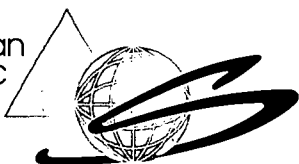


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Christine Schnitzer
Product Manager
Ceramic Information Center

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The American Ceramic Society

BULLETIN

**A Monthly Publication Devoted to Proceedings of
The Society, Discussions of Plant Problems,
Discussions of Technical, Scientific,
and Art Questions, and Promotion
of Cooperative Research**

Volume 28, 1949

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DUST CONTROL IN THE CERAMIC INDUSTRIES*

By W. C. L. HEMBON†

This subject will never be more timely than at the present period of unprecedented plant expansion and plant improvement. When plans of this nature are under consideration, dust control aspects should also be considered. Will the new equipment be more or less dusty than the process it will replace? What plans should be made to eliminate dust?

I. Dust Control in Relation to Modernization Plans

The cost of dust control causes many a plant manager to hesitate when he is fundamentally dissatisfied with the offending process itself from the production standpoint. He is concerned with the expense of a dust control system that may be obsolete when the process itself is eliminated.

In any progressive company modernization is a continual process, and if needed dust control were to be postponed wherever there is thought of changing the equipment it would wait forever.

The three possible courses of action in these circumstances are (1) postpone the dust control expenditure until the new process has been installed, (2) install a first-class system which would be discarded when the process change developed, and (3) install makeshift dust control.

If it appears that none of these policies fit a given situation and, particularly, if the costs would really be excessive for the time period before reconstruction, it is well to re-examine the particular plans for dust control to see if they are not unduly elaborate for the circumstances.

II. Raw Materials Handling

Car unloading, storage, removal from storage to weighing and mixing equipment are operations that are common to all ceramic industries and these operations are inherently dusty. They are taken up in order.

(1) Car Unloading, Manual

The commonest method of shipment of clays, flint, and spar is by bulk in box cars with unloading commonly done manually by wheelbarrow.

By modern industrial standards this is a crude method of handling, but it is easily understood on the basis of relative costs of raw materials and of product. A cost of 40 to 50 cents per ton to unload a raw material by hand is an extremely small proportion of the selling price of about \$300 to \$400 per ton, using figures of the dinnerware industry. Economic incentives, therefore, for installation of silo storage and mechanical handling have not been great for the small plant, i.e., one handling small tonnages.

From the same facts it follows that the cost of the product could not be greatly affected by an ordinary increase in handling costs in this department. Nevertheless, we think it is fairly obvious that manual handling methods will continue to be common for a long time.

* Presented at the 49th Annual Meeting of The American Ceramic Society, Atlantic City, N. J., April 24, 1947 (Materials and Equipment Division, No. 11).

† Engineering Director, Industrial Hygiene Foundation, Mellon Institute, Pittsburgh, Pa.

Looking at the problem, for the moment, from the standpoint of the small plant operator who believes that he cannot justify the capital expenditure for mechanical conveyor unloaders and silo storage bins, what practical, efficacious methods are available?

In considering this question it is necessary to recognize that the minimum requirement for success is that the dust that may cause silicosis be completely controlled. This means that if the dust from pulverized silica and from silica sand can be completely suppressed, the minimum requirements are satisfied.

(2) Flint Dust Control

There is no way of eliminating the silicosis hazard in manual unloading of box cars of flint by exhaust ventilation.

If there were a procedure whereby such hazardous dusty materials could be made dustless by incorporating an addition agent at the point of shipment it would be advantageous. Water is such an agent and it has, in fact, been the practice in some sections of the dinnerware pottery industry for more than 10 years to require the supplier to incorporate small quantities of water in flint at the point of shipment.

Some extensive measurements have indicated that when properly done the effects of 2 to 3% moisture in dust suppression are literally marvelous. This procedure is capable of completely suppressing flint dust to concentrations below the hazardous level—as applied to the manual car unloading operation.

The procedure is of much broader importance than for this particular material. It will be useful in suppressing the dust in similar handling of feldspar and of such materials as silica cement for use in refractory furnace construction.

(3) Bag Shipment

It might be thought that shipment of flint in paper bags would be of great advantage in eliminating dust in car unloading, but in most instances this is not true. Sifting of material from bag openings and breakage of bags in transit distribute dry dust throughout the pile and this results in excessive concentrations of flint dust during car unloading. For ordinary handling methods, therefore, bag shipment of flint is no solution to the problem of preventing serious silica dust exposure in raw material handling.

In summary, we know of no practical method for adequate control of flint dust in manual unloading methods, those that require a man to go into the car, other than by rendering the material dustless.

Any arrangements that lessen or eliminate the time spent in the car are, of course, aids in reduction of total dust exposure. These include bin conveyors where wheelbarrow travel ends at the car door and a drag line scoop which scrapes material from the car interior to a conveyor, some requiring an inside scoop operator and others only an outside operator. The miniature power shovel development is in a similar general category but, obviously, with many superior features.

LINE FROM
KINYON UNLOAI
OR PNEUMATIC
CONVEYOR
UNLOADER

FLINT



III. Over

Overhead storage equipment. Some of variously outlined are overhead bins, but any would employ, for silica car unloading procedure escape of any dust. Topper bottom cars which veys it to the bins, or in a pneumatic pipe line.

Use of these arrangements in car unloading of flowing material that the clays that cannot be is not related to the formed in removal from of by separate measure

In glass plants, distribution or with trippers, above Belt conveyors are favored to resist the abrasive as they do not simplify they are definitely not the materials like soda ash, is readily controlled by transfer from elevator to and exhausted sand bin.

IV. We

Dust caused by with bins into a weigh car in point of discharge; its available space and the car, etc.

It may be done by weigh car and surrounding partially enclosed weigh the charging tunnel as the

Scale cars in some cases and dust collector moun

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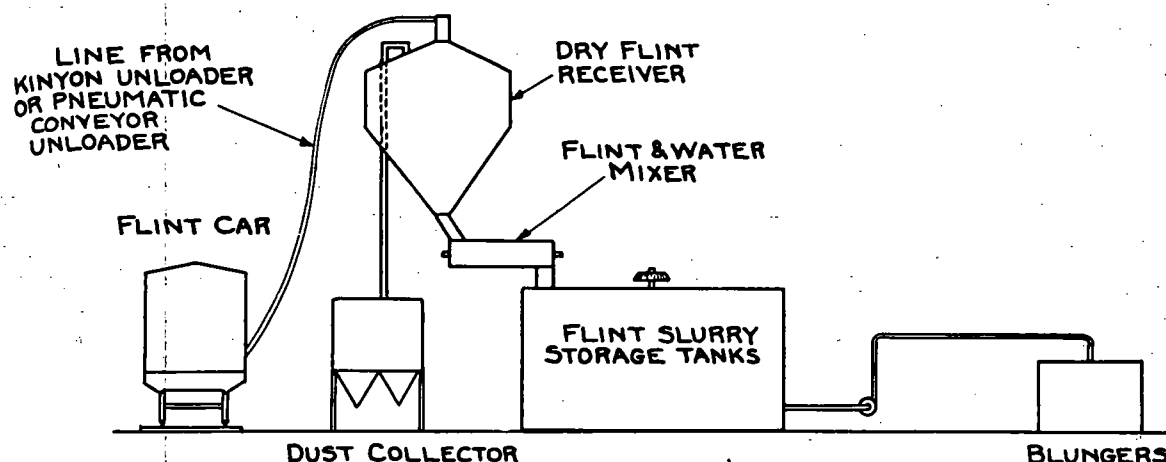


FIG. 1.—Dry flint unloading by pump and storage in form of slurry.

III. Overhead Bins, Silos, Etc.

Overhead storage bins mean mechanical conveying equipment. Some of the methods of car unloading previously outlined are often used in conjunction with overhead bins, but any modern installation of storage bins would employ, for silica or other free flowing dust material, a car unloading procedure that would prevent formation or escape of any dust. The material may be shipped in hopper bottom cars which discharge into equipment that conveys it to the bins, or it may be unloaded from box cars by a pneumatic pipe line or by pump.

Use of these arrangements eliminate the silicosis hazard in car unloading of flint and sand as well as any other free flowing material that may contain free silica. Dust from the clays that cannot be so handled is unchanged, but this is not related to the problem of silicosis control. Dust formed in removal from the storage bin must be taken care of by separate measures.

In glass plants, distributing belts in shuttle arrangement or with trippers, above open-top bins, are not uncommon. Belt conveyors are favored because they are best adapted to resist the abrasive action of ceramic raw materials but they do not simplify the problem of dust control. They are definitely not the conveyor of choice for fine dusty materials like soda ash, spar, etc. For other materials dust is readily controlled by installation of exhaust at points of transfer from elevator to belt or from belt to bin. Covered and exhausted sand bins are a primary necessity.

IV. Weighing and Charging

Dust caused by withdrawal of material from overhead bins into a weigh car may be controlled by exhaust at the point of discharge; its physical form will be determined by available space and the arrangements of bin spouts, weigh car, etc.

It may be done by a booth-type hood fixed over the weigh car and surrounding the chute, by exhausting the partially enclosed weigh car directly, or even by exhausting the charging tunnel as though it were a large booth.

Scale cars in some cases may be exhausted by a small fan and dust collector mounted on the carrying frame.

(1) Morris System

The Morris patent describes an ingenious arrangement for exhausting the weigh car of a whiteware plant regardless of its position on the tracks. Since nearly all of the dust in shoveling material from one point to another occurs at the receiving pile (in this case the weigh car), it is apparent that it provides an effective measure for dust control at that point, and this applies to the clays that are shoveled. In the case of flint and feldspar, all dust is controlled because the weigh car is filled from storage silos by screw feeders and dust originates only at the point of screw discharge.

