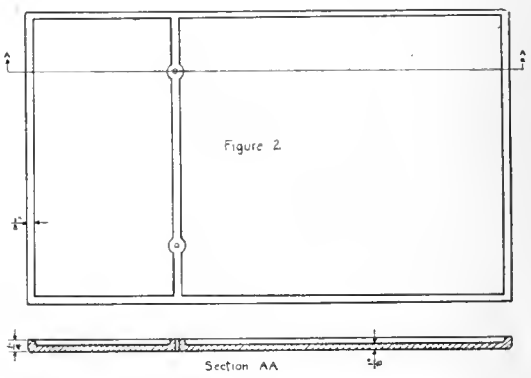
As a result of economic conditions shortages of basic raw materials continue to hamper full-scale production in many fields. The building industry is particularly plagued by the lack of many essential components such as lumber, slate, steel, and other non-ferrous materials. The manufacturers and molders of plastics, however, are now in a fairly strong position from a production standpoint. Consequently, plastic molded parts are continuing to play an important role in replacing materials in a variety of building construction applications. Although many of the plastics possess a high strength-weight ratio, they are not quite ready yet to be used as supporting members in the construction of an average house. The roof of a house, though, does not have to undergo any tensile or compressive stresses and a suitable plastic molded material could be used for roofing if it proved to be practical in other aspects.

The modern house of today is covered with many different materials, both natural and synthetic. Shingles made of wood, asphalt, and asbestos are used extensively. On the more expensive roofs we find either tile or slate and in many communities copper or sheet metal is used. Regardless of the material utilized, the domestic roof serves one purpose: namely, to protect the occupant from the elements. Weather is harsh on all matter exposed to it and in normal climates there is a temperature variation which ranges from below zero in the winter to over 120° F. in the warmer months. The average roof is exposed, not only to these changes in temperature, but also to rain, sun, ice and snow.

weather qualities

On the list of molded transparent plastics we have three materials from which to choose. These include the acetate family, polystyrene, and polymethyl methacrylate. Of these, polystyrene is the lowest in both price and specific gravity, so let us consider this material from a critical and an objective standpoint. In this particular application we are interested chiefly in the weathering qualities of this synthetic resin.

According to the most recent technical data on plastics a modified polymer molded styrene showed "some discoloration, no crazing, and stable mechanical and electrical properties"* when exposed to outdoor aging in Florida for one year. This test is most important in determining the weathering properties of polystyrene and the results are enlightening. From laboratory data we know that styrene has the lowest water absorption after immersion. Furthermore, this material possesses the quality of a high distortion point of about 200° F. and does not become brittle at temperatures below zero. So, from a practical standpoint it appears that molded polystyrene might prove to be a very suitable material for roofing, but we must now give due consideration to the aspects of cost. Presumably, a plastic shingled roof would cost more than any other type, but is the difference very great? We must first ascertain certain facts pertaining to competitive materials.



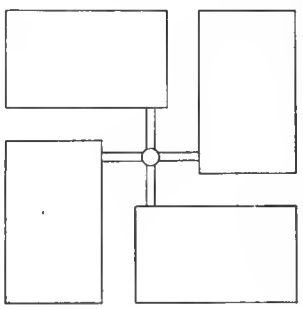


Figure 3.

smaller number of shingles required

The supplier of roofing materials gauges his costs on the price per square, the total roof area being measured by the number of squares it contains. A square, in the roofer's jargon, is nothing more than one hundred square feet of roof area. The aggregate area of all the shingles used on one square of sloping roof is, however, always far in excess of one hundred square feet. This due to the fact that shingles are often laid so as to lap over one another. These overlaps, as shown in Figure 1, vary in accordance with the specifications and sizes of the single. It can be seen, then, that a 12" by 12" shingle it will take more than one hundred of these

*Plastic Materials Manufacturers Association, Inc., *Technical Data On Plastics*, 1948, p. 82.

to cover an area of one hundred square feet. Actually, with a 3" lap, more than 250 rectangles would be required. If a transparent shingle were used, however, the practice of utilizing a double lap could be dispensed with and the middle shingle eliminated. Also the solid board base, such as that illustrated, could be replaced by thinner lath in order to permit light to enter between the spacings.

Slate and tile are among the more expensive types of roofing material now used, so let us take slate as an example for comparing prices. Slate shingles are now furnished in many different sizes and thicknesses and these dimensions vary anywhere from 10" by 6" to 24" by 14", with approximately thirty intermediate sizes. Thicknesses start at 3/16" and increase up to 2" or over. In addition, slate is obtainable in a limited range of colors such as black, green, gray, purple and red. In discussing a plastic shingle we shall consider only the minimum size and thickness for cost comparison purposes.

At the present time the cheapest type of unfading colored slate costs approximately $30 a square delivered within a 200 mile radius of the quarries. Colored slate quarries are located chiefly in Vermont and upper New York State, and black slate is quarried in Pennsylvania. The figure of $30 per square is based on a slate of minimum thickness with dimensions of 10" by 6". A standard lap square would utilize about 690 slates, but if the intermediate rectangles were omitted, there would be 460 slates to the square. Let us investigate the cost of making plastic molded shingles on the injection machine.

In the first place, it becomes evident that a plastic molded rectangle would not have to be 3/16" in thickness throughout the entire area, but would be designed with a thinner cross-section such as that shown in Figure 2. On the basis of using polystyrene the weight of a single piece would be approximately five ounces and therefore four rectangles would weigh about twenty ounces. Figure 3 shows a proposed layout of the cavities for a four-cavity injection mold. The total volume of material including sprue and runners could probably be molded successfully on a twenty-four ounce injection press. As can be seen from the design of a single rectangle, two holes have to be incorporated in each piece for the nails. This requirement can be easily fulfilled by the use of pins in the die. Knockout pins would be permissible at any location on the under side of the shingle. If then, we assume a shingle to be 10" x 6" x ⅛" thick with the additional rib and border as indicated, we find a total net weight of about 322 pounds per thousand pieces. From this let us now carry out an approximate estimate.

COST OF PRODUCING 1000 POLYSTYRENE SHINGLES

Material	322 lbs. @ .265	$85.33
	10% waste	8.53
Labor	4 cav. 1 min. cycle @ $1.15 per hour	4.80
	Inspect and pack 500 per hr. 85¢ per hour	1.70
Overhead	150% on direct labor	9.75
Total Material, Labor and Overhead		$110.11
	5% Rejections	5.51
	Prime Factory Cost	115.62
	20% Selling And Administrative	23.12
	Full Factory Cost	$138.74

From the above figures it becomes evident that on the basis of prevailing prices a standard roof could be purchased in molded polystyrene with each shingle costing almost 14¢ each. If this is converted to price per square we find that the cost of a square amounts to $63.82. This figure is, of course, over twice the $30 price now prevailing for slate, but it serves to show that the possibility of utilizing plastics for a roofing material is not too remote. A glance at the estimate discloses an interesting fact, that the cost of material comprises over 60% of the total figure. In other words, molding and finishing labor are not responsible for the higher production cost.

It is throughout periods of economic change that many industrial advancements are made. We should not consider it unlikely that during the forthcoming years the chemist engaged in plastics research will discover a less expensive thermoplastic which will possess properties equal to those of polystyrene. When such a product becomes available it is reasonable to assume that the plastics industry will make a serious bid for an important place in the vast field of construciton. The transparent plastic molded roof will then pass from the realm of possibility to one of reality.

NEW LATEX COMPOUND

American Anode, Inc., Akron, Ohio, will market a new latex compound especially designed for applications requiring high heat resistance, and a new series of plastisols, it has been announced by Dr. R. V. Yohe, president of the company. A plastisol is a dispersion of resin and other compounding materials in a plasticizer containing no volatile organic liquids as diluent. These new products, called Anodex HR latex and Ameran resin paste, will complement the variety of crude and synthetic latices, water cements and suspensions now supplied by the company.

"Anodex is the only known stable latex compound that possesses a combination of high heat resistance, good chemical resistance, high elongation, and high tensile strength," Dr. Yohe said. Articles coated, dipped, sprayed or brushed with Anodex HR possess such unusual characteristics as the ability to withstand temperatures as high as 400°F. and the retention of tensile strengths up to 2500 pounds per sq. in. and elongations up to 1000%. Potential applications for Anodex HR include heat resistant coatings for textiles and fabrics, such as radiator hose fabric, ironing board covers, insulating tapes and papers, heat and oil resistant gaskets, hose, belting, oil seals and other mechanical applications. The new series of Ameran resin pastes makes available to processors plastisols compounds that are free from entrapped air. "The greatest single difficulty with plastisols to date has been the entrapment of air bubbles and their removal," Dr. Yohe states. "Ameran resin pastes will be supplied bubble-free, eliminating one big processing headache."

"The new compounds," he added, "may be used for coating metal and wire, plating racks, pipe lining, wood, textiles and paper; molding toys, industrial boots and gaskets; or casting film and sheeting. They will be available in a wide variety of colors and will be formulated to customers' specifications."

PLASTICS—SILENT PARTNER OF WOOD INDUSTRY

By WILLIAM T. CRUSE

Executive Vice President
The Society of The Plastics Induustry

Plastics and wood have been on intimate terms for some time. There are two aspects of the relationship of plastics to wood. There is, first, their use in combination with wood, where they are employed as adhesives and, secondly, is their use in mechanical combination with wood.

The development of adhesives until recent years is largely the history of animal glues and their applications. Up until this century, the majority of glue applications were in the manufacture of furniture. Synthetic adhesives made their debut about 1928. While much had been done prior to this time in the chemistry of these materials, it was not until this period that they came to be used commercially. It was the need for adhesives which would withstand outdoor exposure and tropical and sub-tropical environment that led to the development of adhesives that would withstand these conditions.

adhesives

The types of resinous adhesives which are now extensively used are phenolic, urea, Melamine and Resorcin resins. Melamine-urea resin is practical because of its economy and efficiency.

Resorcinal is a relatively costly raw material. When used in combination with phenol, it is more economical and the major desirable properties of the straight resorcin resin have been preserved.

Promising development is progressing in the use of Furfurol, synthetic protein, emulsion polymers, elastomers, polyesters and thermoplastic polymer fields.

mechanical combination

Probably the earliest mechanical application of plastics with wood was the use of pyroxylin instead of ivory for inlays in furniture. Unlimited yards of imitation leather made of fabrics coated with pyroxylin have been used to upholster plywood furniture. This material has been used in combination with wood countless times.

As an allied application of a plastic which has facilitated wood working, we can't overlook the use of machined pyroxylin or molded cellulosic chisel, screw driver and saw handles.

Obviously, plastics aren't a substitute for wood. But, when used in combination with wood, they can take it places where it couldn't go alone.

40% of the Douglas Fir plywood is now being manufactured with phenolic type adhesives. 40 to 80% of the hardwood plywood is made with synthetic adhesives.

Some furniture manufacturers are continuing to use the older classes of glues. The advanced furniture maker is employing those of the synthetic type. Much investigatory work has been undertaken in an effort to use sawmill slashings in the manufacture of composition building boards. If this type of manufacturing is to develop, it will only be a success because of the properties that synthetic resins will impart to the finished product.

Decorative laminates have proved their worth in the construction and furniture field. Extruded plastics made their bow about ten years ago, when metal became short early in the war, builders turned to extruded plastics for trim.

If asked to summarize how the plastics and wood industries are fitted together, I would say they have been joined by a scarf joint with a synthetic adhesive under economic pressure.

PLASTIC INNERSOLE

According to the makers, the inaersales are flexible, removable and washable with soap and water. They are effective in ventilating the inside of the shoes.

Lumite, a woven plastic material, made by the Lumite Division of the Chicopee Manufacturing Corporation, is being used by Dale Vent-O-Sole, Inc., for their designed innersoles, which are said to relieve most of the foot ills that afflict 7 out of every 10 Americans.

Used in 5 smooth layers of woven plastic strands for a comfortable cushioned effect, the innersoles are flexible, removable, and washable with soap and water, according to the makers.

"The Lumite woven plastic innersoles are highly effective in ventilating the inside of the shoes and averting callouses, blisters, athlete's foot and other afflictions," stated Frank Dale, who developed the innersole, which was adopted by the U.S. Quartermaster Corps for Army use during the war.

leaders in the industry

WILLIAM T. HELWEGE

William T. Helwege, treasurer of the Boonton Molding Company, New Jersey, was born in Germany and came to the United States in the 80's, settling in New York City. His business career began at the age of 16 in the shipping department of Louis Meyers & Sons Co. Mr. Helwege attended Pace & Pace School of Accounting; he was employed by the Boonton Rubber Manufacturing Company in 1921 and in 1922 he joined the Boonton Molding Company as bookkeeper. In 1927 he was advanced to assistant treasurer and then to his present position in 1932. Mr. Helwege has been a member of the Plastics Pioneers Association since it was founded.

NATHAN LESTER

Nathan Lester, President of the Lester Engineering Company, Cleveland, Ohio, started as a toolmaker in New England and assumed complete charge of a shop in six months. He was engaged to "tool up" one large plant after another; during the First World War, he produced armaments. Mr. Nathan owned his own shop in Worcester, Massachusetts, but sold it and came to Cleveland in 1929, where he organized the firm of Lester Die & Machine Company. In 1934 he organized his present company and in 1937 marketed the first Lester Injection Molding Machines. In the post-war period, Mr. Nathan has been successful with the extrusion of thermosetting tubing and large diameter thermoplastic tubing.

JOSEPH R. NEILL

Joseph R. Neill, president of The Watertown Manufacturing Company of Watertown, Connecticut, received his degree in chemical engineering from the University of Pennsylvania. Watertown Manufacturing started in 1915, with 35 employees, doing cold-molding of shellac compounds on a small scale. In 1929 they realized that phenolic resin molding was the coming thing. Mr. Neill entered the picture then, as factory superintendent. The products were marketed under the name "Neillite" because Mr. Neill's formulae are used in their making. In 1933, he became president of the company. Mr. Neill is a Plastics Pioneer.

getting personal

WILSON & GEORGE MEYER & CO., Pacific Coast distributors of Kodapak Acetate Sheet manufactured by Eastman Kodak Company, and Tennessee Eastman's Tenite molding powder, is constructing a $150,000 warehouse and office building to serve its customers in Southern California, Arizona, Utah, Colorado, and New Mexico.

The new building will be located at District Boulevard and Gifford Avenue in Los Angeles.

HALSEY J. SORRELL has been named manager of the Decatur, Illinois, plant of the General Electric Company's Plastics Division, succeeding CHARLES H. HARRIS, according to an announcement made at Pittsfield, Mass., by ROBERT O. BULLARD, division manufacturing manager. Mr. Sorrell, with the company since 1925, formerly held a similar post at G.E.'s Scranton, Pa., plastics plant closed at the end of November.

The Detroit Section of the Society of Plastics Engineers, Inc., held their annual business meeting and announced the officers for the coming year.

HARRY J. McGOWAN, JR., Bakelite Corp., succeeds J. S. MILLER, Durez Plastics & Chemicals, Inc., as 1949 president. The other new officers will be JOHN NICKEY, Ford Motor Co., vice president, and CARL HOLMES, American Plastics Engineering Corp., secretary and treasurer.

Also elected to the Board of Directors were: W. E. BIGGERS, CARL HOLMES and E. KNAUER.

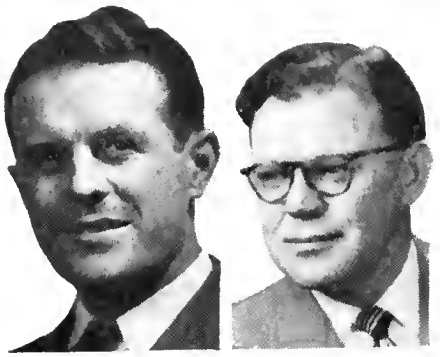
DR. MALCOLM M. RENFREW, supervisor of product development in the plastics department of E. I. du Pont de Nemours & Co., Arlington, N. J., has been elected chairman of the Division of Paint, Varnish and Plastics Chemistry of the American Chemical Society.

He succeeds DR. PAUL O. POWERS, technical adviser to the Battelle Memorial Institute, Columbus, Ohio, who remains on the Division's executive committee.

DR. ELLSWORTH E. McSWEENEY, superintendent of resin and rubber research at the Battelle Institute, was re-elected secretary-treasurer of the Division.

Other executive committee members are NORMAN A SKOW, director of research of the Synthane Corp., Oaks, Pa., and JOHN K. WISE, assistant research director of U. S. Gypsum Co., Chicago.

WALTER J. A. CONNER has announced his resignation as Assistant Eastern District Sales Manager for the Chemical Division of Koppers Company and his appointment as Sales Manager for the U.S. Fiber and Plastics Corporation of Stirling, New Jersey.