(2) Exhausting Charging Point

Exhausting the point where weigh material is discharged is not a difficult problem, using conventional design procedures, whether it be dropped by gravity into an elevator boot, or shoveled into a blunger or into a skip hoist.

(3) Wet Methods

Anyone who has watched the back-breaking, laborious and primitive methods of charging a mixer or blunger in a pottery plant is given to the thought, "There must be a better way of doing this."

The problem of weighing a continuous stream of dry materials accurately has not been solved in any simple and foolproof way. On the other hand liquids are easily measured accurately. This suggests, for certain ceramic industries, incorporating the dry raw materials with water during unloading of the car and storing them as water suspensions. Proportioning the raw materials without dust and accurately is, then, a simple procedure of liquid metering based on the solids content.

Methods of this general nature should be particularly applicable to whiteware manufacturers in which the raw material mixing process ends up with considerable excess water anyway. This principle is employed in wet process cement plants, in English potteries, and recently in a far western sanitaryware plant (see Fig. 1).

(4) Periodic Kilns

In the setting and drawing of periodic kilns, dust con-

centrations usually do not exceed 5 to 10 million, less in setting than in drawing. Rarely, concentrations may attain 15 to 20 million in brick kilns. This dust exposure, therefore, where dust contains little or no free silica, is unimportant. It may be important, however, in the case of silica brick.

The only control method applicable to control of this dust is exhausting air from the kiln interior (by means of a portable unit) at a very high rate. Success in reduction of dust will depend upon the dustiness of the particular operation, i.e., whether the rate of dust production is small enough to be effectively diluted by practically attainable ventilation.

TABLE I

ESTIMATED RELATIVE DUSTINESS IN BOX CAR UNLOADING

The figures are related to an arbitrary scale where 1 represents clean industrial air; 5 the limit of permissibility for highly toxic dusts like flint; 25 is mildly disagreeable though tolerable for nuisance dusts; and 50 to 100 is intolerable as a dust nuisance.

Unloading method	Moist materials	Dry materials
Wheelbarrow into bin	5	50-100
Wheelbarrow to conveyor	5*	50*
Drag line scoop—in car	5*	75*
Drag line scoop—outside operator	0-5*	0-25*
Power shovel	5*	25*
Bag shipment		25-50

* The indicated method, by reducing the labor time, may reduce the dust exposure in some instances.

TABLE II

ESTIMATED RELATIVE DUSTINESS IN WEIGHING (FROM STORAGE) AND CHARGING

Figures are based on the same dust concentration scale as in Table I.

Handling method	Moist materials	Dry materials	Control method (dry material)
Gravity discharge (overhead bins)	(Not applicable)	50-100	Local exhaust
Shoveling (floor bins)	2	50-100	(a) High exhaust rate from bins (only in summer) (b) Scale car exhaust
Bags	(Not applicable)	10-20	
Charging mixer, blunger, mill, etc.			
Gravity, to a hopper		50-100	Exhaust hopper
Shoveling		50-100	Exhaust mixer opening

(5) Product Is Dust

Perhaps the most significant characteristic of the ceramic dust control problem is that the dust is a part of the product, or the product itself is dust, and not an incidental material as in some other dusty industries. Where exhaust systems are employed for dust control in the raw material handling, every effort should, therefore, be made to reduce unnecessary transportation of useful material to

the dust collector. Cloth type dust collectors are sometimes so overloaded, unnecessarily, as to vitiate the effectiveness of the entire exhaust system. If various dusty materials are served by the same exhaust system, the dust is an unknown mixture and hence waste.

An important rule is to arrange the exhaust intake so that the only material removed in the air stream is that already suspended in the air and locate the ends of exhaust ducts connected to enclosures at remote points. This point is illustrated in Fig. 2.

The exhaust system is the most important element in the engineering of dust control and adequate design is imperative. Nothing is more discouraging than the expenditure of large sums of money for a system which does not do a good job or which requires constant attention for cleaning out.

On the other hand, an equally distressing design is one that is unduly extravagant and which consequently costs too much, exhausting twice as much air as required, and having also, perhaps, a dust collector of double the necessary size.

V. Nuisance Dust and Silicosis Dust

From time to time in the preceding discussion the writer has referred to silicosis hazards and to excessive dust. This is an important distinction. Silicosis is a pathological condition that may lead to disability and results from years of exposure to certain concentrations of dust that contain free silica. Excessive concentrations of other dusts constitute a nuisance, are intolerable and not excusable on any economic grounds. It is imperative to clear thinking that this distinction be made, because while it is agreed that both types of dust exposures must be eliminated, the two are separate problems and have altogether different degrees of urgency.

If there is a silicosis hazard there can be no question of economics or of economic balances; the hazard must be eliminated with the least possible delay.

If there is not a silicosis hazard but dust is still present in such concentrations as to constitute definitely disagreeable working conditions, plans for its control should also be instituted, but studies planned for maximum economy (and possibly stepwise installation of dust control equipment) may proceed with more deliberation.

(1) What Is Excessive Dust?

Definitions of excessive nuisance dust concentrations (the dust being inert) vary throughout industry generally pretty much proportionally to the difficulty of dust control. Continuous exposures in excess of 50 to 100 million cannot be considered acceptable anywhere. In ceramic plants, arbitrary limits varying from 25 to 50 million have been set by some plant operators for plant cleanliness, and in at least one plant the management has set for themselves a limit of 10 million.

VI. Measuring the Silicosis Hazard

Nuisance dust exposure is readily measured by conventional dust counting methods. These techniques determine total dust. Measuring the silicosis hazard on the other hand requires supplementary techniques to determine how much free silica is in that dust. (The most reliable determinations of free silica are made by X-ray

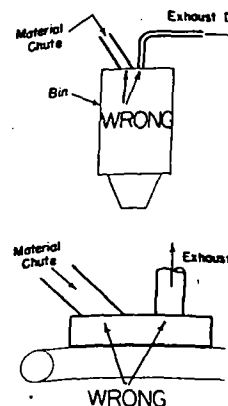


FIG. 2.—Needless pro

diffraction.) Further critical since only dust few microns in diameter contains particles of large sample from the standard give misleading results.

To ensure that the cared for, enlightened obtain information as to and arrange for periodic workers.

VII. Nature

Table III attempts hazard from dust in raw common ceramic industry the hazard in a given (1) the inherent toxicity silica content of the material.

The silicosis hazard in plants is variable. In some on whether the method batching operations it is total dust exposure (noting measures for its control)

In silica brick manufacturing silicosis are high. In ref hazard is usually very exposure may be very hazard is a direct function

SILICOSIS DUST PROBLE

Industry	Material
Glass	Sand
Silica brick	Ganister
Clay brick	Refractory clays
Pottery	Flint (dry)
	Flint (moist)

(1) Economics of Dust C

In factories where, by objective of dust control dust to below 5 or 10 milli (1949)

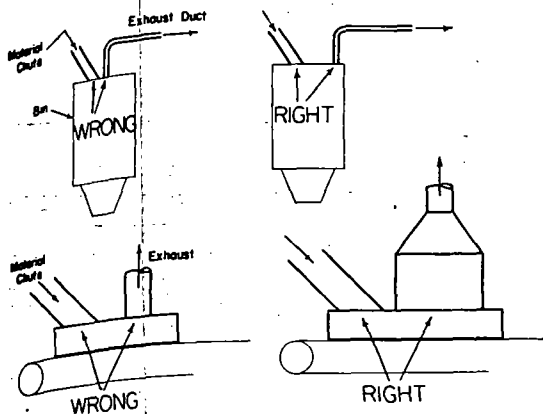


FIG. 2.—Needless product removal by exhaust system.

diffraction.) Furthermore, the sampling procedure is critical since only dust whose particles are smaller than a few microns in diameter are significant. If the sample contains particles of larger size it is an unrepresentative sample from the standpoint of the human lung and may give misleading results.

To ensure that the welfare of the employees is being cared for, enlightened management will take steps to obtain information as to the nature of present dust exposures and arrange for periodic X-ray and medical examination of workers.

VII. Nature Silicosis Dust Problem

Table III attempts to represent the over-all relative hazard from dust in raw material handling in four of the common ceramic industries. This table emphasizes that the hazard in a given case is the product of two factors: (1) the inherent toxicity which is governed by the free silica content of the material, and (2) by its inherent dustiness.

The silicosis hazard in raw material handling in glass plants is variable. In sand car unloading it is dependent on whether the methods employed make dust. In the batching operations it is nearly always very low, but the total dust exposure (nonsiliceous) is high where engineering measures for its control have not been instituted.

In silica brick manufacture all dust factors respecting silicosis are high. In refractories manufacture the silicosis hazard is usually very low or nonexistent, but total dust exposure may be very high. In potteries the silicosis hazard is a direct function of the amount of flint dust.

TABLE III

SILICOSIS DUST PROBLEM IN RAW MATERIAL HANDLING

Industry	Material	Toxicity	Dustiness	Toxicity × dustiness
Glass	Sand	High	Low	High-low
Silica brick	Ganister	High	High	High
Clay brick	Refractory clays	Low	High	Low-medium
Pottery	Flint (dry)	High	High	High
	Flint (moist)	High	Low	Low

(1) Economics of Dust Control

In factories where, by reason of the silicosis hazard, the objective of dust control is to reduce concentrations of dust to below 5 or 10 million, and where there are numerous

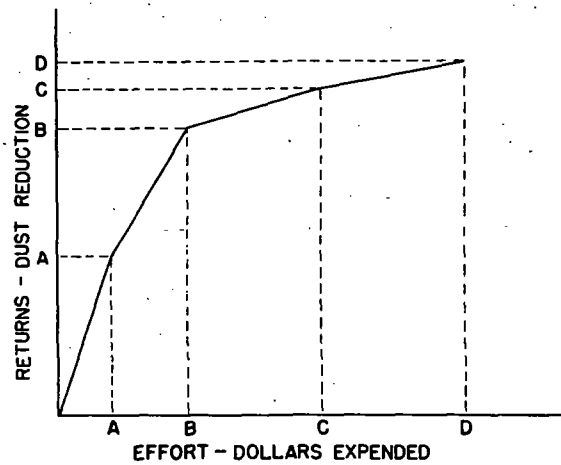


FIG. 3.—Diminishing returns in dust control.

sources of dust, a state of diminishing returns is commonly evident. Stepwise accomplishments measured in reduced dustiness cost more for each successive reduction in dust. (See Fig. 3.)