R. T. HICKCOX C. O. McNEER

H. R. THIES, manager of the Chemical Division of the Goodyear Tire and Rubber Co., has announced new appointments in the West Coast and Chicago districts.

R. T. HICKCOX has been named West Coast district manager and C. O. McNEER, head of the Chicago office. Both men were with the Plastics and Coatings Department, from which the new Chemical Division was formed.

The appointments of DR. ALBERT E. SIDWELL, JR., as assistant director of research and RALPH F. WOLF as manager of compounding research for the Columbia Chemical Division of Pittsburgh Plate Glass Company, Barberton, Ohio, have been announced by DR. ALPHONSE PECHUKAS, research director for the division.

Dr. Sidwell will direct the division's laboratory work in inorganic and analytical fields. Prior to joining this division, Dr. Sidwell had been associated with the American Medical Association for ten years.

Prior to joining the Columbia Research department last year, Mr. Wolf had served for two years as technical director of the Standard Chemical Company, Akron, Ohio.

classified ads

Minimum space five lines. Count seven words to a line. $1.50 a line per insertion. Cash with order.

WANTED—Large engineering firm wishes to acquire several complete plastics plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment, whole or in part. Personnel retained where possible, strictest confidence. Box 1241, 1474 Broadway, New York 18, N. Y.

WANTED FOREMAN-MANAGER Plastic Extrusion Plant located in Chicago. Capable leader with adequate experience. Salary plus bonus. Excellent opportunity for the right person. Replies kept confidential.

SUPERIOR PLASTICS DIVISION
426 North Oakley Blvd. Chicago 12, Illinois.

MILO R. GEROW, product manager of the Plastics Division of Reynolds Metals Company, N.Y., spoke before the National Technical Conference of the Society of Plastic Engineers at the Hotel Bellevue, Philadelphia, held January 19, 20 and 21. His subject was "The Future of Plastic Films."

Mr. Gerow, before joining the Reynolds organization, was the New York technical representative of the Cellulose Products Dept. of the Hercules Powder Company for seven years.

DR. JAMES R. DONNALLEY is the new manager of General Electric's silicone manufacturing plant at Waterford, New York. JOHN L. McMURPHY, manager of the Chemicals Division, made the announcement.

Dr. Donnalley joined the company in 1943 as a member of the chemical section of the Research Laboratory, working on fundamental silicone chemistry. In 1944, he was loaned to the Resin and Insulation Materials Division where he worked on pilot work for silicones and on the design of the Waterford plant. In 1946, he transferred to the Chemical Engineering Division of the Chemical Department, taking charge of the Waterford group.

HAROLD E. PLETCHER, manager of Ansco's Film Plant since 1946, has been named Production Manager by ALLAN WILLIFORD, general manager of Ansco. In his new post, Mr. Pletcher will supervise manufacturing operations in both the film and camera plants at Binghamton, New York. Mr. Pletcher, a veteran Ansco chemist, joined the company in 1933. He was made manager of the Film Plant in 1946.

DR. MAURICE H. BIGELOW is the new technical director of the Plaskon Division of Libbey-Owens-Ford Glass Company, W. W. KNIGHT, JR., general manager, made the announcement.

In his new post, Dr. Bigelow has full responsibility for both technical and research activities. DR. WILLIAM C. DEARING, former research director, has resigned to join Behr-Manning Corp., of Troy, N. Y.

E. L. CARLOTTA has been appointed research and development engineer for rubber products of The Parker Appliance Company, it has been announced by S. B. TAYLOR, president.

Carlotta joined Parker in 1941 as rubber research chemist, and in 1945 was named superintendent of rubber production of The Parker Special Products Division, which covers the company's activities in rubber and plastics.

ARRETTA LYNCH WATTS, lecturer for E. I. duPont de Nemours and Co., and authority on the products of chemical research, addressed The American Society of Mechanical Engineers, Metropolitan Section, New York City, on "Chemical Research and Every-day Living." Her talk was illustrated with some of the newest products that have come out of the chemists' test tubes.

E. Y. WOLFORD has been appointed manager of plastics development for the Chemical Division of Koppers Company, Inc., according to T. C. KEELING, Division sales manager. Mr. Wolford will be responsible for new application development and customer service.

DR. GILBERT THIESSEN, formerly development manager of the Chemical Division, Koppers Company, Inc., has been named technical advisor for that Division. He will devote his time to the coordination and advisory direction on technical matters relating to the development, sale, and use of products produced in plants of the Division.

factors to consider in location of

NEW PLANTS

In the last analysis, new plants are located on sites "where raw materials can be assembled, processed and, in the form of finished products, delivered to the ultimate consumer at the optimum profit to the company's stockholders." However, there are other factors which must be taken into consideration by a management that is seeking a location for a new plant.

what community management wants

It might be a good idea if management could realize just what a community management wants in the way of a new industry in the area. Most of all there is the desire to raise the income level of the people in the area. This is natural since a new industry in a community means more money brought into the town and spent there.

Through the history of panics and depressions in America, city management has realized that a "one industry" community suffers a great deal more in such times than does a community which has several industries. There is less risk in the latter case.

what company management wants

The first and probably most important feature which a plant site should possess is availability of an adequate supply of raw materials, labor, power and fuel. Coupled with this point are several other factors such as the availability of transportation facilities and how near the site is to the markets, either present or protential, for the products which are to be manufactured.

It must be remembered that the market area is an important consideration insofar as the transportation facilities are concerned. A restricted and extremely local market will not require the transportation facilities that a regional, national or foreign market will need. However, a network of good roads is essential in either case, and the latter will require excellent railroad facilities.

There are other factors which are as important as the primary ones mentioned above, but these are important in a different way. They are more concerned with the employees' side of the question. Included in this category are such things as adequate housing facilities, recreation and health facilities in the community, good educational facilities, and good public utilities and services such as police and fire protection.

Some of these factors are, of course, much more important to management than others. One of these is the good schools. If a community can boast of these, then the intelligence of the labor force should be higher than that of a town with poor schools. An intelligent labor force can be taught easier and an increase in production should result.

Stability of the community must be taken into consideration since a town which has a good civic financial status and a favorable tax structure is a good risk for a company. Also, management should realize that the attitude of the community towards both the industry and its employees is extremely important. The social and cultural atmosphere in the community should also be favorable.

A progressive company is deeply interested in these secondary factors because it realizes that through these factors the efficiency of the labor force can be determined. Good community services are important to a company that is interested in the welfare of its employees. Intelligent companies realize that as the morale of its labor force goes, so goes the production.

Recreational and public service facilities have an indirect result on the efficiency of the labor force. The "optimum profit" is still the guiding spirit behind the company; it is to the benefit of the company to keep production, and therefore morale, high.

New areas of location were opened up during the recent war which have extended the number of regions to be considered for location of plants. Workers in southern and western states gained skill and experience through working in war factories. The South, therefore, has a much greater proportion of skilled workmen than it ever had before and is wide open for new developments.

One of the principal prewar objections to the location of new plants in the South was the distance from markets. The growth of market potentialities in the South has completely eliminated this objection.

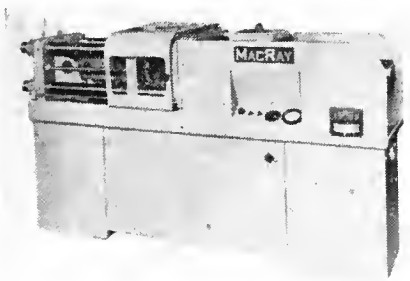
what's new

The F. J. Stokes Machine Company, 5900 Tabor Road, Philadelphia 20, Pa., has issued a new catalog entitled "Stokes-Standard" Semi-Automatic Molding Presses and other equipment for plastic molding. Completely descriptive, the catalog includes specification data and is illustrated with many views of typical "Stokes-Standard" press installations.

The Krieger Color & Chemical Co., 6531 Santa Monica Blvd., Hollywood 38, California, has announced that the new Poly Supra Dyes, perfected and introduced to injection molders by the company and meeting with marked approval. These new Poly Supra Molding Powder Dyes are especially designed for use in extruding and injection molding of polystyrene, Lucite, Plexiglas, Poly Vinyls, Ethyl Cellulose, Acetate, Butyrate, Nitrate and other types of themoplastics, having a temperature flow molding rate of 200 to 600 degrees F.

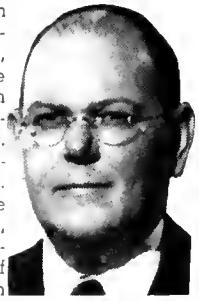
American Cyanamid Company, Plastics Department, 30 Rockefeller Plaza, New York 20, N. Y., has recently made an arrangement with The Nelson Company, of Iron Mountain, Michigan, to handle the distribution of Cyanamid's Urac Resin Adhesive 185 to small consumers.

The Nelson Company will distribute units of five gallons, one gallon, one quart, and one pint, available to the consumer upon direct order to Nelson in Iron Mountain, Michigan. Attractive new containers have been developed for Nelson which make it possible to ship the two component adhesives as a unit. The top can contains just enough hardener for the resin in the second can, and the user can mix the adhesive all at once or in whatever quantity he desires.



This Model No. 3 MacRay Injection Molding Machine is manufactured by the MacRay Engineering Co., 6611 Euclid Avenue, Cleveland 3, Ohio. According to the company, this machine offers many advantages including 3 oz. rated capacity, semi-automatic cycle, ease of set-up, quiet operation, modern design, accessibility and simplicity.

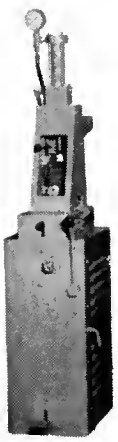
Interlake Chemical Corporation, 1910 Commerce Bldg., Cleveland, Ohio, has announced the promotion of Myron T. Bennett to vice-president in charge of sales, with headquarters at the firm's home office in Cleveland. Until his recent appointment, Mr. Bennett held the position of sales manager. Before joining Interlake Chemical Corporation, Mr. Bennett was vice-president in charge of sales for United Carbon Co., Charleston, W. Va.



MYRON T. BENNETT

Charles Pfizer & Co., Inc., 11 Bartlett Street, Brooklyn, New York, has a new member on its Research Staff. He is Frederick J. Pilgrim, who received his Ph.D. in Organic Chemistry from the University of Illinois in October. Dr. Pilgrim is a graduate of Rensselaer Polytechnic Institute and received his Master's Degree at the same institution in 1940. Before returning to the University of Illinois for post-graduate study, he was engaged in pharmaceutical activities at Lederle Laboratories Division of American Cyanamid Company, and Merck and Company.

Mosla Machinery Company, 2443 Prospect Ave., Cleveland 15, Ohia, has introduced this new ¾-ounce Hydraulic Minijector (Floor Madel Only) which is operated by Vickers hydraulic equipment, has built-in relief valve far injection pressure control and a hydraulic indicating gauge with manual shut-aff. The hand-operated hopper is of the meter type. The ¾" injection plunger is af alloy steel, heat treated and chrome plated. The cylinder is of hardened allay steel.



Respro, Inc., Wellington Ave., Cranston, Rhode Island, has announced the appointment of Mooney Plastics Co. as distributors for Resproid in the Chicago area. Broadening an association of 27 years' standing as Canadian distributors of Resproid, J. C. and K. G. Mooney with staff have opened offices at 225 North Wabash Ave., Chicago. Canadian operations will be continued, but the firm soon expects to make the Chicago office its headquarters.

Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y., has announced completion of new facilities especially designed for the production of Durez 75 Black and Durez 77 Black. In short supply for several years, these unique phenolic materials are now available in quantity to the molding industry. Durez 77 Black is said to have excellent chemical resistance and low water absorption properties and to deliver an extremely high-gloss finish. Durez 75 Black is a similar material with somewhat better molding properties, although slightly lower chemical resistance.

IMPORTANT DATES

• CALENDAR FOR 1949 •

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Feb. 1 . . . Chicago Section, SPE, Merchants & Manufacturers Club, Chicago, Ill.

Feb. 2 . . . Western New England Section, SPE, Hotel Sheraton, Springfield, Mass.

Feb. 8 . . . New York Section, SPE, Hotel Sheraton, New York, N. Y.

Feb. 9 . . . Newark Section, SPE, Newark AC, Newark, N. J.

Feb. 9 . . . Rhode Island & Southeast Massachusetts Section, SPE, Providence Engineering Societies Bldg., Providence, R. I.

Feb. 15-16 . . . Society of Plastics Industry of Canada, Seventh Annual Conference, Niagara Falls, Ontario, Canada.

Feb. 19-27 . . . National Sportsmen's Show, Grand Central Palace, New York City.

Feb. 25 . . . Buffalo Section, SPE, Westbrook Hotel, Buffalo, N. Y.

Feb. 28-Mar 4 . . . Spring Meeting of American Society for Testing Materials, Hotel Edgewater Beach, Chicago, Ill.

Mar. 1 . . . Chicago Section, SPE, Merchants & Manufacturers Club, Chicago, Ill.

Mar. 2 . . . Western New England Section, SPE, Hotel Sheraton, Springfield, Mass.

Mar. 17-19 . . . Pacific Coast Group, SPI, Annual Meeting.

Apr. 25-29 . . . Southern Machinery & Metals Exposition, Municipal Auditorium, Atlanta, Georgia.

May 2-5 . . . International Textile Industries Exposition, Grand Central Palace, N. Y. C.

May 10-13 . . . 18th Annual National Packaging Exposition, American Management Association, Public Auditorium, Atlantic City, N. J.

Executives may write direct to the companies whose names are given, mentioning PLASTICS magazine.

1. STOKES-STANDARD SEMI-AUTOMATIC MOLDING PRESSES. The F. J. Stokes Machine Company, 5900 Tabor Road, Philadedphia 20, Pa. Completely descriptive, this catalog includes specification data and is illustrated with many views of typical "Stokes-Standard" press installations. This should be informative and interesting to users of plastic molding and pre-forming equipment.

2. THE STORY OF "MOONGLO." The Formica Company, 4615 Spring Grove Avenue, Cincinnati 32, Ohio. This beautifully illustrated booklet in color tells the story of Formica and Moonglo—a new Formica pattern—in the form of an anecdote. A really interesting, attractive booklet.

3. CELLULOSE ACETATE — PROPERTIES AND USES. Hercules Powder Company, 931 Market Street, Wilmington 99, Delaware. The results of more than a quarter century of intensive research in cellulose chemistry are the basis for this booklet. Included with the plastics information is a section on recently developed laminates.

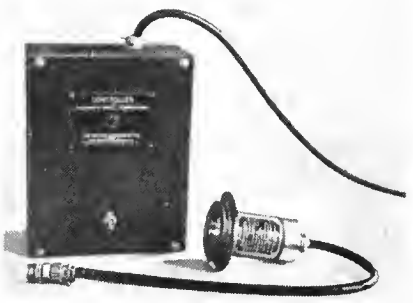
4. PLEXENE MOLDING POWDER. The Plastics Department, Rohm & Haas Company, 222 West Washington Square, Philadelphia 5, Pa. This 12-page booklet on Plexene M, a midified polystyrene powder for injection molding, describes the material's resistance to heat, chemicals and weather as well as its strength, moldability and color range. Also listed are complete technical data on the product's physical and mechanical prroperties, including its degrees of resistance to chemical solvents and reagents.

5. RLM—STANDARD SPECIFICATIONS FOR INDUSTRIAL LIGHTING UNITS. The RLM Standards Institute, Publications Office, 326 West Madison St., Chicago 6, Illinois. his booklet makes available the standards which have been established as a guide to the buyer in the selection of high quality lighting units for industrial and utilization use.

6. CHLORINE. The Pittsburgh Plate Glass Company, Columbia Chemical Division, 632 Duquesne Way, Pittsburgh 22, Pa. Designed for use by operators, technicians, buyers and executives, this new technical manual presents charts, diagrams and photographic illustrations concerned with the production and handling of chlorine and several of its end-products. A minute study of the properties of chlorine is presented, together with the preparation and analyses of several bleach liquors and detailed conversion information.

Bakelite Corporation, a unit of Union Carbide & Carbon Corporation, 30 East 42nd St., New York, N. Y., has announced that expanded plastics manufacturing facilities have increased average productive capacity by approximately 50 to 60 per cent during 1948. Further increases in plastics producing facilities, will be completed during 1949 as part of the most extensive plant expansion program in the corporation's 38-year-old history.

The expansion program includes the completion of an entirely new plant at Ottawa, Ill.; additions to facilities in South Charleston, W. Va., Texas City, Texas; Bound Brook, N. J.; and new plants in West Bath, Me., and Belleville, Ontario, Canada. Principal factors in the increased production during 1948 were the completion of the Ottawa plant and increases in facilities at South Charleston and Texas City. The Ottawa plant is now processing vinyl resins into plasticized film, sheeting, and rigid sheets at a rate that more than doubles the company's previous capacity for such products.