This is just another way of saying that money expended for control of major dust sources accomplishes more in dust reduction than the same amount expended in the next step for control of lesser sources. The arrival of stage A or B, where residual dust remains in undesirable amounts, often inspires the remark to visitors, "You should have seen it when—."

The first steps are concerned with control of obvious sources of dust. Beyond that point, the problem often becomes obscure. Important remaining causes of dust may not be obvious and their relative importance may not be clear. At this stage it is highly advantageous to an intelligent procedure to have definite knowledge of the remaining sources of dust and the relative amounts each contributes to the atmosphere.

For example, studies in the ceramic industries indicate that the debris on floors (dust kicked into the air by walking) contributes a very small proportion of dust where total dust concentrations are higher than 4 to 5 million. This data enabled concentration of attention on other dust sources of more importance. If the economic situation at this stage is difficult, relative to estimated costs of further improvement, arrangements should be made for measurements of total dust and its composition relative to free silica and consequent capacity to produce silicosis.

If the writer appears to stress unduly the factor of costs in relation to dust control it is hoped that the distinction made between the two aspects of the problem will make clear the attempt to have them viewed in proper perspective, i.e., as separate problems. The writer is convinced that any remaining silicosis hazards in this industry could be eliminated within a couple of years if management were apprised of the facts. The silicosis hazard can be measured and methods for its elimination, practically, are available.

Any ceramic plant with a dust hazard can eliminate it. All that is required is for the executive head to realize fully its importance to his company, to issue the orders that dust must go, and to maintain that interest throughout the cleanup program.

Directory of Corporation Members

The Directory of Corporation Members of The American Ceramic Society is presented in the following pages. The companies listed here are the ones which are interested in the technical development of the ceramic industry. These companies hire the technically trained men, buy and sell the latest machinery and equipment, and take the lead in the development of new equipment and processes.

In each listing is included a description of the company's products and processes or the services it offers the industry. Also included is the name of the member of the company management who represents the company in Society affairs as Corporation Voter.

The support given to The American Ceramic Society by these Corporation Members helps make possible much of the publishing activity and much of the help given the Local Sections. The Society is taking this means of recognizing those companies which assist in this important work.

Abingdon Potteries, Inc. J. M. Lewis
Abingdon, Ill.

Producers of vitreous china plumbing fixtures, vitreous china specialties, vitreous china art pottery, and kindred lines; also miners and grinders of the famous Abingdon feldspar.

A C Spark Plug Div., General Motors Corp. Karl Schwartzwalder

Flint 2, Mich.

Manufacturers of automotive and aircraft products: spark plugs; ceramic insulators, thermistors, and resistors; oil filters, fuel pumps, air cleaners, speedometers, and other instruments.

Adamston Flat Glass Co. Russell Rice
Box 631, Clarksburg, W. Va.

The products of this company, manufactured under the trade name Clearlite, are sheet glass of various thicknesses from thin (weighing approximately 14 to 16 ounces per square foot to $\frac{7}{16}$ inch) and bulb-edge glass for shelving, cabinets, and counter dividers.

Akron Porcelain Co. F. W. Butler
Akron 14, Ohio

Manufacturers of special electrical porcelain parts which are made to the customers' specifications and blueprints by the dry-press process. More than half a century of experience in producing unglazed white porcelain, unglazed gray porcelain, and glazed porcelain for the electrical and communications industries.

Alamo Pottery, Inc. W. H. Wallingford
Box 4367, Station A, San Antonio, Texas
Manufacturers of vitreous china and sanitaryware, commodes, and lavatories. Plants in San Antonio and Hondo, Texas.

AllianceWare, Ltd. R. E. Strain
Vancouver, Canada

Began operations in July of 1946. Makers of porcelain enameled sanitaryware, architectural porcelain panels, porcelain enameled signs, table tops, etc. Imports pressed steel bathtubs, sinks, etc. for enameling and distribution in four western Canadian provinces.

Alton Brick Co. Eben Rodgers, Jr.
Alton, Ill.

Manufacturers of fire-clay and shale face brick, common brick, load-bearing and partition structural tile, paving brick, chimney tile, and Haydite concrete masonry units. Dealers in Insulux glass block, blazed brick, and tile. Sales office 3832 West Pine Blvd., St. Louis, Mo.

Aluminum Co. of America, Chemicals Div. J. R. Eckley
Pittsburgh 19, Pa.

Makers of more than 60 chemical products made from bauxite and fluorspar; many are used in refractories, glass, enamels, and porcelains. Materials are supplied in a variety of grades and specifications, including hydrated, activated, calcined, tabular and calcium aluminas, alu-

minum and sodium fluorides, sodium bifluoride, and fluoroborates.

American Clay Forming Co. Ross Stoffer
Tiffin, Ohio

Manufacturers of radiants and backwalls for gas heaters, special refractories for oil- and gas-burning furnaces, and special shapes of high-temperature refractories.

American Colloid Co. Paul Bechtner
Merchandise Mart Plaza, Chicago 54, Ill.

Producers of bentonite, with special grades for the ceramic industry.

American Gas Association C. G. Segeler
420 Lexington Ave., New York 17, N. Y.

The central trade association serving all branches of the gas industry, including gas companies, gas-equipment manufacturers, and several thousand individual members; maintains testing and research laboratories at Cleveland and Los Angeles where gas appliances are checked for compliance with American Standards Association requirements; carries on extensive research program in ceramic field through the Industrial Gas Research Committee.

American Glassware Association H. L. Dillingham
19 West 44th St., New York 18, N. Y.

An association of pressed and blown glassware manufacturers which provides statistical information for its members and represents them in governmental and public relations; maintains a traffic committee, a tariff committee, and other committees on special subjects.

American Lava Corp. Paul J. Kruesi
Chattanooga 5, Tenn.

A pioneer manufacturer of steatite, titania, alumina, and other ceramic insulating materials for electrical, textile, chemical, and mechanical uses. Producers of AISiMag by extrusion, dry-pressing, and casting processes, with special surface treatments and precision ground for close tolerances; also Lava bodies to especially close dimensions for similar uses.

American Nepheline Corp. H. R. Deeth
Rochester 12, N. Y.

Engaged in the production of Lakefield nepheline syenite. A granular product is produced for the glass industry and a 200-mesh product for use in the whiteware and other ceramic industries.

American Optical Co. E. D. Tillyer
Southbridge, Mass.

Manufacturers of ophthalmic instruments and equipment, spectacle frames and lenses, sunglasses, and industrial safety equipment. Through their Scientific Instrument Division, Buffalo, N. Y., they produce microscopes, projectors and other scientific instruments.

American Porcelain Enamel Co. Robert Long
1285 E. Keating Ave., Muskegon, Mich.

Manufacturers of porcelain enamel frit for steel at tem-

peratures of 1500° F. enamels for appli-
washing machin-
resistant ename-

American Potash Corp. 122 Ea-

Producers of po-
cake, borax, Py-
ash, bromine, U-
phate. Borax, U-
supplied in large

American Radiant Sanitary Corp. 1541 S-

Manufacturers of
genuine vitreous
plumbing and h-

American Refractory 1872 Railw-

A national orga-
promoting the in-
refractory materi-

American Smelting 120 I-

Engaged in the
ferrous metals, p-
junction with the
arsenic, cadmium,
raw materials in-

American Stove 1641 S. Ki-

American Stove
commercial gas
combination ran-
and furnaces. 1
Louis. The col-
Cleveland and L-

American Window Farmer-

Manufacturers of
0.033 to 0.250 in-
purposes; specia-
the medical prof-
decorative uses;

Amsler Morton Chamber of

Complete plants
drawn, polished,
manufacturing s-
enameling; prod-
forming machine
personnel.

Anchor Hocking

Anchorglass narro-
tumblers; metal
Fire-King Oveng
Azur-ite dinnerw-
kitchen, hotel, b-
and premium gla-

Arketex Ceramic

Manufacturers of
for permanent a-
hospitals, food p-
inches; two-plan-

Armco Steel Corp.

Armco is one of
(1949)

temperatures of 1500°, 1400°, and 1300°F., and cast iron enamels for application to stoves, refrigerators, signs, and washing machines; also acid-, heat-, and corrosion-resistant enamels.

American Potash & Chemical Corp.

R. M. Curtis

122 East 42nd St., New York 17, N. Y.
Producers of potassium chloride, potassium sulfate, salt cake, borax, Pyrobor—dehydrated borax, boric acid, soda ash, bromine, U.S.P. bromides, and crude lithium phosphate. Borax, boric acid, soda ash, and salt cake are supplied in large quantities to the ceramic industry.

American Radiator & Standard Sanitary Corp.

James S. Goodman

1541 South 7th St., Louisville 8, Ky.
Manufacturers of cast-iron enameled plumbing fixtures; genuine vitreous china plumbing fixtures; all types of plumbing and heating equipment.

American Refractories Institute

W. J. Westphalen

1872 Railway Exchange Bldg., St. Louis 1, Mo.
A national organization of manufacturers of refractories promoting the interests of manufacturers and consumers of refractory materials.

American Smelting & Refining Co.

L. G. Matthews

120 Broadway, New York 5, N. Y.
Engaged in the smelting, refining, and marketing of non-ferrous metals, primarily copper, lead, and zinc. In conjunction with these activities, producers of antimony oxide, arsenic, cadmium, and selenium, all of which are used as raw materials in the ceramic industry.