Brown Instrument Co., Minneapolis, new Brown Low Range Radiamatic offers a practical solution in many applications involving surfaces at relatively low temperatures, particularly where control is required.

Basically, the new pyrometer is quite similar to its existing high-range counterpart, but has been designed and developed specifically for the low temperature field, with careful consideration given to the many problems peculiar to radiation pyrometry in this range.

The new radiation pyrometer is already enjoying a marked degree of success in such applications as the control of plastic mills, ink drying on high-speed printing presses, chilled rolls in the manufacture of wax, and the processing of plastic-coated fabrics. Experience with such processes over the past several years indicates that similar applications can be handled with equally satisfactory results, provided the conditions of operation listed below are met, namely:

1. Work temperatures lie between 100 and 600°F.

2. Emissivity of the surface sighted upon is reasonably high and, for good reproducibility of readings, remains constant within a small percentage of its nominal value.

3. The temperature around the Radiamatic is below 120°F. and is not subject to sudden extreme variations.

4. The target area sighted upon is ample in accordance with the values given in Table I.

5. The pyrometer "sees" the work only—that is, reflected radiation is eliminated, by shielding, if necessary.

6. Excessive dust or smoke is kept out of the pyrometer line of sight (where present, this condition can sometimes be overcome by air purging).

Clover Industries, Inc., 539 Ellicott St., Buffalo, New York, has perfected a deep-drawn rolled-thread insert for use in molded plastic die casting. Made of light gauge steel on automatic machinery which rolls a high precision thread, the inserts cost approximately one-half as much as brass screw-machine parts of the same size.

Testing carried on in the experimental press room at Durez Plastics & Chemicals, Inc., showed that although the Clover insert is more resilient under pressure than a screw machine insert, there is no change in the diameter after molding in. It was further found that there was no leakage around the Clover insert when a properly constructed retaining pin was used. When leakage does occur, the insert may often be removed and replaced, thus saving the piece.

The inserts show good anchorage characteristics. Because of their very thin wall sections, they may be located closer to the edges or corners without risk of cracking the molded part.

Hufford Machine Works, Redondo Beach, Cal., Hufford "Rotating Tool" Hydraulic Press. This rugged and versatile unit, while designed primarily for the "hot pressing" of all sizes of threaded and plain porcelain electrical insulators, is also applicable to general pressing and forming operations of plastic materials, where a combination of controlled tool rotation and preregulated pressing tonnage is advantageous.

The unit provides for two basic operations: (1) where a rotating tool must press and simultaneously descend and ascend to form an accurate thread, and (2) where the forming operation is accomplished by forcing work against a fixed, rotating tool.

Press contains two separate actuating circuits: a fluid motor for rotation of the lead screw, and a hydraulic ram for work location and pressing. Each circuit is independently controlled. Convenient and accurate adjustments pre-set rotation rates, lead screw speeds, direction of rotation, point of lead screw reversal, work lift stroke, work lift speed, and pressing tonnage.

This unit can be operated as a manually controlled single cycle unit—or as a continuously cycling unit delivering any desired pattern of interlocked motions. Interlocks and assured repetition of any desired cycle are obtained with the Hufford "Mechanical Brain," a fool-proof timing device employing cam-driven hydraulic valves, positively controlling sequence of ram and local motions.

B. F. Goodrich Chemical Company announces the availability of a 4 page chart which contains a summary of the Geon polyvinyl chloride materials manufactured by the company. Contained are the varieties of Geon resins, plastics, and latices that are available, suggested compounding methods and ingredients that may be used, processing suggestions, and finished products that are possible. Address request to Advertising Department, B. F. Goodrich Chemical Company, 324 Rose Bldg., Cleveland, Ohio.

TERRACE PLAZA

Now open . . . entirely air-conditioned . . . 400 outside rooms . . . television in all public rooms . . . dining al fresco on Terrace when weather permits . . . four superb restaurants, Gourmet Restaurant . . . Skyline Dining Room, Terrace Garden, Plaza Cafeteria. R. C. KROGER, *Resident Manager.*

Now . . . you're *doubly* sure of hospitality in Cincinnati

You've told your guests, "You'll like the Plaza in Cincinnati." Now you can say, "You'll like *both* Plaza's in Cincinnati—the Netherland Plaza or the superb new Terrace Plaza!"

Cincinnati's Terrace Plaza is America's newest . . . a penthouse hotel soaring up from an eighth floor terrace. Recommend the Plaza's when your guests are coming to Cincinnati for business or pleasure.

If it's for business, the Plaza's make it a pleasure.

MAX SCHULMAN, *General Manager*

800 outside rooms with tub, shower, radio, circulating ice water . . . five air-conditioned restaurants . . . home of the celebrated "Carnival on Real Ice" . . . garage in hotel. HARRY NOLAN, *Resident Mgr.*

NETHERLAND PLAZA

DIRECTION: THOMAS EMERY'S SONS, INC.

STABILITY . . . Marvinol VR-10 is superior in resistance to heat, light and other normally destructive factors.

VERSATILITY . . . Marvinol VR-10 is easy to process . . . may be calendered, extruded, injection molded, used in non-aqueous dispersions, formulated as unplasticized rigids . . . uniquely versatile.

TOUGHNESS . . . Marvinol's high molecular weight offers you extra toughness and "dryness" with long life . . . resists tear, wear, oils, acids.

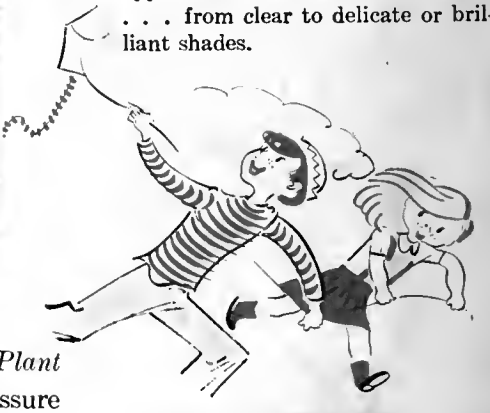
. . . here's why industry is turning to MARVINOL® the unique VINYL RESIN

WIDER TEMPERATURE RANGE . . . Marvinol VR-10 assures you products that show less deformation due to heat . . . gives greater low temperature flexibility.

COLOR . . . Marvinol offers many opportunities for distinctive coloring . . . from clear to delicate or brilliant shades.

EASILY CLEANED . . . Marvinol-based products are easily and quickly cleaned because of their smooth surface. They're waterproofed, unaffected by mold or fungi.

The New Ultra-Modern Marvinol Plant contains the latest equipment to assure efficient operation, uniform production of the highest quality. Send today for details. Write on your company letterhead to Chemicals Division, Dept. P-1, The Glenn L. Martin Company, Baltimore 3, Maryland.



CLOSE COOPERATION . . . The Glenn L. Martin Co. compounds and fabricates only in its customer service laboratory for your benefit. We sell only raw materials. Our sales engineers and modern customer research laboratory are ready to help with your processing problems.

Martin Marvinol

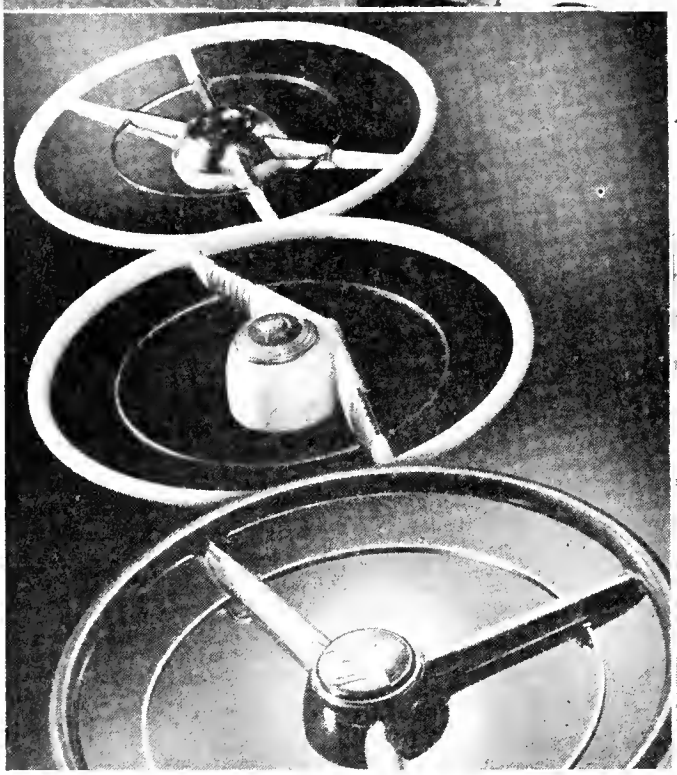
RESINS, PLASTICIZERS AND STABILIZERS PRODUCED BY THE CHEMICALS DIVISION OF

THE GLENN L. MARTIN COMPANY • AN INTERNATIONAL INSTITUTION

"BETTER PRODUCTS, GREATER PROGRESS, ARE MADE BY MARTIN"

NOVEMBER 1949

Plastic



a vincent edwards publication

plastic leathers

Dear Sir:

As subscribers to your magazine, will you kindly assist us with the names and addresses of firms making plastic leathers such as calf, patent, reptile grains, etc.

We are more interested in contacting actual manufacturers rather than jobbers.

At the same time, we would like to contact manufacturers of ladies' handbag plastic frames, and would appreciate receiving a few names and addresses.

Thanking you, we remain,

D. K. Gersten Trading Co.
150 Nassau Street
New York 7, N. Y.

moulding machines

Dear Sirs:

Our Managing Director, Mr. Francis Greif, intends visiting the United States of America for the purpose of contacting owners of moulds suitable for 2, 4, 6, and 8 ozs. Reid Prentiss Injection Moulding Machines, which we have installed in our own and associated companies.

We are moulding at this moment Combs, Brush Handles, Lipstick Cases, Coasters, Fountain Pens, Cups and Saucers and other lines made of Polystrene and Acetate, and distribute these lines through our various distributing companies.

Mr. Greif wishes to come to an arrangement with the owners of moulds suitable for Injection Moulding machines whereby he could hire same for 3 or 6 or maybe 12 months, and pay Royalties for each piece manufactured. The Royalty will have to be paid in pounds sterling, as under no circumstances will our Bank of England grant the transfer. The same, of course, applies to the outright purchase of a Mould.

We would be very grateful if you could put us in touch with a professional body offering Moulds out of production or Moulds for articles the present owner has sufficient stock, and could spare same for a short time.

H. Simons
Sales Manager
Paragon (Brushes) Ltd.
157-161 Regent Street,
London, W.1., England

looking for material

Dear Sir:

I recently got a problem in the Plastics field, which seems to be unknown to the specialists in my country and to the representatives of some American firms, too. I decided, therefore, to address myself to your "Letters to the Editor" in your periodical "Plastics."

I am looking for a cheap plastic material having the following properties:

a. The material must be colorless and transparent.

b. It must have a low softening point, so that sheets made of this material become completely soft when immersed in hot water of about 70-80° C. In this hot state the sheets, having a thickness of about 1,0-1,4 mm are to be formed easily. On cooling to room temperature they must become hard and rigid again, but not brittle. This thermoplasticity must be reversible.

c. The material should not take up water when immersed in the water bath.

d. It should not catch fire when heated slightly, 70-80° C. with a Bunsen burner.

e. The raw material (molding powder, etc.) must be formable by a simple process into plates of about 10 x 10 cm and 1,0-1,4 mm of thickness.

I think that there will certainly be American Plastics Manufacturers who can give me some good advice and offer me such a material. Before the war, we had a plastic of the above-mentioned properties manufactured by the I.G. in Germany. Now it is no longer available.

I thank you for your kindness of publishing this letter. I hope to get a favorable answer soon.

Dr. Alfred C. Muhr
Leonhardstrasse 1
Zurich 6, Switzerland

sheeting

Dear Sir:

As subscribers to your magazine we would much appreciate it if you would put us in touch with sources of supply of the following plastic materials:

1. Imitation leather suitable for the manufacture of Ladies Hand Bags.

2. Plastic Sheeting suitable for the manufacture of raincoats.

3. Thermoplastic Sheets suitable for permanizing licenses, photographs, etc.

4. Plastic liquid material (sprayable) for protective coating for silver, chrome, etc.

We are endeavoring to enlarge our business in the export of plastic materials to wholesalers and manufacturers abroad with whom we are doing export business and the above request for assistance is based on inquiries we have received from our clients.

Eric H. Greene & Co.
11467 Chandler Blvd.
North Hollywood, Calif.

plastic crates

Dear Sir:

We have a problem in the solution of which you could probably offer us valuable assistance.

We own an industrial plot on a railroad siding in the heart of this great citrus area, and we would like to utilize it for manufacturing a product in wide demand here.

A survey made by an aluminum concern in Florida within the past few years indicates that the citrus industry would be receptive to a field crate of more durable quality than the cypress crate now used.

We would like to investigate the possibility of manufacturing plastic field crates (not to be confused with the flimsier shipping crates). Could you advise us what concerns we should contact? Could you furnish us with a list of the names and addresses of plastic raw materials firms? We presume they would have research divisions to develop new uses for plastic materials, and we would like to submit our ideas for their consideration.

M. E. Stauifer
P. O. Box 1180
Winter Haven, Florida

Plastics

VOL. 9, NO. 2 NOVEMBER, 1949

COVER:

Four important fields in which plastics is coming to the fore: protection, toys, the automobile industry and fabrics.

IN THIS ISSUE

NEW YORK OFFICE
342 Madison Ave.
Tel. VA 6-5555

CHICAGO OFFICE
John R. Evans, V. P.
520 N. Michigan Ave.
Tel. SU 7-4354

BOSTON OFFICE
260 Tremont St.
Tel. LI 2-2203

MEMBER AUDIT BUREAU OF CIRCULATIONS

Published quarterly by Vincent Edwards & Co., 342 Madison Avenue, New York City. Entered as second class matter May 14, 1948, at the post office at New York, N. Y., under the Act of March 3, 1879. Subscription price: One year, $2.00; 3 years, $5.00; single copy, 50c. Foreign: $5.00 a year; single copy, $1.00. Other Vincent Edwards publications include: Fur Fashions, Fur Trade Review, Furniture Manufacturer, Garrison's, Hotel Bulletin and Women's Reporter.

4th NATIONAL PLASTICS EXPOSITION

Seated: Dale Amos, Committee Chairman, Amos Molded Products Co.; Standing: Wm. T. Cruse, SPI; Todd Harris, Creative Plastics Corp.; Dennis C. Guthrie, Tennessee Eastman Corp.; W. C. Conroy, Erie Resistor Corp.; Richard M. Lamport, Gen'l Am. Trans. Corp.; David S. Hopping, Celanese Corp.; and R. T. Teetsal, E. I. du Pont.

The 4th National Plastics Exposition will be the greatest yet. Ninety-one plastics firms representing all phases of the industry have been awarded preferred space for the exposition in Chicago's Navy Pier, March 28-31, 1950. It is predicted that many more of the smaller molders of finished plastic products will apply.

Many new and radical applications of plastics, new products, and new processes will be shown, Mr. Dale Amos, Chairman of the Exposition Committee stated.

Mr. Amos said, "Volume of business done by all phases of the plastics industry is mounting steadily. We in the industry anticipate continued growth and expansion. The plastics exposition in Chicago will reflect this development . . . with scores of new products, new uses and applications on display, as well as representation by many new firms."

Serving with Mr. Dale Amos, General Manager of Amos Molded Plastics Company, Edinburg, Indiana, as Chairman of the Exposition Committee will be Mr. William T. Cruse, Executive Vice President of the Society of the Plastics Industry; Richard M. Lamport, Assistant Vice President, General American Transportation Corp. Chicago; Charles E. Elmes, Vice President, American Steel Foundries, Cincinnati; Michael A. Brown, Jr., Sales Promotion Manager, Plaskon Division, Libbey-Owen-Ford Glass Co., Toledo; P. H. Grunnagle, Westinghouse Electric Corp., Pittsburgh; David S. Hopping, Director of Sales Development, Celanese Corporation of America, New York; W. C. Conroy, Sales Manager, Plastics Division, Erie Register Corp., Erie, Pa.; Dennis C. Guthrie, Tennessee Eastman Corp., New York; James R. Turnbull, General Manager of Sales, Monsanto Chemical Co., Springfield, Mass.; Donald G. Fertman, Advertising Manager, E. I. du Pont de Nemours & Co., Wilmington; Todd Harris, Sales Manager, Creative Plastics Corp., Brooklyn; Russ Matthews, Bakelite Corp., New York.

FACTS

SPI 1950 conference

The National Society of Plastics Engineers, of which Mario J. Petretti, Rogers Plastics Corp. is National President, will hold its 1950 conference in Cleveland, January 11-13.