American Stove Co.

G. F. Fiske

1641 S. Kingshighway Blvd., St. Louis 10, Mo.
American Stove Co. manufactures domestic gas ranges; commercial gas cooking equipment; coal, wood, and combination ranges; oil cooking stoves, space heaters, and furnaces. Principal administrative offices are in St. Louis. The company operates factories in St. Louis, Cleveland and Lorain, Ohio, and Indianapolis, Indiana.

American Window Glass Co.

A. S. Crandon

Farmers Bank Bldg., Pittsburgh 22, Pa.
Manufacturers of clear sheet glass in thicknesses from 0.033 to 0.250 inch for glazing and scientific and industrial purposes; special glass for the photographic industry and the medical profession; colored glasses for sunglasses and decorative uses; safety glass for the automotive industry.

Amsler Morton Corp.

P. M. Offill

Chamber of Commerce Bldg., Pittsburgh 19, Pa.
Complete plants for manufacturing blown, pressed, rolled, drawn, polished, wire, laminated, and fiber glass and for manufacturing silicates of soda and rock wool; metal enameling; producer-gas systems; fuel-oil systems; glass-forming machines. Furnish construction and operating personnel.

Anchor Hocking Glass Corp.

W. V. Fisher

Lancaster, Ohio
Anchorglass narrow- and wide-mouth jars, jugs, bottles and tumblers; metal and plastic closures and sealing machines; Fire-King Ovenglass; Jade-ite restaurant and dinnerware; Azur-ite dinnerware; plane, decorated and hand cut table, kitchen, hotel, bar and restaurant glassware; industrial and premium glassware.

Arketex Ceramic Corp.

George W. Shoemaker

Brazil, Ind.
Manufacturers of ceramic glazed structural building tile for permanent and sanitary walls in buildings such as hospitals, food plants, etc.; standard size 5 by 12 by 4 inches; two-plant output.

Armo Steel Corp.

F. G. Sutphen

Middletown, Ohio
Armo is one of the oldest prime producers of enameling (1949)

iron for porcelain enameling purposes. This company also produces a complete line of special-purpose iron and steel and stainless-steel sheets and strip as well as stainless-steel bars and wire.

Armstrong Cork Co.

E. C. Emanuel

Research Labs., Lancaster, Pa.
Producers of glass containers, cork stoppers, metal and molded closures, insulating firebrick, corkboard, pipe covering and other insulating materials, linoleum, asphalt tile and other floor materials; wall coverings, acoustical material, gaskets, seals, and many industrial specialties. Distributors of Foamglas and glass-wool insulation.

Ashworth, George L., & Bros., Ltd.

R. L. Evans

Broad St. Works, Hanley, Stoke-on-Trent, England
Sole manufacturers of Mason ironstone china, the original ironstone china first patented in 1813. This immensely durable tableware is made in a comprehensive range of well-known imperishable underglaze stock patterns of unique period character.

Babcock & Wilcox Co.

A. M. Kohler

85 Liberty St., New York 6, N. Y.
Manufacturers of special refractories for high-temperature and heavy-load conditions, such as glass-tank superstructures, checkers, enameling-furnace piers, and other industrial furnace applications; also a complete range of insulating firebrick for temperatures from 1600° to 2900°F. and refractory mortars, plastics, and castables, both standard and lightweight.

Ball Brothers Co.

G. A. Ball

Muncie, Ind.
Manufacturers of a general line of glass containers, including Ball-Mason and Ideal fruit jars, at plants in Indiana, Illinois, Oklahoma, and Texas; makers of closures for glass containers at Muncie and by Aridor Corporation, a subsidiary, in Chicago; zinc rolling mills at Muncie and Greencastle, Ind., to produce the zinc porcelain-lined caps for fruit jars and drawn zinc shells for dry-cell batteries; mechanical rubber goods.

Bartlett-Collins Co.

D. C. Hamilton

Sapulpa, Okla.
Manufacturers of machine-made table glassware, both blown and pressed; a goodly percentage of this line is tumblers, screen process and hand decorated; normal distribution in the entire United States as well as in Central and South American countries.

Bausch & Lomb Optical Co.

Murray Scott

Rochester 2, N. Y.
Established in 1853 in Rochester, N. Y., this company manufactures optical glass, ophthalmic lenses, frames, and mountings, safety glasses, Ray-Ban sunglasses, microscopes and accessories, binoculars, photographic lenses, magnifiers, and projectors, and a complete line of optical instruments for military use, education, research, industry, and eyesight correction and conservation.

Bay State Abrasive Products Co.

O. S. Buckner

Westboro, Mass.
Manufacturer of grinding wheels, Bayflex products, cylinder honing stones, oil stones, mounted wheels and points, terrazzo rubs, refractory products and abrasive specialties. Branch offices and warehouses in Detroit, Chicago, Cleveland, Pittsburgh. Distributors in all principal cities.

Bengal Electric Lamp Works, Ltd.

N. C. Sen

126 Mollapara Rd., Jadavpur, India
First of its kind in India, this plant manufactures vacuum, gas-filled, railway, street lighting, carbon-filament, and glow-discharge lamps under brand names Bengal and Bengal (IS). Other products are glass shells and a.c. and d.c. ceiling fans made under the brand name Belco.

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Vol. 28, No. 8

- Benjamin Electric Mfg. Co.** Hoyt P. Steele
Des Plaines, Ill.
Makers of porcelain enamel washing machine tubs and Crysteel porcelain enamel table tops. Fabrication and porcelain enameling of Benjamin porcelain enamel steel RLM dome reflectors for incandescent mercury vapor and fluorescent lamps.
- Bethlehem Steel Corp.** W. M. Steinedce
Bethlehem, Pa.
Producers of intermediate and finished steel products of every type, pig iron, coke and coal chemicals, forgings, iron, steel, and brass castings. Bridges, buildings, tanks, transmission towers, and other fabricated steel construction. Shipbuilding and ship repairs.
- B. G. Corporation** Frank J. Fallon
Ridgefield, N. J.
Manufacturers of spark plugs for aircraft and industrial types of operation; also industrial ceramic specialties, including low-loss alumina bodies. Associated items include thermocouples, spark-plug terminal sleeves, elbows, and spark-plug and ignition harness test sets.
- Binks Manufacturing Co.** E. F. Watts
3136 Carroll Ave., Chicago 12, Ill.
Manufacturers of a complete line of standard and special spray-finishing equipment for ceramic and organic finishes; automatic spray finishing machines, Dynaprecipitor water wash and dry-type spray booths, exhaust and material handling systems. Engineering service and consultation available without obligation.
- Blue Ridge Glass Corp.** J. H. Lewis
Kingsport, Tenn.
Manufacturers of rolled figured and wired lime glass; polished figured and wired glass; Aklo heat-absorbing glass; Securit (tempered) figured glass; special surface treatments: sandblasting, frosting, satinol; special rolled-glass products made to manufacturers' specifications.
- Blythe Colour Works, Ltd.** Douglas R. Wildblood
Cresswell, Stoke-on-Trent, England
Manufacturers of vitreous enamels and colors for iron baths, electric cookers, refrigerators, hollow ware, kitchen utensils, and signs; colors and glazes for pottery, tile, sanitary ware, and glassware; dry colors for paint, plastics, rubber, and artists; enamels for badges and jewelry.
- Bonnot Company** B. T. Bonnot
Canton, Ohio
Engineers, designers, and producers of machinery for the ceramic industry, the steel industry, and the chemical industry. This company also specializes in long-wearing dies for clay products manufacture and produces abrasion-resisting alloy irons and other iron alloy castings in its own foundry.
- Botfield Refractories Co.** A. H. Engstrom
Swanson and Clymer Sts., Philadelphia 47, Pa.
Manufacturers of Adamant firebrick cement, a prepared, air-setting high-temperature bonding mortar; Adahearth, a plastic chrome-ore material for constructing hearths in billet heating and slag-tap boiler furnaces; Adachrome supercement, a chrome-ore base, air-setting bonding mortar.
- Braun Corporation** J. G. Stewart
2260 East 15th St., Los Angeles 21, Calif.
Suppliers of industrial chemicals, scientific apparatus, laboratory chemicals, and equipment. Together with San Francisco house, the Pacific Coast agents for several large manufacturers, including B. F. Drakenfeld & Co., Inc.
- Brockway Glass Co., Inc.** F. B. Hess
Brockway, Pa.
Manufacturers of glass containers in both flint and amber; a complete line of pharmaceutical, proprietary, and prescription containers, also beers, whiskeys, foods, toilets, and perfumes; three fully automatic machine plants.
- Buck Glass Co.** R. A. Blunt
Fort Ave. and Lawrence St., Baltimore 30, Md.
One of the smaller companies which specializes in quality and service and has many "firsts" in the container industry; first deliberately to put alumina in milk-bottle glass; first to introduce commercially the square Space-Saver milk bottle; makers of a general line of flint-glass bottles.
- Buffalo Pottery, Inc.** R. E. Gould
1456 Seneca St., Buffalo 10, N. Y.
Manufacturers of plain and decorated vitrified hotel china for institutional uses.
- Butcher, L. H., Co.**
3628 E. Olympic Blvd., Los Angeles 23, Calif.
Distributors of ceramic materials on the West Coast.
- Cambridge Glass Co.** W. L. Orme
Cambridge, Ohio
Manufacturers of a complete line of hand-made blown and pressed glassware of high quality and correct design; stemware, tableware, vases, candelabra, epergnes, and all wanted pieces; lines complete in deep plate etchings, rock crystal, gold encrustations, and plain ware; drug-gists', laboratory, and photographers' glassware.
- Carborundum Co.** H. C. Martin
Niagara Falls, N. Y.
Manufacturers of a complete line of abrasives, including grinding wheels, abrasive paper and cloth, grains, and powders under the trade marks Carborundum and Alloxite; superrefractories under a Frax trade mark; resistance and heating elements under the trade mark Globar.
- Carnegie-Illinois Steel Corp.** J. C. Eckel
922 Carnegie Bldg., Pittsburgh 30, Pa.
Manufacturers of a comprehensive line of steel products, including sheets, tin plate, structural shapes, plates, bars, rails, and special sections in a complete range of chemical compositions; produce a special sheet for the porcelain enameling industry, USS Vitrenamel, and stainless steels.
- Carr-Lowrey Glass Co.** Norman R. Beck
Baltimore 3, Md.
Manufacturers of flint containers and opal jars, machine- and hand-made, for cosmetics, perfumes, drugs, foods, and chemicals.
- Case, W. A., & Son Mfg. Co.** Willard G. Young
Robinson, Ill.
Manufacturers of a complete line of vitreous china plumbing fixtures.
- Central Silica Co.** E. C. Sawyer
Zanesville, Ohio
Producers of glass sand, enameling sand and flint, placing sand, and pottery flint.
- Ceramic Color & Chemical Mfg. Co.** W. F. Wenning
Box 297, New Brighton, Pa.
Manufacturers and distributors of colors, chemicals, and equipment for all branches of the ceramic industry; oxides, screening colors, clays, frits; glazes, stains, decorating colors; vitrifiable colors; decorating supplies; mill-room supplies; refiners and producers of cobalt and cadmium compounds.
- Champion Spark Plug Co., Ceramic Div.** Frank H. Riddle
8525 Butler Ave., Detroit 11, Mich.
The Ceramic Division makes the ceramic insulators for the spark plugs which are manufactured and sold by the Champion Spark Plug Co. in its plants in Toledo, Ohio, Windsor, Canada, and Feltham, England.
- Chattanooga Glass Co.** Joe G. Venable
Chattanooga 10, Tenn.
Manufacturers of glass jars, containers for soft drinks,
- plain, blown, let products in flint a
- Chicago Hardware**
Operators of ferr plant for enamelin iron; machine sho is engaged chiefly
- Chicago Pottery Co.** 1920-50
Manufacturers of fixtures consisting and tanks, founta plants, and instit china specialties.
- Chicago Retort & I** 208 S.
Largest independe producing a comp Missouri and Illin Anti-flux, Superio high-temperature c
- Chicago Vitreous E** 1407-47 S.
Manufacturers of cast iron; clays; new and existing sales representative McDanel porcelain International balls a complete line of p
- Chisholm, Boyd & V** 610 We
Manufacturers of b
- Claycraft Company** Box
Manufacturers of st including ceramic g gray, and red face l and operate five lar
- Colonial Insulator C** 973 G
Manufacturers of s forms for dipped ru plates.
- Columbia Fire Brick** First Natio
Manufacturers of C firebrick at plant in
- Commercial Decal, I** Box 75
Manufacturers and since 1902; overglaz and semivitreous war and enamelware; o signs.
- Commercialores, Inc.** 39 Cortlan
Producers of raw an -35, -48, -100, kyanite of 56 to 58%
- Companhia Paulista Mineracao** Caixa Postal
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Vol. 28, No. 8