Scheduled to be held at the Hotel Carter, the conference will be attended by many of the leading plastics experts from all over the United States, Canada and Mexico.

The conference will feature presentation of twenty papers on original research in the plastics industry. Discussions will cover new developments and techniques in manufacturing plastics as well as new uses.

Richard L. Huber, president of the Cleveland-Akron Section of the Society, hosts to the meeting, has been named conference chairman. He will be assisted by M. W. Osborne, Jr., B. F. Goodrich Chemical Co., as assistant general chairman; Ward T. Van Orman, Goodyear Tire and Rubber Co., treasurer and publicity chairman; C. W. Waterfield, Bird Electronics Corp., Cleveland, registration; William J. Miskella, Miskella Infra-Red Company, Cleveland, banquet chairman; George Field, B. F. Goodrich Chemical Co., speaker chairman and Mrs. Bess R. Day, executive secretary of the national society.

Thomas E. Orr, vice president of Plastic Engineering, Inc., Cleveland, has been named honorary chairman of the conference.

new plastics courses

Professional education in plastics is provided by a new optional curriculum inaugurated this fall by the New York State College of Forestry, Syracuse, a unit of the State University of New York.

To answer the needs of the program which was three years in planning, two assistant professors of forest chemistry have been added to the faculty of 65, and six new courses are offered senior and graduate students in the department of pulp and paper manufacture. The new courses cover plastics and cellulose technology; plastics properties, design, and structure; cellulose and wood chemistry; and high polymer chemistry. They supplement the 16 existing, fundamental courses in pulp and paper manufacture and cellulose and plastics chemistry.

The plastics sequence will be tied closely to the College of Forestry's full-time research studies in plastics and cellulose through Dr. Edwin C. Jahn, who has three-fold responsibilities as professor of forest chemistry, director of research and organizer of plastics curriculum. With Prof. C. Earl Libby, head of the department of pulp and paper manufacture, Dr. Jahn laid the foundations of the option during the last three years and taught the initial course for the past two years.

bone substitute in surgery

Polyethylene has been found to be a highly satisfactory substitute for human cartilage and bone in plastic surgery according to an announcement by a group of New York physicians. They state that plastic has been used successfully in the reconstruction of noses, ears, jaws and even portions of the human skull. Experiments on animals are now under way in which plastic in the form of molded tubes is used to replace damaged arterial parts and to reconstruct the common bile duct.

Plastic, according to their report, has certain advantages over cartilage and bone, and it is described as forming a secure framework on which surgeons can build in repairing physical deformities. Only chemically pure polyethylene, they point out, must be used, since most commercial compounds are found to be harmful to body tissues.

plastics in the making of phonograph

RECORDS

Formerly most records contained shellac as the toughening and binding ingredient. The war cut off the supply of shellac, which is produced in India, and since its high price has limited its use for records. It was soon discovered that synthetic thermoplastic resins would function as more than a substitute for shellac.

The rigid or breakable records of today usually contain one of these synthetic plastics. This is modified with a cheaper type of resin or extender, mineral fillers and lubricants. Lubricants in general use are the metallic stearates and high melting waxes. These materials prevent sticking of the record during the molding or pressing. Finally a small amount of carbon black is used to impart the customary black color to the rigid breakable type record. Organic dyes are generally used to provide the bright color for the flexible, or break-resistant, discs.

Record production involves the mixing together of ingredients at temperatures around 300 degrees F. As a result of this operation, the thermoplastic materials and the fillers are intimately mixed. The resulting hot dough is immediately sheeted out between rolls and cut into small rectangular pieces known as "biscuits."

The mixing operation requires the use of very heat-stable ingredients. Record manufacturers state that the synthetic thermoplastic resins which are used, fulfil the requirement of heat stability better than shellac. Shellac has the property of polymerizing slightly during the hot mixing procedure. This is undesirable, since efficient record production requires the remixing of scrap from broken records and flashings from the record press. Continual recycling of shellac record scrap gradually raises the stiffness of the mixture and affects the pressing operation.

Ethocel (Dow ethylcellulose) has proved an excellent replacement for the shellac used in rigid breakable records. Ethocel coatings are available for home recording discs and sheeting made from this plastic is well established as a medium for business recording machines.

Saran is now being used in a record of a quality intermediate between the rigid type and the flexible type. It is known as a break resistant record and is finding ready acceptance in children's recordings.

Styron is the latest of plastics to be accorded recognition as highly suitable material in the molded record field. It is being used in flexible records, particularly children's records, because of its low cost, break resistance and ease of molding.

Judging from present indications, it is safe to say, "for the record" that plastics in the sound field are here to stay.

IDEAS

builds loyalty

A personal letter, not mimeographed, from the factory head to individual worker's homes on special occasions: weddings, births, funerals, etc., is really appreciated. It also is a good builder of employee loyalty.

cashing checks for free

Out in Detroit, the R. C. Mahon Co., feels that it is more efficient to pay their employees by check. However, they realize the drawbacks encountered by workers who wish to cash their checks quickly. To help their people out, the company has an armored truck at the door on payday where workers may cash their checks free of charge. The company assumes the bank charge of 10c a check. They consider it a small fee for the good will engendered.

smart protection

To protect their buildings from heat in the summertime, the Beechnut Packing Co., Canajoharie, N. Y., paints over the black tar on the roofs with a short-lived water emulsion white paint. When cold weather arrives, the white paint is all weathered off and the tar is set for good heat absorption for the winter.

secretary-savers

Try these ideas out in your own office. Should save your time as well as your secretary's.

1. Arrange a definite dictation period. Avoid the buzzer-come-running technique.
2. Eliminate interruptions during dictating period. Arrange for visitors and telephone calls to be handled by someone else.
3. Be sure she has been informed previously as to routine, signature, carbons, etc.
4. Avoid personal distractions: pacing, doodling, rocking in chair, etc.
5. Know beforehand how you are going to answer each letter so you need not waste time making up your mind.
6. Spell out long and unfamiliar words.
7. Indicate routine answers and let her compose short letters which you have outlined. Saves you both time.

brightness levels

To get the maximum efficiency from workers, a plant must employ adequate lighting which has been scientifically planned. For example, if a worker is involved with objects that are small or detailed, dark or shadowed, the brightness level should be increased to compensate. However, too bright, or glaring brightness, is just as bad, so it is necessary to exercise care in adjusting the brighter area where it is needed. Care should be exercised, too, particularly in overhead lighting, that workers do not work in their own shadows. Lighting has come a long way and there are all types available to industry for almost any work situation so manufacturers should not neglect this important phase of their operation. It may mean the difference between smooth efficient, accident-free production of the highest grade, or faulty, slow work of inferior type.

more color—more efficiency

Painting the working parts of machines in contrasting colors has reduced fatigue and eyestrain as well as increased efficiency of the worker in a large eastern plant.

This simple, inexpensive idea had amazing results. Absenteeism fell off, labor turnover reduced, accidents were fewer, production was increased and better products turned out.

plastics are a major

RETAIL STORE ITEM

Plastics has grown into a major commodity at the retail level. Consumer plastics products are welcome and have continually been given good reception by our own customers.

Merchants are always seeking something new and novel with which to attract new customers and with which to bring old customers back to their stores more frequently. That is what we're in business for. But, we also want to provide the best quality goods at the lowest prices. That is our obligation. Plastics offers us that opportunity, because consumer goods made either entirely of plastic materials or partly with it have enabled us to open up new consumer markets.

For example, an upholstered chair with plastic cover is all-utility because it can be washed easily and quickly. And in addition, it is an attractive piece of merchandise which will sell quickly. A plastic table covering is a new item which does not replace linen table cloths, but manages to keep the latter clean and neat. This is an additional item we can offer to our customers.

Actually, merchants can probably list hundreds of items made entirely or partly of plastics. And, merchants are always looking for new items made of plastics because they are desirable and also are comparatively inexpensive.

Plastics, it seems to me, offer many industries some wonderful opportunities provided the industry supplies the initiative. The plastics industry itself, unfortunately, has not been too aggressive in designing new uses for their own products because they have not been able to meet demand. That period in our economy is over, and the manufacturing industry will now be looking for plastics men to offer suggestions for new items—rather than vice versa.

I can see where such initiative can open up unlimited fields in the soft goods industry. Furniture manufacturers have been far ahead of the plastics industry itself in evolving new uses for plastics materials. Toy manufacturers have been using plastics for many years in an effort to bring costs down, but have been doing most of the research themselves.

The future for plastics, in my own humble opinion, is almost unlimited in scope from a merchandising standpoint. It lends itself to good selling and worthwhile purchasing. But, unless the plastics industry itself realizes this, progress may be slow.

PLASTIC FOAM

plastic foam is finding increasing applications. the authors discuss its structure and forecast possible uses.

By H. SCHERR, A. GOTTFURCHT, R. W. STENZEL

Waterway Projects, Inc.

A most interesting development of the plastics industry is the advent of plastic foam. This product is an expanded resin having a cellular structure. The cells enclose air, although other gases may be present, such as carbon dioxide or nitrogen. A real comparison between plastic foams and emulsion systems may be made. The former may be looked upon as emulsions having a gas as the internal phase, that is, it belongs to a gas-in-liquid system. Since liquid emulsions are generally accompanied by foam formation it is apparent that foams originate under similar conditions. Also, as for emulsions, the formation of a foam requires the presence of an agent, analogous to an emulsifying agent. At least three stages may be differentiated in the life cycle of a foam. First, the origin of the foam, in which gas bubbles are trapped by a liquid, producing a more or less symmetrical layer. The gas bubble structure rises higher and higher. Second, the maintenance of the stability of the foam formed. Because of the dynamic character of a foam its stability is less than that of an emulsion. Third, when factors are present that influence the stability of a foam, a transition to the unstable state occurs, resulting in collapse of the foam. By the use of synthetic resins, a suitable form structure is built up and, under specific conditions this structure is transfixed to yield a stable, permanent, solid foam.

Practically all of the resins, including phenol—and urea-formaldehyde, polyvinyl chloride, polystyrene, cellulose acetate, and rubber may be converted into plastic foams. Rubber foams have been in wide use for several years for upholstering and mattresses. In general, the foams are produced in liquid monomers or partly polymerized resins, and final polymerization sets the foam. The foam is solidified by hardening the cell walls by cooling, polymerization, or vulcanization.

Plastic foam is finding increasing application for the shipping and display of floral blossoms. Of particular interest is the development of a hydro-philic or rapid-wetting foam, which supplies moisture to plants for long periods. In addition, nutrients may be added to the foam permitting blooms to flourish under novel display conditions. The absence of spillable liquid or breakable pots or dishes presents a unique feature for the florist. The blocks or cakes of foam absorb very large amounts of water which is retained for periods far in excess of that of a freely-evaporating surface of water. The shipping of flowers and delicate blooms has always presented a problem and recently has been only partially solved by resorting to shipping by air express. However, a more satisfactory solution is available by using the wettable-type of plastic foam for both the liner for shipping crates and also as an embedding medium to keep delicate blooms in a fixed position and preventing damage. In addition, cheaper forms of transportation may be utilized, where long distances are involved.

An analogous shipping problem is encountered for that of perishables foodstuffs, fruits, and sensitive medical supplies. A unique feature of the wettable-type foam is the ability to freeze the large amounts of absorbed water into solid blocks, and to use these blocks as liners for shipping chests. The blocks last at least 50% longer than an equivalent weight of ice due to the insulating property of the foam. Of practical importance for air shipments is the absence of dripping water since the foam retains the liquid phase as melting progresses. Airline companies frown upon containers that drip liquids.

Plastic foam offers contributions to the medical and surgical fields. Sterilized foam shapes for hot and cold packs yield a clean, self-absorbable medium for these uses. They are of very light weight and self-ventilating. Here again the non-drippable feature of the foam is of great value.

The most obvious functional application of water-resistant types of plastic foams is in the insulating fields. Certain types of foam have the exceptionally low weight of 0.5 pounds per cubic foot. The thermal conductivity is about one-half that of cork. The resiliency of the foam readily adapts itself to irregularities in the structural form and permits tight fitting, unaffected by vibration and temperature changes. When processed as laminated forms a high strength-weight ratio is achieved. Very high efficiencies are attained also by use of the foam in the form of granules as a cheap substitute for ground cork. Very large storage facilities have been constructed for food freezers and lockers with excellent results.

Allied to the insulation field is the use of plastic foam

for sound-deadening purposes. These materials will absorb better than 90% of the sound energy in the audible range. In the shaped forms attractive facings may be utilized for decorative purposes.

Plans are being made to construct prefabricated houses of laminated forms having a core of plastic foam. As an example, foam faced with aluminum sheeting would have very high thermal insulating properties due not only to the foam core, but also because of the high heat ray reflectivity of aluminum. In addition, this laminate would possess high strength-weight ratio. The use of lumber for structural items is reduced to a minimum. Because of the non-flammable nature of the foam, fire risks are reduced, as are also damage to termites and dry rot. Developments along these directions are in line with the dwindling supplies of lumber.

Plastic foam because of its cellular structure lends itself for use as flotation aids. During the war use was made of the foam for life jackets, rafts and life-saving devices. It is not inconceivable that an entire boat could be built using a laminated foam.

for agricultural purposes

As further evidence of the versatility of plastic foam is the growing interest in its use of agricultural purposes. Modified urea formaldehyde resin foams may be prepared containing fertilizer elements. By incorporating these impregnated foams in the soil as granular material advantages are obtained over the conventional fertilizers. The foam slowly releases the nutrient agents as they are required due to its retentive properties. Heavy rains do not wash away the valuable constituents necessary for plant growth as with the customary fertilizers. The foam prevents excessive drainage and supplies moisture when ordinary soils would become dry. This statement may appear as an exaggeration but tests on the wettable-type foam showed that a one inch cube of the foam when saturated with water did not return to its original weight until after a lapse of four days, fully exposed at a room temperature of 70°F.

Plastic foam is also adaptable for use in many specialty items. Coasters have been made for soft drink pads that are highly absorbent and non-sweating, as well as not marring fine finishes, and may be made in pleasing colors. Another suggested application is for replacing the flammable excelsior and shredded paper packing for delicate scientific equipment and glassware by granular or shredded foam which is fireproof and vermin-proof. The limit to the usefulness of the plastic foams lies in the imagination of both producers and prospective clients who are not satisfied with existent methods or conventional materials.

To aid the small user in overcoming freight costs and delays, this company has designed a small, portable automatic device which needs merely to be connected to an electric outlet which permits the user to produce such foams on the job.

SAVINGS THROUGH PLASTIC TOOLING

republic aviation corporation's constantly growing use of plastic tooling and manufacture of plastic parts for planes pays off

In the making of a battery drip tray the operator is shown placing three layers of impregnated cloth into the heated die.

After curing for 1½ minutes the battery drip tray is removed from the heated mold and is ready for trimming.

The development of easy-to-handle preforms has greatly improved the economy and rate of production of bag molding processes at Republic.

Use of molded reinforced plastics in the construction of modern jet fighter airplanes—both in tools which are used on the assembly line and in non-structural aircraft parts—has reached significant proportions at Republic Aviation Corporation, according to H. J. MacDonald, factory manager.

The present status of plastics at Republic is a direct outgrowth of a practical development program in plastic tooling which had its modest beginnings in the Fall of 1942. Since then, a number of materials have been successfully and profitably used within their limited field of application. This effort ultimately led to the adoption of low-pressure molding techniques as a standard tool manufacturing process.

The profitable utilization of these methods, made possible by the development of simplified procedures and materials, is now well known as molded laminate tooling. This process, which has been firmly established at Republic for the past three years, has attracted the favorable attention and interest of both the military services and the aircraft industry.

Hans Lasker, factory superintendent at Republic, has pointed out that tools used in drilling, routing, spot welding and assembly operations have provided savings in weight, time and cost; they also proved to be more serviceable and generally improved over previous metal tools. Savings of over $100,000 in tooling costs on suitable applications during the first full year's use, provided ample evidence as to the economy of the system.

Molding of reinforced plastics under low-pressure was made possible by the development of resins capable of being cured to complete hardness irrespective of the pressure employed in the process. It was the aircraft industry, however, which gave low-pressure molding its initial impetus and encouraged its early growth during the war years.

The large scale employment of low-pressure molding both in aircraft and general commercial production has been somewhat retarded because of the lack of expedient and economical production methods. This problem has been one of the two main concerns of plastics development at Republic.

While the company has made considerable headway towards achieving economical molding of aircraft parts, by extensive use of mated dies and other methods, the desired goal has yet to be reached.

The other major objective has been to constantly increase the number of suitable applications for low-pressure molded reinforced plastics, known at Republic as Molded Laminates. Although it would be feasible to mold a very large percentage of parts on an airplane, its use is limited to those instances which can meet the established criterion that molded laminates must be more economical and better.