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Chicago Hardware Foundry Co. Robert J. Young
North Chicago, Ill.

Operators of ferrous and nonferrous foundries; enamel plant for enameling in both wet and dry processes on cast iron; machine shop and plating facilities. This company is engaged chiefly in jobbing work.

Chicago Pottery Co. J. S. Clifford
1920-50 Clybourn Ave., Chicago 14, Ill.

Manufacturers of all types of vitreous china plumbing fixtures consisting of all types of lavatories, closet bowls and tanks, fountains, sinks, etc., for homes, industrial plants, and institutions; also various types of vitreous china specialties.

Chicago Retort & Fire Brick Co. C. S. Reed, Jr.
208 S. La Salle St., Chicago 4, Ill.

Largest independent refractory manufacturer in Illinois, producing a complete line of fire-clay refractories from Missouri and Illinois clays. Products include Gibraltar, Anti-flux, Superior, Sterling, and Ajax brick, plastics, high-temperature cements, castables, and clays.

Chicago Vitreous Enamel Product Co. William Hogenson
1407-47 South 55th Court, Cicero 50, Ill.

Manufacturers of porcelain enamel frits for steel and cast iron; clays; color oxides. Engineering service on new and existing porcelain enameling plants. Exclusive sales representatives to the porcelain enamel industry for McDaniel porcelain grinding balls and mill lining brick, International balls mills, Frantz Ferro Filters. Jobbers of a complete line of porcelain enamel shop supplies.

Chisholm, Boyd & White Co. B. T. Brennan
610 West 57th St., Chicago 21, Ill.
Manufacturers of brickmaking machinery.

Claycraft Company C. Forrest Tefft
Box 866, Columbus 16, Ohio

Manufacturers of structural and industrial clay products, including ceramic glazed and unglazed facing tile, buff, gray, and red face brick, acid brick, and floor brick; own and operate five large modern plants in Ohio.

Colonial Insulator Co. R. W. Hemphill
973 Grant St., Akron 11, Ohio.

Manufacturers of special electrical porcelain, porcelain forms for dipped rubber goods, and refractory tubes and plates.

Columbia Fire Brick Co. M. L. Hamaker
First National Bank Bldg., Canton 2, Ohio
Manufacturers of Columbia, No. 1 Savage, and Strasburg firebrick at plant in Strasburg, Ohio.

Commercial Decal, Inc. Alfred Dührssen
Box 759, East Liverpool, Ohio

Manufacturers and suppliers of ceramic decalcomania since 1902; overglaze and underglaze decal for chinaware and semivitreous ware; special decalcomania for glassware and enamelware; open-stock patterns and exclusive designs.

Commercialores, Inc. Henry S. Doty
39 Cortlandt St., New York 7, N. Y.

Producers of raw and calcined kyanite in grain sizes of -35, -48, -100, and -200 mesh. Refractory grade kyanite of 56 to 58% alumina and P.C.E. of 36-37.

Companhia Paulista de Mineracao Eduardo C. Simonsen
Caixa Postal 3008, São Paulo, Brazil, S. A.

Producers of raw materials for ceramic purposes.

(1949)

Compania Mexicana de Refractarios,
A. P. Green, S. A.

Av. Marina Nacional 200 Bis, Apartado Postal 266,
Mexico, D. F., Mexico

Manufacturers of high-heat duty and superduty firebrick, refractory mortars, plastic refractories, and castables.

Comptoir Tuilier du Nord Jean Delecourt
117, Rue Nationale, Marcq-en-Baroeul (Nord), France

Consolidated Feldspar Corp. M. J. McHugh, Jr.
1403 Trenton Trust Bldg., Trenton 8, N. J.

This company mines and grinds feldspar in several states for glass, pottery, porcelain enamel, and other ceramic products; also produces beryl, mica, amblygonite, lepidolite, and flint. The feldspar is produced by the customary mining and grinding methods and by the flotation process.

Consolidated Glass Works, Ltd. I. Donen
Pretoria and Germiston, South Africa

Manufacturers of a complete line of glass containers for the food, pharmaceutical, beverage, and liquor trades.

Consumers Glass Co., Ltd. E. J. Brunning
Second Ave., Ville St. Pierre, Quebec, Canada

Manufacturers of container glass; bottles, jars, tumblers, etc.

Coors Porcelain Co. H. W. Ryland
Golden, Colo.

Manufacturers of chemical and scientific porcelain; cooking and tableware; pyrometer and combustion tubes, and tubes for other high-temperature uses; electrical insulators with extreme resistance to electrical, mechanical, and thermal demands; special ceramic products. Trade mark Coors U.S.A.

Corhart Refractories Co., Inc. Frederick S. Thompson
1600 W. Lee St., Louisville 10, Ky.

This company manufactures and sells Electrocast refractories.

Corning Glass Works J. T. Littleton
Corning, N. Y.

Manufacturers of consumer and technical glass products, including ovenware, flamework, tumblers and tableware, lighting ware, lamp chimneys, laboratory and pharmaceutical ware, optical glass and color filters, gauge glasses, glass piping, thermometer tubing, signal ware, incandescent bulb blanks, exhaust tubing, neon tubing, fluorescent lamp tubing, radio insulators and tubes, and other electrical parts.

Corning Glass Works, E. A. Spencer
Charleroi Plant
Charleroi, Pa.

(See Corning Glass Works, above).

Crane Co., Chattanooga Div.
Chattanooga, Tenn.

Manufacturers of a wide range of porcelain enameled iron plumbing fixtures for use in homes, hospitals, schools, office buildings, and industrial plants, including sinks, bathtubs, lavatories, and special fixtures; also a complete line of boilers and radiators for steam and hot-water heating.

Cronin China Co. W. K. Cronin
Minerva, Ohio

Manufacturers of semiporcelain dinnerware, colored-glaze dinnerware, ovenware, and refrigerator ware.

Crooksville China Co. Henry J. Bennett
Crooksville, Ohio

Producers of a high-grade line of semivitreous dinnerware since 1902; now producing two complete shapes in Ivory Tone body with many decorations and treatments, and Gray-lure, a gray glaze embossed and decorated.

Crossley Machine Co.

William J. Harris
Trenton 9, N. J.
Manufacturers of a complete line of machinery for the making of general-ware pottery, sanitary pottery, electrical porcelain, high-tension insulators, crucibles, and floor and wall tile.

Crown Potteries Co.

J. P. Wendt
Evansville 7, Ind.
Manufacturers of high-quality semivitreous decorated ware in plain and embossed shapes; decorations follow authentic styling, using overlaid decalcomania; advantageously located for the trade in the South, Southwest, Central, and Central West States.

Crunden Martin Mfg. Co.