Lawrence Wittman senior plastics engineer for Republic, who has pioneered plastics development at the company, has stated that, despite this rigid rule, over 100 different parts for the P-84 Thunderjet are now being manufactured economically from low-pressure molded reinforced plastics. As a matter of fact, over 140

parts have met the test of suitability within the past year. Of these, however, 40 have suffered the fate of many other aircraft parts and have become obsolete.

So far, molded laminates have found their best use in electrical applications such as boxes, covers, panels, miscellaneous enclosures, wire guards, fairleads, etc., and in replacing metal parts difficult to fabricate or assemblies comprised of a number of detail parts. A study of the available methods, materials and material properties will undoubtedly uncover many more valuable applications both in the non-structural and semi-structural categories.

Two methods are presently employed in producing molded laminate parts. Bag Molding, identical to that used in molding tools, is the oldest and least efficient method. Mated Die Molding is a considerable improvement both in economy and quality over Bag Molding.

disc molding

The use of relatively dry resin impregnated glass cloth permitted the introduction of stack precutting and simple preforming. Although this is a higher cost material, the advantageous handling properties offset the increased expense. The extensive use of preforming permits faster die and mold cycles and makes possible easier molding of those parts which cannot be drawn directly from flat sheet.

In heated die molding, further economies can be obtained by using less expensive glass mat instead of woven glass cloth and combining it with liquid resins right in the die. In parts which do not require the use of a preform, it is possible to save up to 70% in material costs.

Because of the obvious advantages of die molding, a large majority of molded laminate parts at Republic are made that way. Bag Molding, however, is effectively employed (1) in the early production stages to expediate parts to the line until dies are ready, (2) in hose cases where the parts are not readily adaptable to die molding, (3) where the total number of parts to be made do not warrant the cost of dies.

The break-even point of dies vs. bag molds ranges between 100 to 150 parts since the cost of the average die which requires 40 to 50 man-hours to manufacture is offset by savings in production time of 0.1 hour in die molding vs. 0.5 hour in bag molding.

Continued development in the production field will keep pace with the wider acceptance of laminates and will seek improved finishing methods, simpler die construction, lower cost materials and preforming techniques, as well as improvements in physical and surface properties.

PREPARING "BLEED MOLDS"

A water-clear polyester resin is poured into a flexible bleed mold, wherein Silicone exudations will serve as parting agents for the cured polyester cast.

A bench clamp is used to prepare a squeeze mold for the casting and water-curing of acrylic resins.

This ethyl cellulose plaque was made by casting a hot-melt compound in a rigid bleed mold. The mold therefor was made by casting a phenolic resin on a wood-carved pattern.

By THOMAS A. DICKINSON

"Bleed molds" may be briefly described as casting forms made from materials containing excess plasticizers, so that they are self-lubricating due to the tendency of the latter components to bleed or exude from the mold surfaces.

They are compoundable from both rigid and elastomeric materials, and are particularly advantageous to the extent that they facilitate production casting—eliminating the necessity of cleaning and relubricating a mold each time a cast is made, and minimizing the possibility of cavity "sludging."

TWO METHODS

Briefly, the requisite materials may be prepared for use in making bleed molds by either of two methods:

(1) Adding large quantities of compatible plasticizers. For example, glycerine and methyl phthalyethyl glycolate might be added to the normal components of a phenol-formaldehyde casting resin so that the latter can be used to make a rigid bleed mold.

(2) Adding small quantities in incompatible plasticers. For example, a few drops of a Silicone fluid may be added to a hot-melt polyvinyl chloride elastomer so that the latter can be used to make flexible bleed molds.

Generally speaking, the first of these methods is preferable because excess quantities of compatible plasticers will not usually bleed rapidly or cause appreciable mold shrinkage as bleeding action progresses. However, it will usually increase the cure cycle for thermosets by an appreciable margin.

The second method is normally desirable when compatible plasticizers have a tendency to combine with the materials that must be cast in a mold. For instance, a small amount of Silicone fluid is better than an excess quantity of tricresyl phosphate or some other compatible plasticizer in polyvinyl chloride molds for unsaturated polyester casts because the latter would be subjected to undesirable plasticizing action in the presence of most compatible bleed materials.

In one West Coast plant, "bleed casts" are being made by pouring highly-plasticized phenolic resins in rigid phenolic molds so that the former will provide requisite lubricating action as they are cured. However, this technique can hardly be recommended for the rapid production of accurate casts that will undergo no chemical or physical alterations after the cure cycle is complete.

Regardless of whether compatible or incompatible plasticizers are used in compounding a mold material, the quantity of bleed ingredients should not exceed a margin of 5 per cent by weight in proportion to the quantity of other ingredients. The 5 per cent maximum is desirable when profuse or long-lived bleeding action is essential. If mold accuracy is the most important consideration, bleed components should comprise less than 1 per cent of the mold material.

FOR PLASTICS

In the upper half of this photo are two semi-rigid bleed molds. Below are ceramic-like casts made therein.

A phenolic cast is separated from a section of the two-piece phenolic bleed mold in which it was produced.

EXAMPLES OF USES

Specific examples of uses for various bleed mold compounds may, at least in part, be cited as follows:

(1) Fabricating permanent squeeze molds for acrylics: Phenolic casting resins containing a 2% excess of glycerine have been successfully used in casting the molds on patterns made from wax, ceramics, wood, metals, plaster, etc. After the cavities were loaded and mating units were clamped in place, casts were cured by immersing the closed molds in boiling water for an hour or longer.

(2) Fabricating flexible mold cavities for phenolics: A hot-melt polyvinyl chloride casting compound with wax-type fillers and a 5% excess of diallyl phthalate has been successfully used in casting the molds on heat-stable patterns. When the cavities were looded, casts were cured with infra-red heat ranging from 150° to 175° F. in an average time of about 30 minutes.

(3) Fabricating latex molds for hot-melt thermoplasts: A thermosetting latex casting compound containing a 3% excess of dipropyl phthalate has been successfully utilized. It was oven-vulcanized on appropriately heat-resistant patterns at temperatures ranging from 200° to 250° F. Ethyl cellulose and vinyl casts were subsequently made in the cavities at molten tempertature ranging up to about 325° F.

(4) Fabricating semi-rigid molds for polyester resins: An ethyl cellulose compound containing a 2% excess of castor oil and a polyvinyl chloride compound containing 1% Silicone fluid have both been successfully used. Molds were made by melting and casting the compounds on heat-stable patterns, after which polyester casts were cured therein by immersing the loaded molds in hot water.

After being out of use for several days, bleed molds will sometimes become excessively greasy due to plasticizer exudations and should be thoroughly dried with a clean rag before they are used. This difficulty should never be experienced when molds are in constant use, because a certain amount of lubricant will be removed from a mold cavity along with each cast that is made.

Curiously enough, the lubricational qualities of a bleed mold are more dependent on the properties than on the excess quantities of compatible or incompatible plasticizers it contains. For example, oxidizable plasticizers such as castor oil may in some circumstances be used in quantities of more than 5% without bleeding enough to lubricate a mold for more than a dozen casts —while a heat-stable plasticizer like monomeric diallyl phthalate can often be used in quantities of less than 1% excess to lubricate a mold for more than 2,000 casts. However, it is generally true that a compatible plasticizer will (due to a slower rate of bleeding) have greater lubricational longevity than an incompatible plasticizer.

The choice of rigid, semi-rigid, and flexible materials in fabricating bleed molds should primarily be based on the need for dimensional accuracy and the desirability of simplicity in both mold making and casting operations. Rigid molds, are, of course, preferable when be made and used with greatest ease, and semi-rigid close tolerances must be maintained: flexible molds can be made and used with greatest ease and semi-rigid molds are generally employed when a compromise in mold quantities appears to be essential.

When a bleed mold loses its self-lubricational qualities, external lubricants may be applied to the cavity surfaces to permit the curing or soldification of further casts therein; or if the material is theromplastic, the mold may be remelted for additional plasticization and recasting on the original pattern.

MANUFACTURE AND USE OF WOOD FLOUR*

By PERRY P. BOWEN
President, Becker, Moore & Co. Inc.
North Tonawanda, N. Y.

IF one were to trace back in history to the time when the saw was first used for producing lumber and other sawed wood products, he would find the original source of the fine wood particles, which for more than 50 years have been called wood flour. While the waste material produced from that first sawing operation was recognized as nothing but sawdust, it would have been possible, by drying the material and shaking it over a fine screen, of say 50 mesh, to obtain from the mass a very small percentage of fine wood particles which might have been designated as wood flour. The prevailing opinion is that the first use made of such fine sawdust was in Germany many years ago. It is reported that, during the first World War, some of it was used in cattle feed and even for human consumption in bread, due to the shortage of wheat.

grinding

As so little of this finely divided wood could be obtained from the original sawdust pile by screening, it became necessary to grind the whole mass. It is understood that the first attempts to pulverize the sawdust were by beating or hammering it down by hand. Later, with the coming of the machine age and the development of equipment much like that used in the grain mills, the mechanical production of wood flour was started with the old stone mills.

The first wood flour used in this country was imported and, even up to eight or ten years ago, there seemed to be a prevailing opinion that the foreign product was superior for some purposes to the quality produced in the United States. Through continued research and development, however, this impression has now changed.

Due to the fact that wood flour is used only as a filler, or as but one of the ingredients in many compounds where it is mixed with other materials, the average layman knows little or nothing about it. However, it has been rather extensively studied in numerous chemical laboratories throughout the country. This research has led to the establishment of technical specifications and quality standards to meet present requirements with the result that it is now impossible to utilize the sawdust from the piles found around most sawmills and allied operations. With the higher costs of oil and coal, moreover, this waste is often more valuable as fuel for the mill or plant.

raw material

For a few years the demand for wood flour exceeded the domestic production, due chiefly to the scarcity of good raw materials for the industry. During this period, almost any kind or form of waste wood was used and quality standards were dropped until it was possible to screen out any old fines from the sawdust piles and call the resultant product wood flour. The consumers were anxious to have some inventory on hand and encouraged new producers to install grinders and sifters to make wood flour from any waste. It soon developed, however, that inventories began to be built up with wood flour of very poor quality.

The whole situation has now changed again, as the research and control laboratories have set up specifications much more stringent than ever before. Color, bulk or density, screen analysis, absorption value, fibrous structure, and resin and moisture content are all important factors in producing a high quality flour to meet present-day requirements.

While various kinds of wood and types of wood waste have been used during the last few years to meet the extra heavy demand, it has now become necessary to make a very careful selection of raw material to meet present specifications and close tolerances. Even soft white pine, which has always made good wood flour, has to be selected as there are several different grades of this wood. The geographical conditions under which certain white pine is grown have much to do with its qualities for making good wood flour. It has been learned that, even with white pine, the wood from trees grown in one section of the country is much more desirable than that from another section.

Because of the ever-present hazards of fire and explosion in the processing of wood flour, the manufacture of this produce should not be attempted without a

(Continued on page 21)

** A feature in co-operation with the Forest Products Research Society.*

The Solar Plastic Products Company, Brooklyn, New York, fabricated this item for the new Bond Store at 35th Street and Fifth Avenue, New York City. It was designed by Morris Lapidus, architect.

This portable tie display bar was molded for the Lentz-Linden Fashion Tailors. Light in weight and extremely attractive, it may easily be rolled to any part of the store.

MERCHANDISING WITH PLASTICS

The Plastics Center of Texas, 317 Nogalites St., San Antonio, Texas, molded this portable Collar-Bob Bar for Collar-Bobs Company of the same city. Rohm & Haas's Plexiglas was the material used for this display unit because of its lightness and advantages over glass.

This refrigerated Candy Bar was molded for the Frost Brothers, of San Antonio. Plastic was used instead of glass because it is easier to design a round case and doors.

typical examples of successful use of plastic

Sturdy attractive containers can be made of transparent extruded Tenite sheet sealed with tin can lids. The product, an experimental development of Tennessee Eastman Corp., Kingport, Tenn., to promote the use of extruded Tenite sheet, suggests possibilities in visual merchandising of such items as candy, nuts, tea, etc.

Bristles on "electene" bristle broom by Modglin Mfg. Co., Glendale, Cal., are of plastic which become charged with static electricity while using so they snap up lint and dust.

This modern chair, designed by Eric Saarinen for Knoll Associates, is covered with Marvinol-based Duran vinyl. Marvinol vinyl resin is the product of the Glenn L. Martin Co.

A small magnet on the end of the line attracts these plump fish of Vinylite plastic in tropical colors. It's manufactured by Transplastic Mfg. Co., New York.

The "Colorphone," is manufactured by Colorphone, Inc., Oakland, Cal. It is molded by Automatic Plastic Molding Co., Emeryville, Cal., of Tenite, of Tennessee Eastman Corp.

The new "Rocket" engine featured in the '49 Oldsmobile is given dramatic presentation by means of transparent Plexiglas hoods formed from 67" x 79" sheets of acrylic plastic 1/4" thick. They are formed of heat-resistant Plexiglass II by Ranger-Tennere, Inc., of New York City.

Especially designed for carrying in ringbinder type notebooks, this ruler is made of lightweight, transparent Vinylite rigid sheet plastic by Plastilite Products Co., Pawtucket, R. I.

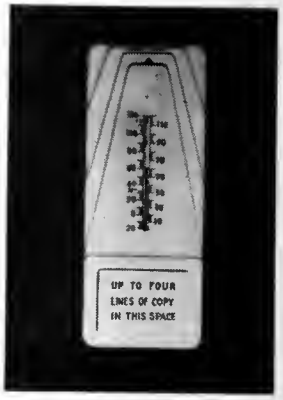
Here is a typical place setting of the new Melmac Tableware featured by American Cyanamid Co. The product is "Lifetime" ware produced by Watertown Manufacturing Co.

Automatically illuminated Tenite arm of a vacuum operated truck and trailer signal, a product of Vac-O-Lite Signal Co., Inc., Seattle, Wash., has 500-foot visibility day or night. The arm consists of 2 tapered panels of transparent amber Tenite, by Tennessee Eastman Corp., set into either side of a sword-like section of opaque white. It is molded by Mutual Plastic Mold Co., South Gate, Cal.

New Lumite woven plastic fabric has been used as upholstery on armchairs, desk chairs and office chairs in some of the offices of the U. S. Dept. of Justice, Washington, D. C. It is in maroon twill pattern on some chairs and deep blue on others. Lumite monofilaments are woven by the Lumite Div. of the Chicopee Mfg. Corp.

Happy children on bears, lions, and other animals are painted on a cylinder of crystal-clear Kodapak which revolves around a smaller cylinder of Kodapak depicting gay circus themes when this bedside lamp is lit. The "Slumber Lamp" is manufactured by the Econolite Corp. of Los Angeles.

This Superlon Teapot Salt and Pepper Shaker, made of Superlon Polystyrene, is a product of Superior Plastics, 426 N. Oakley Blvd., Chicago.



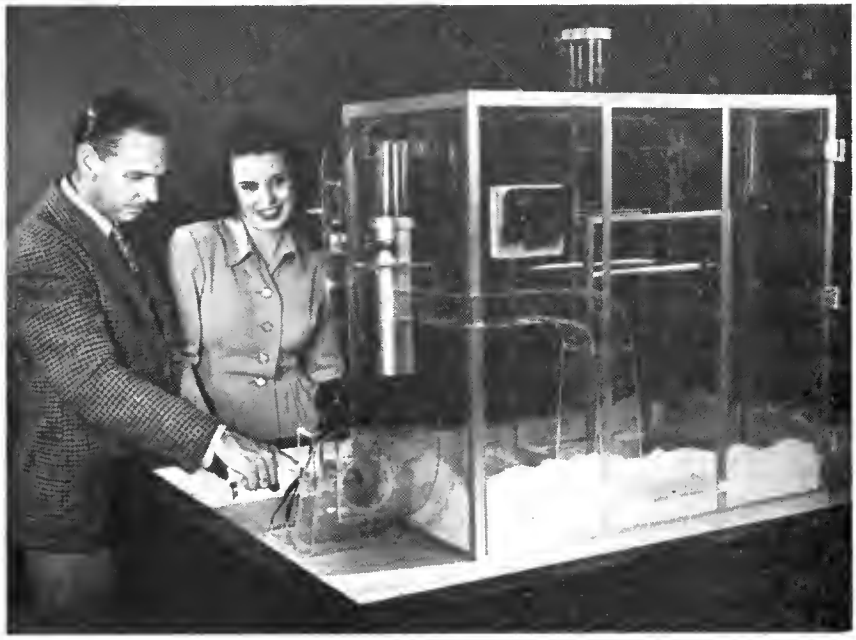
A plastics thermometer by F. J. Kirk Molding Co., Clinton, Mass.