E. A. Schwartz
760 South 2nd St., St. Louis 2, Mo.
Manufacturers of enameled kitchen utensils, galvanized tubs, pails and cans, rubber fruit-jar rings, and various paper products.

Curran, Edward, Engineering, Ltd.

D. Ryan
Cardiff, Wales
Builders of furnaces, pickling and washing plants, heavy machinery; makers of enameled ware.

Davis Fire Brick Co.

D. D. Davis
Oak Hill, Ohio
Manufacturers of a complete line of all grades of fire-clay refractories in all shapes and sizes; also Sharon Brand silica brick manufactured by the hand mold and power press for open-hearth and electric furnaces, glass tanks, copper reverberatory furnaces, and coke ovens.

DeMuth Glass Works, Parkersburg Div.

H. A. Julian
Box 629, Parkersburg, W. Va.
Manufacturers of blown and pressed glassware and lamp tubing; also pressed ware to individual specifications.

Denison Engineering Co.

W. C. Denison, Jr.
1160 Dublin Rd., Columbus 16, Ohio
Manufacturers of oil-hydraulic power equipment; hydraulic presses, car propellers, pushers, including presses especially designed for ceramic industry as well as the Multipress in capacities to 35-ton self-contained units with interchangeable components for high production needs.

Denver Sewer Pipe & Clay Co.

W. J. Geddes
Box 2329, Denver 1, Colo.
Established in 1889, manufacturers of vitrified salt-glazed sewer pipe, wall coping and conduit, clay flue lining and fireproofing blocks, firebrick and special refractories, face brick, stiff-mud common brick, salt-glazed brick and hollow building tile, common structural clay tile, and structural face tile.

DeVilbiss Company

E. F. Frey
Toledo 1, Ohio
Engineers and manufacturers of complete spray finishing systems, specially designed for ceramic and porcelain plants, dry and water wash spray booths, automatic and hand-operated spray equipment and accessories, air compressors, hose and connections.

Diamond Alkali Co.

L. T. Welshans
Painesville, Ohio
Manufacturers of soda ash, caustic soda, bicarbonate of soda, liquid chlorine, carbon tetrachloride, silica of soda, bichromate of soda, and precipitated calcium carbonates for paint, rubber, and industrial purposes; specialty cleansers for the laundry, dairy, and bottling trades; refractory and light-calcined magnesia.

Dixon, Joseph, Crucible Co.

Warren A. Zimmer
Jersey City 3, N. J.
Producers of graphite products, including crucibles, reports, ladle stoppers, nozzles and sleeves, special refractory shapes, refractory cements; pencils and pencil leads; graphited paints and lubricants.

Dominion Minerals, Inc.

V. V. Kelsey
Piney River, Va.
Pioneer miners and refiners of apatite, a rock product consisting of silicates of aluminum, calcium, potassium, and

sodium; used as a source of alumina for glass; also used in the manufacture of porcelain enamels, welding rods, and grinding wheels.

Douglas, John, Co.

Krell Bosler
71st Street and B. & O. R.R., Cincinnati 16, Ohio
Manufacturers of vitreous china sanitary plumbing ware.

Drakenfeld, B. F., & Co., Inc.

Scott J. Courtney
45-47 Park Place, New York 7, N. Y.
Manufacturers of colors and coloring chemicals for glass, clayware, and porcelain enamels; decorating supplies; grinding and screening equipment.

Drammens Glassverk

Ragnar Tanberg
Drammen, Norway
Producers of 1,600,000 preserving jars and 1,500,000 sq.m. of window glass a year. Pressed and blown glass. Semi-automatic machinery for jars and Fourcault machines for window glass. Plant for wire glass production.

Duncan & Miller Glass Co.

James E. Duncan, 3rd
Washington, Pa.
Manufacturers of blown and pressed table glassware; blown tumblers and stemware; etchings; decorated novelties.

Du Pont, E. I., de Nemours & Co., Inc.

H. C. Kuchler
Electrochemicals Dept., Wilmington, Del.
Manufacturers of a complete line of ceramic colors, including body stains, glaze stains, overglaze and underglaze colors, oxides for porcelain enamels, acid- and alkali-resistant glass colors for use on glass tableware and containers; precious metal decorations. A technically trained service staff is available for assistance in the use of these products.

Eagle-Picher Co.

J. S. Nordyke
1501 Oliver Bldg., Pittsburgh 22, Pa.
Manufacturers of a complete line of lead and zinc products for the ceramic industry: litharge, red lead, lead silicate, Alsilo, basic carbonate white lead, and zinc oxides.

Eastman Kodak Co.

Rochester 4, N. Y.
Manufacturers of film, photographic plates, papers, chemicals; cameras, projectors, and accessories; mounts and albums; lenses, optical goods, Recordak units; cellulose acetate yarn and staple, plastics, chemicals; vitamin concentrates, high-vacuum apparatus.

Electric Auto-Lite Co., Spark Plug Div.

Robert Twells
Fostoria, Ohio
Manufacturers in twenty-eight plants of automotive and aviation equipment principally in the electrical, lighting, control, protection, and ornamentation fields. The Spark Plug Division makes principally automotive and aviation spark plugs, fabricating and assembling all components. The Ceramic Department has six tunnel kilns and four decorating kilns. Canadian spark-plug plant, Sarnia, Ont.

Electro Refractories & Alloys Corp.

Grant S. Diamond
344 Delaware Ave., Buffalo 2, N. Y.
Manufacturers of Electrocarb silicon carbide grain; Kellogg silicon carbide slabs, posts, setters, muffles and other special refractories; Tercod melting crucibles; special high temperature refractory cements and ramming mixtures; stopperheads for steel ladles; resinoid grinding wheels and additive nonferrous alloys.

English China Clays Sales Corp.

D. E. Milne
551 Fifth Ave., New York 17, N. Y.
Importers and distributors of English clays for the pottery industry.

Erie Resistor Corp.

Byron B. Minnium
644 West 12th St., Erie, Pa.
Manufacturers of carbon-composition resistors and radio

interference suppressors, capacitors, and molded navigation, communication.

Eureka Flint & Spar Co.

190 W. St.
Suppliers of Eureka g
American sand flint,
sand.

Evans Lead Corp.

Box 1467
Manufacturers of all t
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Exolon Company

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Manufacturers of sil
aluminum oxide (Exo
and fused aluminum
ground form, graded t
industries.

**Fabrica de Ladrillos I
triales y Refractorio**

Apartado 390
Manufacturers of fire-
brick, all standard an
cast refractories and
names Flir and Silica.

Fabrica de Porcelana

Largo da Biblioteca
A 125-year-old manu
tableware, now also
brand name VA. B
ceramica, making insu
Ltd., making tablewa

Fairfacts Company, Inc.

Box 3
Manufacturers of a l
consisting of soap hold
paper holders, towel b

Federal Glass Co.

515 E. Innis
Producers of glasswa
including tumblers, tal
and lighting ware in a
cal characteristics.

Federal Seaboard Ter

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Manufacturers of End
swimming pool overfl
Factories at Perth Am

Ferro Enamel Corp.

4150 East 56
Manufacturers of Ferr
on metal products; Fer
and other enameling
of porcelain enameling
Allied Engineering Div
pottery and clayware

Ferro Enamels (Aust.)

27 Bourke Rd.,
Enamel Division: M
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Ferro Engineering Co.

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Vol. 28, No. 8

interference suppressors, mica and ceramic dielectric capacitors, and molded plastic parts; all for use in radar, navigation, communication, and similar electronic equipment.

Eureka Flint & Spar Co., Inc. Herreld D. Thropp
190 W. State St., Trenton 8, N. J.

Suppliers of Eureka glaze feldspar, Eureka body feldspar, American sand flint, English Cornwall stone, and placing sand.

Evans Lead Corp. R. M. Evans
Box 1467, Charleston 25, W. Va.

Manufacturers of all types of red lead and litharge, fritted lead bisilicate, fritted lead monosilicate, and 300-mesh lead monosilicate. Detailed information on these products is available.

Exolon Company William A. Harty
Tonawanda, N. Y.

Manufacturers of silicon carbide (Carbolon) and fused aluminum oxide (Exolon) abrasives; also silicon carbide and fused aluminum oxide refractories in crude and ground form, graded to the requirements of the consuming industries.

Fabrica de Ladrillos Industriales y Refractarios, S.A. Salvador Odriozola Gomez
Apartado 390, Monterrey, N.L., Mexico

Manufacturers of fire-clay brick, high heat-duty and silica brick, all standard and special shapes, refractory mortars, cast refractories and insulating brick, under the brand names Flir and Silica.

Fabrica de Porcelana da Vista Alegre Lda.
Largo da Biblioteca Publica No. 17, Lisbon, Portugal
A 125-year-old manufacturer of fine porcelain art and tableware, now also making porcelain insulators, under brand name VA. Branch firms are Empresa Electroceramica, making insulators, and Sociedade de Porcelanas, Ltd., making tableware and low-voltage insulators.

Fairfacts Company, Inc. M. P. Mitchell
Box 374, Trenton 3, N. J.

Manufacturers of a line of china bathroom accessories, consisting of soap holders, toothbrush and tumbler holders, paper holders, towel bars, etc.

Federal Glass Co. Henry H. Blau
515 E. Innis Ave., Columbus 7, Ohio

Producers of glassware for domestic and hospital uses, including tumblers, tableware and kitchenware, stemware, and lighting ware in a variety of shapes, colors, and physical characteristics.

Federal Seaboard Terra Cotta Corp. O. E. Mathiasen
Perth Amboy, N. J.

Manufacturers of Enduro-Ashlar architectural terra cotta, swimming pool overflow rims, and ceramic specialties. Factories at Perth Amboy and South Amboy, N. J.

Ferro Enamel Corp. R. A. Weaver
4150 East 56th St., Cleveland 5, Ohio

Manufacturers of Ferro frits for porcelain enamel finishes on metal products; Ferro color oxides to be used with frits, and other enameling materials. Designers and installers of porcelain enameling furnaces and plant layouts. The Allied Engineering Division offers the same services in the pottery and clayware fields.