Here's a shoe bag that can be washed as often as needed because it is made of the new Lumite woven plastic fabric that is produced by the Lumite Division of the Chicopee Mfg. Corp. and sold to North American Photo Devices, Inc., New York City, for their shoe bag.

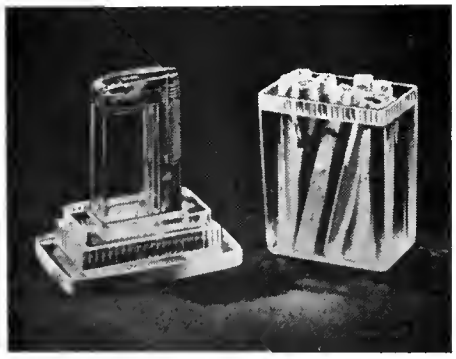
designers use plastics in many and varied ways

Made of Bakelite Corp.'s Vinylite cast plastic film, this new children's umbrella is manufactured by Eichenbaum Umbrella Company, New York City.

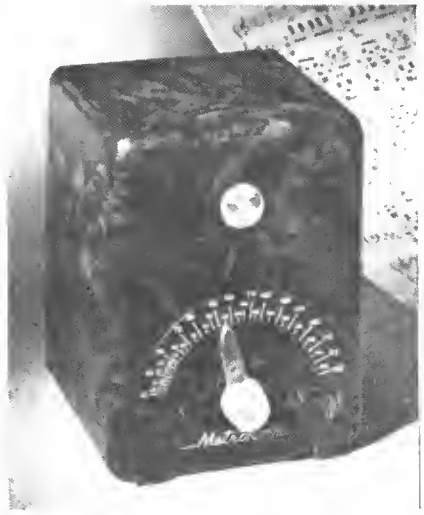
These funnels come in both clear and opaque white Styron and are made by Plastic Metal Mfg. Co., 4541 Diversey Parkway, Chicago. The salad set is made of crystal clear Styron by The Standard Products Co. of St. Clair, Michigan. Styron is a product of the Dow Chemical Co., Midland, Michigan.



Barnes & Reinecke, Inc., Chicago, industrial designers and engineers, constructed this model of a meat smokehouse of Plexiglas. It is 1/3 the size of the actual smokehouse produced by Atmos Corp.



The Video Luxury Lighter is made of Du Pont's Lucite by the Video Lighter Corp., 608 S. Dearborn St., Chicago 5, Ill.



Monsanto's Lustron was used by the Conn. Plastic Products, Inc., 70 W. Liberty St., Hartford, Conn., to mold this electronic metronome.

This television lamp for television rooms was conceived and developed by Polyplastex United, Inc., Elmhurst, N.Y.C. The lamp was executed by Lamp-Craft, New York City.

BUSINESSES BUILT ON PLASTICS

By H. S. BUNN
Vice President in Charge of Sales, Thermoplastic Department, Bakelite Corporation

I intend to discuss two molders and two extruders. I will give the background of the individuals starting the enterprise, the source of their basic ideas, something of the engineering and processing problems they encountered, and the marketing methods they have pursued.

injection molding of plasticized vinyl chloride resins

The founder of this business was a vice-president in charge of engineering in a large war plant. In one of their products they used vulcanized fiber which did not fully meet their requirements. In an effort to replace this material with plastics, he became familiar with the basic properties of the various materials available. He developed and patented a new low-cost method of compounding the plastic which he finally selected. At the end of the war he set up his own business to license the compounding process and also engaged in compounding his own materials for custom injection molding.

In order to achieve the steady production rates to which he was accustomed, as well as to be not entirely dependent upon the needs of his customers, he determined to add some proprietary items which he himself would manufacture and distribute.

Being a fancier of thoroughbred dogs, this gentleman recognized the need for better dog equipment, particularly collars and leashes, which would be available at lower prices than leather. He decided that plastics would provide him with an excellent raw material.

First, he designed a new type collar with several novel features, then he designed a mold to make it. He recognized that he would need several sizes of collars, but he also found that no one knew the neck sizes of the various breeds of dogs. In order to gather that information, he wrote to 500 kennels and visited dozens of others to get the neck measurement of small, medium, and large types of each breed. Out of this investigation came a chart showing the collar sizes for each breed. This was a unique contribution to the industry he was entering, for he tabulated data which had never before been gathered.

From this chart he determined that he would need 2 collar molds in 8 sizes, and one mold in 3 sizes, 2 leash molds in 4 sizes, and proceeded to build them. While this represented a formidable investment, he could not maintain a complete line without it.

In order to determine the color which would be most desirable, he submitted samples to the leading dog kennels and used their selections for his line, ending up with six attractive colors. During this period he made a contact with the leading distributor of high-grade dog furnishings, and gave him an exclusive arrangement for three months. Later, he sold to other jobbers. He priced his line of collars and leashes to be 30 per cent under the round leather collars, and ten per cent above the flat leather collars. To round out the job, he designed and produced four types of display fixtures, another major contribution to the industry he serves. These display fixtures take the collars and leashes out of drawers and containers, and bring them to the direct attention of the customer. The fixtures are so arranged that a dealer can use them for inventory control as well as display racks.

This business is starting well and will produce over a millon dollars worth of sales per year. It is an excellent example of the thoroughness and soundness with which an idea can be taken from its first conception to a finished product in the hands of the dealer.

(Continued on page 24)

WOOD FLOUR —*(Continued from page 14)*

thorough investigation of the dangers involved in the different types of grinding and processing equipment. Many very costly failures have occurred, due to lack of experience and failure to take proper precautions with the equipment being used.

Some of the food flour produced in this country is ground through Stone Mills, somewhat like the old burr stone mills used in the grinding of wheat, corn and other grains. Two large mill stones are used, one over the other, with grinding face usually horizontal. The bottom stone is stationary and the top one is revolved on a vertical shaft.

Roller Mills are also used. These consist of two or more heavy steel rollers, made with steel teeth of varying degrees of fineness. The rollers usually work in pairs and are made to revolve in opposite directions. Several pairs of rollers are used one over the other, the material being fed to the top pair and dropped from one pair to the next lower in the series. These mills are also fully enclosed with feed spout at the top and outlet at the bottom.

The Hammer Mill is made with a heavy steel cylindrical and horizontal casing, with the bottom half firmly bolted to the base and the top half made so that it can be raised whenever it is necessary to work on the horizontal cylinder inside. The drive shaft passes through the center and the inside cylinder is made of heavy steel circular plates with spacers between, to which are attached steel plates that swing loosely and extend outward nearly to the inside wall of the casing enclosing the machine.

The Beater Mill is a more recent development and works somewhat like the hammer mill, except that it is constructed in an upright position with vertical shaft. To this shaft are attached staggered beaters, which whirl the raw material around and beat it until it passes through the screen.

The Attrition Mill is made with both single and double heads. The single-head type is made with one revolving disk and has the opposite disk stationary. The revolving disk is attached to the end of a horizontal shaft, which is also the motor shaft on direct motor driven machines. The material to be ground is fed through the spokes at the center of the revolving disk and passes between two disks which are set close together. The double-head type uses the same principal, but with both disks revolving in opposite directions. The disadvantage of this machine is that, like the stone mill, it has no screen in the machine itself; consequently more screening has to be done in the subsequent process.

Each of these machines will produce a different end product. Accordingly, in order to meet the exacting requirements of the different consumers, it has become necessary that manufacturers use the several types of

(Continued on page 26)

WHAT IS A PLASTIC?

By Dr. A. J. STAMM
Forest Products Laboratory

WHAT is a plastic? Is wood a plastic? These are interesting questions that are often raised. They cannot be answered with simple definitions.

The noun, plastic, which is variously defined, is derived from the more clear-cut identically spelled adjective. The adjective designates the deformable or moldable property of solid matter, either of the dough type, which exhibits practically no tendency for elastic recovery, or rubber, which exhibits a rather high degree of recovery.

Most solids exhibit some plastic properties under limited conditions. For example, wrought iron is very plastic at temperatures somewhat below the melting point. Practically all metals exhibit some degree of similar plasticity. Glass, a fused silicate, and other inorganic salts exhibit plastic properties somewhat below their melting points. Wood and other natural fibrous materials also exhibit plastic properties. They can be steam bent and can be compressed.

a solid

It is thus apparent that if the noun, plastic, is defined as a solid that exhibits plastic properties, the term would encompass practically all solids. To limit the field, the term might be defined so as to eliminate materials that are plastic under very limited conditions. However, the phenol-formaldehyde condensation products, which are one of the chief types of materials that is universally considered to be a plastic, exhibits plasticity only during the process of the reaction. Thereafter, it is not plastic even up to temperatures of charring.

Webster gives, in addition to the very general definition of plastics, the following more limiting definition, which is generally the one used by those working in the plastics field, namely, "any of a large group of organic materials, synthetic or not, that are molded or cast with or without a filler." This definition eliminates inorganic glasses, cements, and metals. It eliminates wood only on the basis of the word, "cast." Although wood can be molded, it cannot be cast in the sense of pouring it in a liquid or granular form into a mold and solidifying it without the application of pressure. When major proportions of an accepted plastic are mixed with wood flour, the combination can be cast, but the wood can in this case only be considered as a filler.

Although wood is not a plastic under this more restricted definition, some forms of modified wood and materials obtained from wood can and do fall in the conventionally accepted field of plastics.

Rosin and related products such as vinsol, as well as rubber, are tree exudates that are universally considered to be plastics. Isolated lignin from wood is a plastic, although it normally has to be combined with other plastics to obtain desirable properties. Hydrolyzed wood should be considered as a filler in hydrolyzed-wood plastics, rather than a plastic in its own right, as only part of the lignin and none of the cellulose contributes to the plastic properties. Derivatives of cellulose, such as cellulose acetate, cellulose butyrate, and methyl and ethyl cellulose, are among the most important plastics. Wood pulp, like subdivided forms of wood, strictly speaking, should be considered as filler material rather than a plastic even though it can be molded into preforms without the addition of resins.

impreg

The wood in resin-treated woods, such as impreg and compreg, is a continuous-phase filler in contrast to wood flour being a discontinuous filler in the Bakelite type of plastics. By analogy with Bakelite, impreg and compreg might be considered to be plastics. However, like other laminates, they cannot be cast. It would seem preferable to call this class of material "plastic laminates" or just "Laminates" rather than "plastics." During World War II considerable publicity was given the plastic airplane. This, in reality, was a plywood airplane. The only plastic involved is the approximately 5 per cent of phenolic resin that served as the bond between the plies. Plywood is covered in some books on plastics and in the annual Modern Plastics Catalog, not because plywood is considered to be plastic, but because its manufacture involves the use of a plastic.

Present true plastics fall into one of the following groups or subgroups:

1. Produced from natural materials:
   (a) Cellulose derivatives, such as cellulose nitrate, acetate and butyrates, and ethyl cellulose.
   (b) Proteins, such as casein and soya bean.
   (c) Rubber.
   (d) Shellac and various plant gums and resins, such as rosin and rosin decomposition products (vinsol).
2. Produced synthetically:
   (a) Acrylics, such as methyl methacrylate.
   (b) Alkyds, such as glycerine and glycol deriva-

tives of phthalic, succinic, adipic and maleic acids.

(c) Amino aldehydes, such as urea-formaldehyde and melamine-formaldehyde.

(d) Furfural alcohol resins.

(e) Phenol aldehydes, such as phenol-formaldehyde, cresol-formaldehydes, resorcinol-formaldehyde, and phenol-furfural.

(f) Polyamids, such as nylon.

(g) Polyethylene.

(h) Polyesters (contact pressure resins).

(i) Polystyrene.

(j) Vinyls, such as polyvinyl chloride, acetate, acetals and butyrals

wood not a plastic

Although wood itself should not be considered a plastic, a large number of chemicals used in making the synthetic resins and plastics in group 2 are derivable from wood, as well as the obvious plastics of group 1. Acetic acid, for example, is a byproduct of the destructive distillation of wood. It can also be obtained by fermenting wood sugars that are produced by hydrolysis of the carbohydrate portion of wood. Butyric and lactic acids, and also glycerine and various glycols can be produced by fermenting wood sugars under special conditions. One of the latter, butylene glycol, is used in making synthetic rubber. Glycerine and glycols are also obtainable by hydrogenation of wood sugars. Methyl alcohol (wood alcohol) is a byproduct of wood distillation. It also results from the hydrogenation of the lignin part of the wood and results as a byproduct from the hemicellulose portion of the wood when wood is hydrolized. Ethyl alcohol (grain alcohol) is obtained by fermentation of the hexose portion of the wood sugars. Formaldehyde can be made from the methyl alcohol. Furfural is obtainable from the pentose sugars as a byproduct of wood-hydrolysis processes. Mixed phenolics, part of which may be suitable for plastics, result from destructive distillation of the lignin portion of wood and from the hydrogenation of wood.

It is questionable if all these chemicals could be manufactured profitably from wood. A few are now being made; others look quite promising for commercial production. Still others will require pilot-plant studies be fore it can be stated that they can be made from wood profitably.

It is thus apparent that wood impinges in so many ways on the plastics industry that the plastics man should take cognizance of its possibilities, even though it is not truly a plastic in its own right.

PLASTIC BUSINESSES —(Continued from page 20)

injection molding of polyethylene

The owner of this business started with the injection molding of celulose acetate and polystyrene. His business consisted of the manufacture of cigarette cases, soap boxes, toothbrush boxes, and bowls and tumblers, together with some custom molding. One of our technical representatives showed him samples of polyethylene. He immediately sensed the possibilities of the material and began to visualize ways to take advantage of its outstanding properties.

In connection with his custom molding work, he was producing a part for an ice cream cabinet. The excellent low temperature properties of polyethylene were obviously an advantage, and from this he conceived the idea of adapting his bowls for use in refrigerators. When he noted the ordinary dimensional stability of polyethylene, he designed closures for his bowls and dishes which would have a friction fit.

With the help of the material manufacturers he devised methods of making his own colored compounds by mixing pigments with the dry resin in tumbling barrels.

Having engineered the molds and having made suitable low-cost compounds, he was able to produce a line of products which would be acceptable in price. He then put excellent merchandising methods back of these products. For example, the bowls were packaged in cellophane, and a folder was enclosed indicating various methods for their use. He advertised his line in trade papers covering the field in which he specialized. He was the first to see the possibilities of these polyethylene items as useful low-cost premiums.

extrusion of vinyl chloride resins

This business was founded by a young engineer graduate from M.I.T. He began with custom extruding and handled a number of difficult jobs with exacting specifications. The custom business prospered and he moved to a larger plant. When he found that he had excess capacity he determined to produce proprietary items. After studying the field he selected garden hose because the volume was large and because he felt that he could make a contribution to the industry in the form of high standards, uniform quality, and other improvements. He first made a thorough study of the business, the volume, price structure, and distribution methods. By selecting vinyl plastic for his material, he produced a colorful, lightweight hose of guaranteed specifications on bursting strength. He developed his own excellent fittings for the hose so designed as to be molded into the item. He reasoned that regardless of the type of material used, the hose would be no better than the couplings and the assembly.

He acquired the services of a merchandising man of considerable experience who had been with one of the leading chain store systems. They developed a very sound distributor-jobber-dealer setup in which each link in the chain of distribution earned a satisfactory profit. They have maintained this policy throughout their history.

Garden hose must be made in the fall and winter for distribution through the spring and early summer. In order to keep a reasonably steady level of production, they determined that it was necessary to manufacture another line of products during the spring and summer months. Their choice, a logical one, centered on toys. The proprietor of this business, who has a flare for design, then developed some unusual playthings which could be made largely by extrusion and assembly. He developed items which would use up his scrap material so that his costs would be low. This type of thinking enabled him to keep his factory expense rate at reasonable levels throughout the year, thus permitting the business to earn steady and substantial profits.

extrusion of polyethylene film

The founders of this business were two young engineers who were associated in a metal working plant. In the course of their work they were asked to investigate the use of plastics for certain operations. They determined to set-up their own plant to manufacture extruded lacing in a modest way. In 1945 one of our technical representatives showed them samples of polyethylene and gave them his thinking on the possibilities of the new plastic material. When the war was over there was a great demand for plastic film for consumer goods. There was not enough calendering capacity in the country to supply this demand in plasticized vinyl compounds.

These two men undertook the extrusion of polyethylene film to supply applications where its properties were suitable. They did an excellent job of die design and mechanical handling and finally developed methods for extruding film up to 60 inches wide. In order to expand their facilities they moved into new quarters and purchased additional extruders. This expansion was accomplished with borrowed money, and it is interesting to note that they paid off the loans within eight months after the plant was finished. As the production of calendered vinyl film increased, it became apparent that they would have to find new markets for their products. They undertook to develop uses for polyethylene film where its low temperature characteristics, lack of permeability, and other outstanding features could be utilized. This made them recognize its value as a packaging medium.