Ferro Enamels (Aust.) Pty. Ltd. R. M. Mueller
27 Bourke Rd., Alexandria, N.S.W., Australia

Enamel Division: Manufacturers of vitreous enamels, color oxides, opacifiers, alkali cleaner, and enameling equipment. Pottery Supplies Division: Manufacturers of pottery clays, casting slip, glazes, overglazes, stains, etc.

Ferro Engineering Co. Walter M. Charman
1208 Hanna Bldg., Cleveland 15, Ohio

This company sells and services the C&D Hot Top and (1949)

advises on steel ingot and ingot handling problems. The C&D Hot Top increases yields, safeguards quality, cuts costs, and systematizes and modernizes operations.

Fiberglas Canada, Ltd.
Oshawa, Ontario, Canada

Fiberglas is glass in fiber form used as insulating material for all types of electrical, industrial, and construction uses, as well as in original equipment.

Findlay Clay Products Co. John L. Leech
Washington, Pa.

Manufacturers of vacuum cast tank blocks, refractories, and glassmelting pots usually high in silica; high-alumina refractories including sillimanite; specialists in complicated and large shapes.

Fletcher Enamel Co. J. Carroll Fletcher
Dunbar, W. Va.

Manufacturers of a complete line of porcelain enameled kitchenware.

Foote Mineral Co. H. C. Meyer
Eighteen West Cheltenham Bldg., Philadelphia 44, Pa.

Manufacturers of lithium, strontium, and tungsten chemicals. Processors of beryllium, lithium, manganese, titanium, and zirconium minerals; also chromite, natural iron oxides, ground glass, and pyrites.

Fords Porcelain Works I. A. Hansen
Perth Amboy, N. J.

Manufacturers in porcelain of kitchen sinks, laundry trays, urinal stalls, bathtubs, and like items; in vitreous china of toilet bowls and tanks, lavatories, and urinal stalls.

Foster-Forbes Glass Co. F. R. Motsch
Marion, Ind.

This company and its predecessor companies since 18 have specialized in the manufacture of quality containers in flint glass only. The major lines are toilets, cosmetics, prescription foods, catsup, liquor, wines, beers, and beverages.

Fostoria Glass Co. W. F. Curtis
Moundsville, W. Va.

Manufacturers of handmade blown and pressed tableware and decorative glassware. Distribution is made through selected retailers in all principal cities and towns.

Franklin Glass Corp. A. L. Pasquier
Box 150, Butler, Pa.

Manufacturers of polished plate glass of largest sizes, bent glass in all sizes, structural and colored plate glass, and ground and polished spectacle glass.

Frantz, S. G. Co., Inc. S. G. Frantz
161 Grand St., New York 13, N. Y.

Producers of FerroFilter magnetic separators for removing iron particles from slips, glazes, and powdered clays; vibrator types for non-free-flowing materials.

Frazier-Simplex Inc. C. J. Frazier
436 E. Beau St., Washington, Pa.

Contracting and consulting engineers to the glass industry offering plantwide service including window, plate, container, tubing and sodium silicate plants; will design, furnish, and erect complete glassmaking operations and modernize existing plants. Simplex lehrs, blanket batch chargers, adjustable shadow walls.

French Saxon China Co. W. V. Oliver
Sebring, Ohio

Manufacturers of dinnerware for home use in three exclusive shapes and a variety of decorations.

Funkhouser Company E. H. Nichols
138 W. Washington St., Hagerstown, Md.

Miners and manufacturers of natural slate and stone roofing granules, treated at high temperatures with fluxing materials, frits, glazes, and coloring oxides to produce more intense colors, for use in surfacing composition roofing.

Garco Products, Inc. N. S. Garbisch
Box 351, Butler, Pa.
Manufacturers of Garspar, an intimate mixture of chemically and mechanically processed pulverized silica and glass for use in vitreous and semivitreous ware, and Garsand, a specially formed siliceous product designed for use in all types of glass batches.

Garfield Refractories Co. Kenneth A. Rugh
Bolivar, Pa.
Manufacturers of Garfield, IXL, and Walbro firebrick; Corstex superduty firebrick; and Balgar 50% alumina and Balgar 60% alumina refractories.

General Ceramics and Steatite Corp. R. W. Ferguson
Keasbey, N. J.
Manufacturers of electrical and industrial ceramics, steatite high- and low-tension porcelains, titanates, and ferrites (Ferramic), electrical refractories, solder seal and Sealex bushings. Tool and die shop facilities. Chemical stoneware and porcelain process equipment; pumps, pipe, fittings, towers, and vessels. Facilities for jiggering, casting, extruding, and pressing; research laboratory and service engineering department.

General Color & Chemical Co., Inc. Harry J. Keener
Box 7, Minerva, Ohio
Manufacturers of a complete line of colors, frits, and chemicals for ceramic processes; consultant engineers.

General Electric Co., Pitney Glass Works W. S. Kahlson
1133 East 152nd St., Cleveland, Ohio
Manufacturers of glass bulbs, clear and inside frosted for incandescent lamps and electronic tubes. Other G.E. plants at Cleveland, Niles, Bucyrus and Logan, Ohio, Bridgeville, Pa., Jackson, Miss., and Lexington, Ky., manufacture tubing for lamp and tube parts, lumiline and fluorescent lamps, glass parts for sealed-beam lamps, opaque and clear quartz tubing and cane.

General Glass Equipment Co. Victor A. Plumbo
5 S. Virginia Ave., Atlantic City, N. J.
Complete glass plant installations for bottles, tableware, and window glass. Oil- or gas-fired furnaces; annealing and decorating lehrs; automatic lehr loaders and batch chargers; forming and pressing machines; refractory materials; glass fiber drawing machines.

General Refractories Co. Russell P. Heuer
1520 Locust St., Philadelphia 2, Pa.
Manufacturers of refractories with twenty-three plants operating in ten states; products include fire-clay, silica, magnesite, and chrome brick and acid, neutral, and basic bulk refractories; offices in all large cities.

George, W. S., Pottery Co. W. C. George
East Palestine, Ohio
Manufacturers of plain and fancy dinnerware in white, canarytone, and colored glazes; monogram sets with black and blue initials. Plants in East Palestine, Ohio, and Canonsburg, Pa.

Georgia Kaolin Co. Wharton Jackson
433 N. Broad St., Elizabeth 3, N. J.
Producers of china clays for the ceramic industry since 1901 at Dry Branch, Ga. Pioneer—plastic, high green strength, excellent workability. Velvacast—controlled particle size, fast casting. Both are white-firing clays, available water washed and airfloated.

Gillinder Brothers, Inc. J. Fletcher Gillinder
Port Jervis, N. Y.
Manufacturers of all glass forms designed to collect, distribute, direct, refract, reflect, and/or diffuse light from any electrical source; instrument covers; kitchen mixing sets; specialties of crystal, opal, translucent, and colored glassware; during the war, spectrophotometrically controlled colored glass.

Gladding, McBean & Co., Inc. W. O. Brandt
2901 Los Feliz Blvd., Los Angeles 26, Calif.
Manufacturers of Franciscan china and earthenware, Hermosa wall and floor tile, roof tile, face brick, ceramic veneer, sewer pipe, and refractories. Ten plants.

Glen-Gery Shale Brick Corp. Gordon E. Lewis
Reading, Pa.
Manufacturers of wire-cut face brick and colonial brick in eight plants in eastern Pennsylvania. A wide variety of textures and colors are produced at the rate of 144,000,000 brick a year. The company's slogan is "One Hundred to One Million Quick."

Glenshaw Glass Co., Inc. George W. Meyer
Glenshaw, Pa.
Manufacturers of glass containers for beer, liquors, and wines; packers; preservers; narrow-neck and wide-mouth bottles.

Globe Brick Co. S. C. Porter
East Liverpool, Ohio
Manufacturers of firebrick, ladle brick, and producers of fire clay.

Graff-Kittanning Clay Products Co. John G. Frantz
Worthington, Pa.
Manufacturers of vitrified clay pipe, flue lining, wall coping, and clay products; owners of the Worthington Ceramics Co., Worthington, Pa., manufacturers of drain tile and hollow tile; a member of the Clay Sewer Pipe Association.

Grand Enameling Co., Div. of Grand Industries, Inc. V. J. Cichowski
2335 E. 67th St., Cleveland 4, Ohio
Vitreous enameling of both sheet steel and cast iron. Producers of flatware for stoves and kitchen cabinets, incinerator parts, washing machine tubs, sinks, refrigerator flatware, space heaters, reflectors, transformer cases, building materials such as shingles, siding, etc., and hollow-ware items. Parent company produces Grand gas ranges.

Great Lakes Foundry Sand Co. C. L. Cruikshank
720 United Artists Bldg., Detroit 26, Mich.
Exclusive sales agents for the American Nepheline Corporation, miners and processors of Lakefield nepheline syenite, used as a flux in pottery or as a source of aluminum oxide in glass and enamel. Other products include placing sand, fire clay, flint, bentonite, and prepared low-temperature bodies.

Great Lakes Steel Corp. Conrad W. Given
Ecorse, Detroit 18, Mich.
A division of the National Steel Corporation, makers of Michigan Metal, widely used in many products as a base for porcelain enamel.

Green, A. P., Fire Brick Co. R. S. Bradley
Research Dept., Mexico, Mo.
Manufacturers of a complete line of fire-clay brick, including high alumina, super duty, high heat duty, and intermediate duty; refractory specialties including mortars, plastics, castables, coatings, and industrial insulation; also insulating firebrick.

Haeger Potteries, Inc. E. H. Haeger
Dundee, Ill.
Manufacturers of a line of flower bowls, vases, fruit bowls, and figurines; a large number of planter items for florist use; war work equipping barracks and officers' quarters.