Two other larger companies were also in the field and subsequently, a large chemical company entered the market with polyethylene film. The company which we are discussing had to meet a number of difficult competitive situations, but they have succeeded in doing so through the maintenance of high quality and through the constant increase of their volume.

Today's BOOKS

MEET THE PLASTICS

This book is designed to make knowledge available to the interested non-specialist. It does a very good job of giving an intelligible, accurate explanation of plastics, the characteristic uses, special values and limitations, methods of manufacture, and sources of supply, to students and sales people desiring such information.

The basic chemistry of plastics is explained in elementary fashion, and each of the various kinds of plastics, forms, uses and processing methods is explained.

MEET THE PLASTICS by Clark N. Robinson, a partner of the Robinson-Howell Company, San Francisco. Published by the MacMillan Company, San Francisco. Published by the Macmillan Company, New York City. 172 pages: Price, $3.75.

HANDBOOK OF PLASTICS

Second edition. Gathered in the more than fourteen hundred pages of this book, is an amazing amount of material on the constantly growing plastic industry in all its phases. It covers all the way from raw materials to finished products including details of the manufacturing methods, machinery and processes for the plastics themselves, and the innumerable articles into which they are fabricated. It includes plastics of all compositions, all manufacturers, with the specific properties which determine their applications, and their choice for any particular purpose, use or method or processing. It gives this information for all the commercial plastics, textile fibers, rubbers and elastomers, natural resins, films and sheetings, laminates and plywoods, coatings, adhesives and other related materials. An immense index, a list of trade names and trade marks, a great general glossary and up-to-the-minute solvent and plasticizer tables put at your instant command all the information in this exhaustive reference work of the entire plastics industry.

Handbook of Plastics. Second edition. By Herbert R. Simonds, Archie J. Weith, and M. H. Bigelow. D. Van Nostrand Co., Inc., 250 Fourth Ave., New York 3, N. Y. 1463 pages. Price $25.00.

MOLDS FOR PLASTICS

This book, which is the embodiment of an extensive practical experience, has been specifically compiled with the primary object of meeting the needs of both mould designer and toolmaker. The book deals mainly with the many and varied problems associated with mould designing, construction, operation and efficient maintenance.

Moulds For Plastics. By W. M. Halliday. The English Universities Press, Ltd., Saint Paul's House, Warwick Square, E.C.4, for Temple Press, Ltd., Bowling Green Lane, London, E.C.1. 259 Pages. 30/- net.

leaders in the industry

Gunnar Lindh, right, chemical engineer and manager Plastics Dept. of the Udylite Corp., Detroit, was born in Stockholm, Sweden, and was graduated from the Institute of Technology in Stockholm, as a chemical engineer in 1920. He arrived in the U.S.A. in 1924 and was engaged by the Ford Motor Co. as a research and development chemist. In 1929, Mr. Lindh installed and operated a plastic battery box plant in Windsor, Ontario, and remained there until 1936. He joined the Udylite Corporation in 1942. He is a member of the following organizations: American Chemical Society, American Society for the Advancement of Science, the Society of the Plastics Industry, the Plastics Pioneers Association, the Society of Plastics Engineers, and the Engineering Society of Detroit.

Oscar Gold, left, president of Ortho Plastic Novelties, Inc., 33-35 East 21st St., New York City, was born in Rumania and has been actively associated with the plastics industry for nearly forty-two years. He began with the firm of Rothchild-Kuno Company which in 1909 produced the very first items made of casein, according to Mr. Gold. In 1923, he became sales manager of the Rex Novelty Company and later when the firm was changed to Rex Products, he became the secretary as well as sales manager. He held these two positions until he resigned in 1933 to organize Ortho Plastic Novelties, Inc., of which he is the president. Mr. Gold was president of the Plastic Products Manufacturers Association from 1937 to 1946.

WOOD FLOUR *(Continued from page 21)*

machines in separate departments.

With all types of grinding equipment, there is always the constant danger of dust explosions and fires, which usually start in the grinding mills. Magnetic separation will remove a percentage of the nails and other iron or steel items, small pieces of tin, and similar materials which may be present, but will not remove small bits of stone, flint, or non-magnetic metal.

binders

As stated previously, wood flour is only a filler and some binder must be compounded with it, to hold it together when the combined materials are molded into any of the many different articles. The successful manufacture of these molded products, from small buttons to large turnings, is the result of extensive research and much experimental work on the part of the many producers.

The following is a partial list of binders which have been used successfully in various processes:

Resins
- **Phenolic resins**
- **Natural resins**
- **Fossil resins**

Minerals
- **Calcium silicate**
- **Calcium sulphite**
- **Sulphur**

Glues
- **Blood Albumin**
- **Bone**
- **Casein**
- **Fish**
- **Hide**

Miscellaneous
- **Linseed oil**
- **Asphalt**
- **Bituminous**
- **Dextrin**
- **Sodium silicate**
- **Shellac**
- **Lacquer**
- **Core oils**
- **Pitch**
- **Distilling wastes**
- **Cellulose acetate of cellulose nitrate in anylacetate (mixture of acetone)**
- **Celluloid dissolved in acetone**
- **Incense**

The percentages of wood flour, used as a filler in the many different compositions in which it becomes a part, will vary from as low as five or ten percent to as high as 60 or 70 percent. Due to its low cost in comparison with the other ingredients of the mixture, it is, in most cases, desirable to use as large a percentage of wood flour as possible; on the other hand, the allowable percentage depends entirely on the finish, strength and other qualities desired in the finished article. In plastics, an increase in the percentage of wood flour will usually give increased strength to the molded article, but the surface finish of the product may have less luster and not be quite as smooth as when a smaller percentage of wood flour is used.

While wood flour is usually sold on the basis of screen analysis, that is not always the most important factor in determining its suitability in certain compounds. It is a very fibrous material and rather difficult to screen finer than 100 mesh. Provided the wood flour has a high absorption value, so that it will completely absorb the binder, dye and other ingredients and better become a part of the whole mixture, the longer fibers are much more desirable for adding strength in some articles.

The production of wood flour in this country has only a normal growth during the past 15 or 20 years. With the exception of the two years immediately following World War II when there was a short supply, domestic production has kept pace with the demands of the industries.

Prior to 1940, imports averaged approximately 20 percent of the total wood flour used in this country, but the percentage of imports was gradually falling off and domestic production was increasing. During the war, there were no imports of any consequence and production equalled the demand.

Wood flour is usually sold by the ton and the price today varies from $20.00 per ton for the coarser grades, to $40.00 per ton for the finer grades (approximately 100 mesh.) A small percentage of very fine (200-mesh or finer) material is sold at higher prices, usually for special work. In 1930 approximately 35,000 tons per year were consumed; in 1947 the consumption was 75,000 to 80,000 tons.

The development of the wood-flour industry in the United States in the next few years may be expected to continue its present course, with a gradual expansion as the normal demand increases, unless over-expansion occurs in Canadian production and results in severe competition. The possibility of any displacement of this product by mineral or other organic fillers at lower prices is rather slight, although some minor shifts may occur where other fillers provide special qualities. Since almost all wood flour is used as a secondary material in the products into which it goes, the general conditions of the wood-flour industry should parallel those of the consuming industries.

Barring a general economic decline, the wide diversity of products into which wood flour enters should guarantee a fairly reasonable degree of stability for the industry.

The principle uses of wood flour are in the manufacture of linoleum, plastics and explosives, which collectively consume approximately 80 to 85 percent of the total production in this country. The following partial list of other uses indicate the wide diversity of products in which wood flour is incorporated:

- **Composition floors**
- **Rubber compounding**
- **Artificial wood**
- **Molded furniture**
- **Ceramic brick**
- **Storage battery cases**
- **Wall paper**
- **Plastic wood**
- **Plaques**
- **Hand cleaners**
- **Fur cleaners**

MOLDED PLASTICS PRODUCTS, SUCH AS:

- **Bottle caps**
- **Buttons**
- **Ash trays**
- **Cigarette cases**
- **Billiard balls**
- **Poker chips**
- **Clock cases**
- **Fountain pen desk sets**
- **Gun grips**
- **Picture frames**
- **Gears**
- **Radio cabinets and knobs**
- **Telephone receivers**
- **Auto steering wheels**
- **Dashboard control knobs**
- **Jewelry boxes**
- **Camera cases**
- **Smoking pipe racks**
- **Fishing reels**
- **Kitchen utensil handles**
- **Molded lamp shades**
- **Toys**
- **Ornaments and carving**
- **Door handles**

FOR SALE

Phenolic molding powder equipment for making 2000 lbs. phenolic molding powder per day including 100 gal. jacketed steel kettle complete with agitator, motor, gear reducer, pumps, vacuum ejector, reflux condenser, temperature and power recorders and controls, and quick opening valves. 3 hammer mills for grinding resins and sheeted material complete with cyclone separators, blowers and housing for cooling, and exhaust blowers and motors. Compressor, cooler, blower and duct. Ribbon type horizontal mixer, 600 lb. capacity, with damper and magnets, 2 sets 16 x 42" rolls with feeder, 50 H.P. motors, traps, steam regulators, reversing switch. 80 cu. ft. vertical, rotating tumbling batch mixer with motor. For details contact Manager, General Research, Owens-Illinois Glass Company, 1700 N. Westwood, Toledo, Ohio.

HAVE YOU difficulty in selling to Sterling areas? Why not let us have the moulds and we manufacture the articles for you either on Royalty or Profit Sharing Basis. Replies to "Injector" Box 207, Plastics, 342 Madison Ave., New York, New York.

BRITISH Injection Moulder seeks moulds of successful American lines for 8, 3, and 1½ oz. machines on purchase, short hire or Royalty Basis. Replies with six samples of each product to "Alfa" Plastics Ltd., 20/21, St. Dunstan's Hill, London, D.C. 3, England.

PLASTICS CLASSIFIED ADS pay off!

If you want to buy property, supplies, materials, machinery, merchandise—or have them to sell; if you want a job or have a job to fill; if you have a sales story for over 10,000 owners, executives and department heads of the plastics industry — here in the classified ads of PLASTICS is the spot to make your ideas pay off at low cost.

Rates: 20c per word per insertion; minimum of 25 words or $5. Three continuous insertions: 10% off. Send copy to PLASTICS, 342 Madison Avenue, New York City, to arrive by 25th for following month's issue. Payment must accompany all classified orders.

FOR SALE: big quantities unwashed 35 mm. acetate film scrap in reels, also washed acetate film scrap. Box #208, Plastics, 342 Madison Avenue, New York 17, New York.

FOR SALE

One new H. K. Porter # 8 72" diameter double end cone blender, stainless steel with foundation supports and 5 HP gear head, magnetic brake drive motor. Never removed from original crate. Purchased late 1947. To be sold to highest bidder. F.O.B. Kearny, N. J. We reserve right to reject any and all bids. Forward bids in duplicate to Western Electric Co., Inc., 100 Central Ave., Kearney, N. J. Attn: Purchasing Dept.

FOR SALE 145,000 white ethyl cellulose discs, 17½" diameter, 5" center hole. .030" gauge. Good stock for printing, stamping or forming small parts. Sacrifice price. Sample on request. All or part subject to prior sale. Box number 203 Plastics, 342 Madison Avenue, New York, New York.

FOR OUTLETS IN HAWAII WRITE US

Anything pertinent to
plastic articles

HAWAII PLASTIC COMPANY

Jobbers & Distributors

529 D Road Honolulu, T. H.

FOR SALE: Complete wood flour mill. Capacity 10 tons per 24 hours, using nearby supply of pine and poplar. For further particulars address Box #205, Plastics, 342 Madison Avenue, New York 17, New York.

WANTED— Large engineering firm wishes to acquire several complete plastics plants through purchase of (1) capital stock, (2) assets, (3) machinery and equipment whole or in part. Personnel retained where possible, strictest confidence. Box 1241, 1474 Broadway, New York 18, N. Y.

WANTED: Manufacturers agents contacting jobbers and Chains on plastic Cigarette Case and Soap Dryer Soap Dish. Shipments from Midland, Michigan. Bugenhagen Mfg. Company, Minot, N.D. & Midland, Michigan.

CHIEF ENGINEER: Now heading injection molding and extrusion plant, desires to make change, preferably in south or west. 23 years engineering experience: 12 years in plastics and die casting. Reply Box 204 Plastics Magazine, 342 Madison Avenue, New York, New York.

WANTED: Manufacturers Representatives. For completely equipped mid-western injection molding firm-men must be go getters. Have several Southern, Southeastern, Midwestern and Pacific territories open. Reply Box 202, Plastics, 342 Madison Avenue, New York, N.Y.

WANTED—CHEMIST—Ten years experience on Vinyl Ink formulations and general industrial enamel products. Immediately opening. State age, experience and salary expected. Address Box No. 206 care Plastics, 342 Madison Ave., New York 17, New York.

GETTING PERSONAL

THE NEW ENGLAND SECTION of The Society of The Plastics Industry held its Fifth Annual two-meeting at Manchester, Vt., this past month.

The program included the official opening of the first wing of Sky Line Inn at the summit of Mount Equinox. Presiding at the ceremonies were Dr. J. G. Davidson, President of Union Carbide & Carbon Corp., New York. Among the guests of honor were Governor Ernest W. Gibson and Okey L. Patteson, Governor of West Virginia.

The annual dinner meeting at the Equinox House had as toastmaster, Horace A. Gooch, Jr., President of The Society of The Plastics Industry and treasurer of Worcester Moulded Plastics Co., Worcester, Mass. Amos L. Ruddock, Chairman of the SPI Informative Labeling Promotion Committee and promotion manager of the Dow Chemical Co., Plastics Division, Midland, Michigan, spoke on "Informative Labeling, Your Key to More Business." Orlo M. Brees of the New York State Legislature delivered a humorous speech on "Four-Star Salesmanship."

Final sessions included talks on the "Molding of Polyethylene" by K. J. Persak, E. I. du Pont de Nemours & Co., Wilmington, Del.; "Royalite—9 New Tough Thermoplastic" by E. C. Van Buckirk, U. S. Rubber Co., Mishawaka, Indiana, and "The Supplier Looks at the Molder Three Years After" by James R. Turnbull, General Manager of Sales, Monsanto Chemical Co., Springfield, Mass.

DOW'S TECHNICAL EVALUATION COMMITTEE

In the interest of up-grading the quality of plastic products, the Dow Chemical Company has instituted a program of evaluating plastic products. All manufacturers or molders using the company's plastic, Styron, have the privilege of sending their products to Dow's Technical Evaluation Committee, Plastics Technical Service.

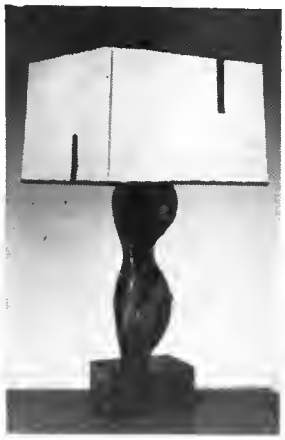
Mr. Donald L. Gibb, sales manager of the plastics division stated, "So rapidly has our Styron program gained acceptance all the way along the line, especially at retail level, we are now beginning the fourth phase six months ahead of schedule with a training course on plastic products for store sales personnel."

Describing some of the details of the course, Mr. Gibb pointed out that the presentation, tailored to fit both chain, variety and department training sessions, will consist of sound slidefilm in color and will be produced in two parts. Take-home reminders for sales personnel will be used at the conclusion of the sessions on selling points. Each portion of the training course will be from eight to ten minutes duration, developed around three major sequences: (1) what is polystyrene (2) how to recognize it and (3) how to care for it. Correct selling information and display ideas form the second section of the presentation. The course will be made available to stores prior to or during their Styron promotions.

The committee evaluates the products from the standpoint of basic design, molding techniques, comparison with other plastic and non-plastic materials and resistance to potential service hazards.

Simultaneously with the technical committee's testing, samples are sent to consumers who use them under actual working conditions. Consumer panels report direct to the technical committee and their findings are included in a confidential report to the molder. When products meet the standards set up by the Evaluating Committee, the manufacturer is entitled to identify his product with the Styron label. Should a product not meet the standards set up by the Committee, final results are discussed with the molder and suggestions for improvement are given him.

NEW THERMOPLASTIC



Marianna von Allesch of New York tops off her ceramic composition with a lamp shade of Polyplastex Synglo, a combination of spun glass fibers and plastic.

Lee Bernay designed this lamp for Lamp-Craft Studios, New York City, and used a shade of Polyplastex Synskyn, which has a fascinating texture and is very durable.

Developed as a result of scientific discoveries, Polyplastex is an artistic, skillful fusion of modern plastics and glass fiber. It is fashioned in a great variety of textures and patterns, ranging from delicate, wispy finishes to stronger, bolder grains; translucent to opaque. It may be die-cut, sawed or cut by hand into any desired shape, as well as embossed, hand-decorated, silk-screened, printed, sprayed or dyed. Polyplastex is a product of Polyplastex United, Inc., Elmhurst, New York City. A late product to be added by this company is "Synspun" which is a combination of glass fibers in swirling design impregnated with tough, firm synthetic resins.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946.

Of PLASTICS published quarterly at New York, N. Y., for October 1, 1949.

State of Massachusetts, County of Suffolk, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared James Cadagan, who having been duly sworn according to law, deposes and says that he is the Business Manager of the PLASTICS and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946 (Section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Vincent Edwards, Inc., 342 Madison Ave., New York, N. Y.; Editor, V. Edward Borges, 342 Madison Ave., New York, N. Y.; Managing Editor, V. Edward Borges, 342 Madison Ave., New York, N. Y.; Business Manager, James Cadagan, 342 Madison Ave., New York, N. Y.

2. That the owner is: (If owned by a corporation its name an address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Vincent Edwards, Inc., 342 Madison Ave., New York, N. Y.; (V. Edward Borges, Pres.), 342 Madison Ave., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or their securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the name of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is.....(This information is required from daily publications only.) Signed: JAMES CADAGAN, Business Manager

Sworn to and subscribed before me this 9th day of September, 1949.

[Seal] GEORGE B. BORGES.

(My commission expires July 24, 1954)

WHAT'S NEW

Carbide and Carbon Chemicals Corp. announces the commercial availability of "Flexol" plasticizer 3CF (tri-2-chlorethyl phosphate), a flame-resistant plasticizer designed primarily for use with cellulose acetate and mixed cellulose esters. "Flexol" 3CF is also widely useful as a plasticizer for nitrocellulose, ethyl cellulose, methacrylate resins, and synthetic rubber.

When "Flexol" 3CF is used as the sole plasticizer in cellulose acetate films, concentrations as low as 10 per cent are reported to produce self-extinguishing compositions. This plasticizer pours freely below –25 degrees C. and is less volatile than dibutyl phthalate. The solubility of 3CF is mineral oil at 20 degrees C. is less than 0.7 per cent by weight, but 3CF is miscible with the common lacquer.

Prior to the war, tri-2-chlorethyl phosphate was produced in Germany and marketed in the United States as Cetamoll QU. "Flexol" plasticizer 3CF represents an improvement over the imported product. 3CF is lower in acidity and much more stable to the prolonged heat encountered in commercial molding practice.

O'NEIL-IRWIN MANUFACTURING CO., Lake City, Minnesota, has developed because of customer demand, this new 24" capacity DI-ACRO Radius Brake. This machine has been primarily designed for the forming of duraluminum, chrome molybdenum and other materials of low ductility which would fracture if formed to a sharp "no radius" bend.

The radii obtainable with this precision unit are in accordance with the standards recommended by the U. S. Army Air Corps for different thicknesses of these low ductile alloys. The DI-ACRO Radius Brake is also extremely valuable for forming ductile metals where radius bends are desired because of product design. With its 24" capacity in 16 gauge sheet steel, it is valuable in both experimental and production work as it will both rapidly and accurately duplicate a wide variety of precision parts.

THE JELRUS COMPANY, 136 W. 52nd St., New York 19, N. Y., has developed a process for making Beryllium-Copper cavities without a hob. Useful for either injection or compression molding, all that is needed is a plaster or plastics model in place of a hob. Cavities, from a few ounces to 30 pounds per cavity, made by this process, are reported as introducing sizable economies to those using highly ornamental or intricately detailed molds.

W. T. LAROSE & ASSOCIATES, INC., formerly of Troy, New York, manufacturer of Thermall Electronic Heating equipment for the plastics, rubber, and wood industries, have moved their entire manufacturing plant to new and larger quarters, 60,000 square feet floor area, at 31 Ontario St., Cohoes, New York.

Plax Corporation, division of Hartford-Empire Company, Hartford, Conn., announces the appointments of four sales agents to handle distribution of Plaxpak squeezable, unbreakable, polyethylene bottles.

The four firms named are J. Rabinowitz & Sons, Brooklyn, covering metropolitan New York; Zuckerman-Honickman, Inc., Philadelphia, handling metropolitan Philadelphia; Continental Glass Company, Chicago, servicing the Chicago area; and S. H. Ansel & Sons, South Boston, Mass., serving metropolitan Boston.

All four firms will maintain warehouse stocks of the plastic bottles in standard Boston Round shapes in a complete range of sizes, thus assuring immediate delivery on all orders in their areas. Each distributor is also prepared to work with companies seeking to develop a special or private bottle design.

The Chemical Department of the General Electric Company has established a new division, to be known as the Laminated and Insulating Products Division, an operating division to engineer, manufacture and sell laminated plastics and insulating materials.

The new division, headquarters of which will be in Coshocton, Ohio, will have responsibility for laminated and fabricated plastics products manufactured in Coshocton and for insulating materials produced at Schenectady, N.Y.

Appointments of personnel to fill key positions came from Robert L. Gibson, assistant general manager of the Chemical Department. The Laminated and Insulating Products Division will be managed by Harry K. Collins who had been manager of the Plastics Division. New manager of the latter unit, with headquarters in Pittsfield, is Herbert B. Brusman, formerly manager of the Employee Relations Division. Mr. Brusman's successor in the latter capacity is Arthur C. Treece, former manager of the plastics plants at Pittsfield and Coshocton.

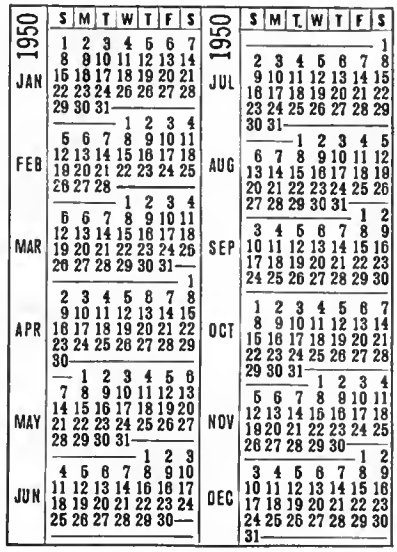
Mr. Collins also announced the following staff for the Laminated and Insulating Products Division: Dr. J. J. Pyle, engineering manager, Mr. A. B. Wellborn, manufacturing manager; Mr. E. G. Gray, sales manager; and Mr. J. A. Beals, accountant.

THE BEE CHEMICAL CO., 13799 South Ave., "O", Chicago 33, Ill., has announced a mold release material, specially created to eliminate difficulties frequently encountered in the plastics industry. Called "Logolube", the new material is a liquid and hence easier to apply and control than dusts which are often used for the purposes.

One of its great advantages says the company, is the fact that it does not interfere with painting of Logoquant treating of molded parts. If desired, it can be removed from the plastic by mere wiping with a cloth wet with alcohol. Logolube may be thinned for spraying on the mold or may be applied with a brush.

IMPORTANT DATES

CALENDAR FOR 1950



JAN. 9 . . . Winter Furniture Market Opening, Grand Rapids, Michigan.

JAN. 16-19 . . . Plant Maintenance Show, Auditorium, Cleveland, Ohio.

JAN. 9-20 . . . Winter Furniture Market, American Furniture Mart, Merchandise Mart, Chicago, Ill.

International Homefurnishings**JAN. 9-20** . . . Market.

JAN. 23 . . . Winter Furniture Market, New York Furniture Exchange, New York City.

JAN. 22-27 . . . 30th California Gift Show, Los Angeles, Calif.

JAN. 23-FEB. 4 . . . Southern Furniture Market, High Point, N. C.

JAN.30-FEB. 3 . . . 25th Semi-Annual Furniture Market, Los Angeles, California.

MAR. 2-4 . . . Pacific Coast Section of The Society of the Plastics Industry, Inc., 1950 Spring Conference, Hotel Del Coronado, San Diego, Calif.

MAR. 28-31 . . . National Plastics Exposition, Navy Pier, Chicago.

APR. 10-13 . . . 1950 Southwest Home Furnishings Market, Exhibit Buildings, Texas State Fair Buildings, Dallas, Texas.

JUNE 19-29 . . . Summer Furniture Market, American Furniture Mart, Merchandise Mart, Chicago, Ill.

JUNE 19-29 . . . International Homefurnishings Market.

PLASTICS Magazine invites Readers to write to the Editor on all topics of interest to the industry. If you have ideas that may interest others, send them to the Editor, Plastics, 342 Madison Avenue, New York 17, N. Y.

FREE!

INTERESTING NEW BOOKLETS

Executives may write direct to the companies whose names are given mentioning PLASTICS magazine.

1. PLASTICIZERS

Tennessee Eastman Corporation, Kingsport, Tennessee. A new catalog giving complete information on all plasticizers manufactured by that company. Of particular interest to the plastic and protective-coating industries is a new low-color dioctyl phthalate (DOP), specifications and properties of which are included in the catalog. This plasticizer, having a maximum APHA color rating of 50, is now being produced in commercial quantities in both a plastic and an electrical grade.

2. PHYSICAL PROPERTIES OF SYNTHETIC ORGANIC CHEMICALS

Carbide and Carbon Chemicals Corp., 30 East 42nd Street, New York 17, N. Y. Ask for Form 6136. This 16-page booklet has been designed as a condensed guide for users of organic chemicals. It contains data on applications and physical properties for more than 200 synthetic organic chemicals. The material is presented in tabular form for ready and easy reference.

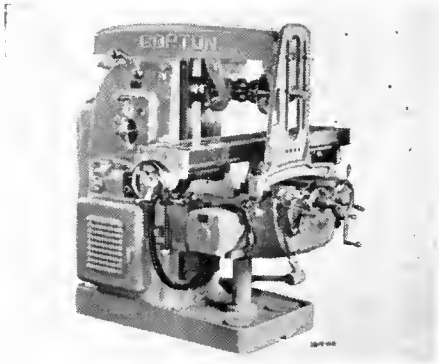
3. PLEXIGLAS FOR PRODUCT DEMONSTRATION

Plastics Department, Section D, Rohm & Haas Company, Washington Square, Philadelphia 5, Pa. Published for manufacturers and marketers of mechanical and other products, and for plastics fabricators. More than a score of photographs show how the company's transparent acrylic can be used to build working and exhibit models as merchandising aids to demonstrate product design and operation. Products pictured range from kitchen cabinets and business machines to automobile engines and rock crushers. Two full pages tabulate data on properties and various forms of the plastic.

4. BOICE CRANE 12" x 14" THICKNESS PLANER

Boice-Crane Company, 911 Central Avenue, Toledo 6, Ohio. A small brochure on the company's 12" x 4" thickness planer which describes and illustrates in detail the features of this power tool.

JOHN E. McKEEN was elected President of Chas. Pfizer & Co., Inc., Brooklyn, at a special meeting of the Board of Directors, thus continuing the Company's planned reorganization to meet its expanded activities by promoting capable men who have made unusual contributions to the Company's success, to top management positions. Mr. McKeen, a Chemical Engineer, who formerly served as Executive Vice President, has been with the organization for 23 years. John L. Smith, former Pfizer President, becomes Chairman of the Board of Directors, replacing George A. Anderson, and will remain as a Director of the Company.



For today's heavier milling cuts and for maximum performance with carbide cutters, here is a completely new, more powerful No. 2 machine, designed and built as a correlated unit by the George Gorton Machine Co., 1110 W. 13th St., Racine, Wisconsin. This is the first No. 2 mill to feature "Fullwidth" knee, securely mounted on the column by a square lock bearing of generous width.

F. J. STOKES MACHINE COMPANY, Philadelphia, have redesigned their No. 1-C Multi-Purpose Stand used for mounting of coating and polishing pans. The new Stand carries pans up to 42" in diameter, either steam-heated or standard. A new type gear box prevents abrasive materials from reaching the gear train or oil seeping outside the gear box. A heavy duty upper bearing carries most of the load and takes both axial and radial thrust. Complete details will be sent on request.

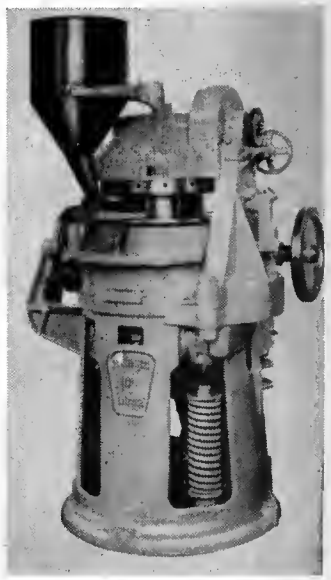
AMERICAN CYANAMID COMPANY has announced the appointments of Dr. L. P. Moore as Manager of its New Products Development Department and of Dr. E. W. Cook as its European Technical Representative.

Dr. Moore, who served as the Company's European Techneal Representative since 1946 has been with the American Cyanamid Company, first in the Stamford Research Laboratories and later in their executive offices in New York for some twelve years. His work will be devoted to the supervision of new products development and market research activities with special emphasis on finding applications for new products coming from the laboratories.

Dr. Cook, who received his degrees from the University of Arkansas and Ohio State University, joined American Cyanamid Company in 1940. He also spent several years in the Stamford Research Laboratories and came to New York in 1946 as Assistant Chemical Director of the Company.

DUREZ PLASTICS & CHEMICALS, INC., North Tonawanda, New York, has announced the development of several closely related phenolic resins especially formulated for use in bonding wood waste, such as sawdust, for the production of building or molded shapes. These resins are for use in the dry mix process and are in powdered or pulverized form. The particular resin required and the percentage of resins to wood waste used (average range from 5% to 15% of the weight of waste) are dependent upon processing, type of wood waste, and color and strength or density desired in the finished board. Resin and wood waste mixes require hot pressing at 100 to 500 psi at around 325° F.

KESSLER CHEMICAL CO., announced the formation of their sales affiliate, Kessco Chemicals Corp., which will handle the sales and distribution of their entire line. Maurice J. O'Connor has been appointed sales manager and will have his office at the plant of the parent company in Philadelphia. Kessco Chemicals Corp. have just opened a mid-western sales office at 333 N. Michigan Avenue, Chicago 1, Illinois. Mr. Stanley F. Choate has been placed in charge. They will continue to be represented in the New York area by W. W. Angus, Inc., 220 Broadway, and in New England by M. F. Robie & Sons, P.O. Box 26, S. Braintree, 85, Mass. In announcing the change, D. L. W. Wasum, vice president of the parent company, stated that this step was in line with the company's plans for improving technical service to the customer. At the same time, the technical service laboratory of the company is currently being expanded.



F. J. Stokes Machine Company, 5900 Tabor Road, Philadelphia, is producing a fully automatic 15-ton capacity, rotary type press for high speed cold molding of a wide variety of parts. It will take pieces up to a maximum diameter of 1 7/16-inches and maximum die fill of 2 1/16-inches. It is equipped with the Stokes Automatic Safety Release and the patented Pressure Equelizer prevents jamming and undue strain on the machine and punches, in the event of an overload.

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- *If there is any time that executives need ideas, it is right now.*
- *We give you what you want, provided it's in the newspapers. We find out what you want by mailing you a questionnaire peridically.*
- *Every week we ship to our customers new ideas that cost more than A MILLION DOLLARS to create and produce! Are you getting your share of them?*

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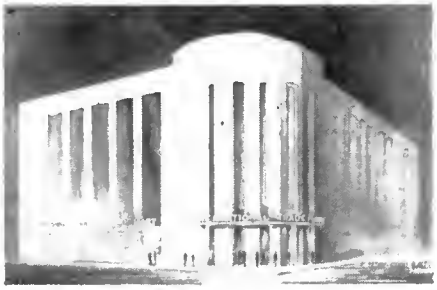

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HERE ARE RAW MATERIALS...in abundance. Cotton, cotton linters, soy beans, wood pulp, soda ash, bagasse, petroleum, and their thousands of derivatives—cellulose, lignin, the acids, carbon black, etc.—all are produced within city limits or just a few miles beyond. Imported through the great port of New Orleans are casein, castor beans and other materials indispensable to the manufacture of plastics — available here without additional transportation expense.

HERE IS TRANSPORTATION...with a combination of facilities unequalled elsewhere. Modern, sheltered harbor, 97 ship and barge lines, 9 trunk railroads, 8 major airlines, well-kept highways, a 13,000 mile network of inland waterways. LOW COST FUEL...unlimited; natural gas from fields near New Orleans; abundant, economical electricity from gas-fired steam power plants. SKILLED LABOR...plentiful, intelligent, cooperative. New Orleans' permanent labor supply has more than doubled since 1940 FRIENDLY TAXATION, local and state, encourages industrial growth. Investigate now

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