Hall China Co. M. W. Thompson
East Liverpool, Ohio
Manufacturers of a complete line of plain and decorated teapots, casseroles, bowl sets, and other cooking and serving porcelain articles; also a small line of decorated semivitreous dinnerware and soda-fountain jars.

Hampden Grinding W.
118 Fisk A
Incorporated in 1886
Corundum Wheel Co.
factory of grinding wh
industry.

Hancock Brick & Tile
Box
Manufacturers of com

Hanley Company
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Operators of modern
and Lewis Run, Pa.,
brick and face tile;
quarry tile, floor brick

Hanovia Chemical &
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Producers of bright
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also ceramic precious
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Harbison-Walker Ref
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Producers of fire-clay
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brick, insulating fireb
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mortars, ramming mix

Hardinge Co., Inc.

Manufacturers of co
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and silica refractories

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M. W. Thompson
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Vol. 28, No. 8

Hampden Grinding Wheel Co. G. S. Emerson
118 Fisk Ave., Springfield 7, Mass.
Incorporated in 1886 under the name of the Hampden
Corundum Wheel Company; now specialists in the manu-
facture of grinding wheels used largely in the heavy goods
industry.

Hancock Brick & Tile Co. J. Leo Child
Box 59, Findlay, Ohio
Manufacturers of common brick and drain tile.

Hanley Company Charles E. Bates
Summerville, Pa.
Operators of modern tunnel kiln plants at Summerville
and Lewis Run, Pa., producing buff, gray, and red face
brick and face tile; glazed brick and face tile; vitreous
quarry tile, floor brick and acid brick.

Hanovia Chemical & Mfg. Co. W. Riehl
1 W. Central Ave., East Newark, N. J.
Producers of bright and burnished gold, platinum, pal-
ladium, and silver in liquid, paste, and powder form and
luster colors and stains for decorating pottery and glass;
also ceramic precious metal coatings for current-carrying
purposes and hermetic sealing.

Harbison-Walker Refractories Co. W. F. Rochow
1800 Farmers Bank Bldg., Pittsburgh 22, Pa.
Producers of fire-clay, superduty fire-clay, high-alumina,
silica, magnesite, chrome, and forsterite brick, acidproof
brick, insulating firebrick and bulk insulation, fire clays,
silica clays, special furnace chrome, furnace magnesite,
dead-burned grain magnesite, high-temperature bonding
mortars, ramming mixtures, plastic firebrick, and castables.

Hardinge Co., Inc. Harlowe Hardinge
York, Pa.
Manufacturers of conical or cylindrical ball or pebble
mills; tube, rod, batch, ball, and pebble mills; rotary
driers; rotary kilns; air classifiers for ball and pebble
mills; wet classifiers; agitators; thickeners; constant-
weight feeders; scrubbers; rotary tubular conveyors;
diaphragm sludge pumps; automatic backwash sand fil-
ters; circular and rectangular clarifiers; automatic
centrifugal clutches; automatic samplers; and Electric
Ear for automatic mill-feed control.

Harker Pottery Co. Robert E. Boyce
East Liverpool, Ohio
Continuously in business since 1840, this company now
produces decorated dinnerware, ovenware, and juvenile
goods at its plant located at Chester, W. Va.

Harshaw Chemical Co. John W. Iliff
1945 East 97th St., Cleveland 6, Ohio
Producers and distributors of chemicals and colors for all
branches of the ceramic industry.

Hartford-Empire Co. F. Goodwin Smith
Box 1620, Hartford 2, Conn.
Better glassware at lower cost is achieved through this
company's services and equipment, which include glass
plant engineering, glass technology, batch chargers, glass-
melting furnaces, feeders, forming machines, stackers,
annealing lehrs, decorating lehrs and driers, inspection
devices, and mold engineering.

Haviland, Theodore, & Co., Inc. Theodore Haviland II
26 West 23rd St., New York 10, N. Y.
Manufacturers and distributors of fine china dinnerware.

Haws Refractories Company E. E. Slick, Jr.
407 Main St., Johnstown, Pa.
Manufacturers of firebrick, foundry refractories, hot tops,
and silica refractories.

Hazel-Atlas Glass Co. Francis C. Flint
Wheeling, W. Va.
Manufacturers of packers', preservers', and druggists'
ware, fruit jars and caps, jelly glasses, tableware, tumblers,
decorated ware, and metal closures.

(1949)

Heisey, A. H., & Co. T. Clarence Heisey
Newark, Ohio
Manufacturers of Hand-Wrought Diamond-H Crystal,
hand-blown and hand-cast stemware and tumblers; rock
crystal stemware; etched ware, fine table glassware,
candlesticks, candelabras and figurines; all-glass cocktail
shakers; quality glassware for hotels, restaurants, institu-
tions; everything for table and home.

Higman, John W., Co. Robert J. Stone
24 State St., New York 4, N. Y.
Importers of English china clays and English ball clays
for all branches of the ceramic and paper industries.
Manufacturers of Superundum silicon carbide and Oxalum
aluminum oxide for the refractory and abrasive industries;
also Hitex grinding cubes and mill-lining blocks. Im-
porters of Danish flint grinding pebbles and Belgian and
Swedish silex lining blocks.

Hommel, O., Co. E. M. Hommel
209 4th Ave., Pittsburgh 30, Pa.
Makers of ceramic colors for art pottery, china, and tile;
body and glaze stains; colors for glass (acid-, alkali-, and
sulfide-resisting); liquid bright gold and burnish gold;
porcelain enamel frit, coloring oxides and clays; chemicals
for glasshouses and potteries; pebble grinding mills, por-
celain balls, and brick; aluminum, bronze and other metal
powders. Service staff available.

Houze, L. J., Convex Glass Co. Armand L. Houze, Sr.
Point Marion, Pa.
Manufacturers of microquille and coquille goggle lenses
and bent blanks; microscopic cover glass; welding glass;
flashed sheet glass for X-ray and radar equipment; colored
sheet glass for filters and signal equipment; aviation com-
pass bowls and Mirror blanks; Fresnel lenses; pressed-
glass specialties; lamp parts; and convex glass shapes.

Hufford Machine Works, Inc. J. A. Helget
207 N. Broadway, Redondo Beach, Calif.
Manufacturers of hydraulic automatic and manually
operated tile presses ranging in size from 10- to 165-ton
capacity.

Hull, A. E., Pottery Co., Inc. Gerald F. Watts
Crooksville, Ohio
Producers of nationally advertised art pottery and kitchen-
ware in the medium- and low-priced field. Ware is avail-
able for delivery on a 30- to 45-day basis.

Humphreys Mfg. Co. W. G. Moore
201 E. Fifth St., Mansfield, Ohio
Manufacturers of sanitaryware.

Illinois Clay Products Co. Otis L. Jones
214 Barber Bldg., Joliet, Ill.
Producers of Goose Lake plastic fire clays and firebrick
and Therm-O-Flake high-temperature insulation products;
specialists in bond clays for foundry requirements.

Imperial Glass Corp. C. J. Uhrmann
Bellaire, Ohio
Established in 1903, this company manufactures the
nationally famous Handmade Candlewick and Cape Cod
crystal tableware; continuous, day-tank, and pot melting;
650 employees; nationwide and export trade.

Indiana Glass Co. Charles L. Gaunt
Dunkirk, Ind.
Makers of a line of machine- and hand-made tableware
and lenses, including ruby automobile lenses and spot-
lights; hand-made tableware, soda fountain, and barware;
vaporproof globes, refrigerator trays, and mixing bowls.
Specialists in special mould work.

Industrial Ceramic Products, Inc. W. E. Cramer
965 W. Fifth Ave., Columbus 12, Ohio
Manufacturers of refractory specialties, pin stilts, and cone
plaques. Pins are made by a new improved patented
process insuring proper contact points. Pins packed in
cartons or barrels.

Industrias Reunidas F. Matarazzo S.A. F. Matarazzo
Brazil Export Corp., 50 Broadway, New York 4, N. Y.
Manufacturers of semivitreous dinnerware, wall tile, sanitaryware, mosaic paving tile, and anti-acid stoneware under the trade mark I.R.F.M. Two factories equipped with tunnel kilns and automatic machinery.

Institut du Verre Bernard Long
34 rue Michel-Ange, Paris (16^e) France
Society devoted to the Glass Industry and having three main activities: research, control, and documentation. The Information Center publishes the review *Verres et Refractaires* containing original papers and abstracts of French and foreign papers.

International Clay Machinery Co. R. H. McElroy
1145 Bolander Ave., Dayton 1, Ohio
Manufactures of Vac-Aire pottery pug mills and heavy clay product extrusion machines; laboratory Vac-Aire experimental machines; complete clayworking equipment for brick, tile, and pottery, including kiln cars.

Ironton Fire Brick Co. E. F. Myers
1112 Graham Building, P. O. Box 4728, Jacksonville 1, Fla.
This company has served the metallurgical, chemical, power plant, coke, and glass industries, as well as a number of railroads, for more than 32 years with high-quality Kentucky clay refractories; also refractory cements, plastic refractories, and siliceous ramming refractories; general offices, Ironton, Ohio.

Jackson Vitrified China Co. Philip R. Distillator
Falls Creek, Pa.
Manufacturers of dinnerware in sets and open stock for home use, using the trade name Royal Jackson, and hotel and institutional ware under the brand names Jackson and Jactan.

Johns-Manville Sales Corp. J. C. Crawford, Jr.
22 East 40th St., New York 16, N. Y.
Producers of insulating firebrick, refractory products, insulating blocks, and pipe covering; other insulating materials for all temperatures and service conditions; building materials; packings; friction materials; Transite pipe; fillers, and filter aids. Services of contracting organizations are available to apply insulation.

Jones Metal Products Co. Frank E. Jones
West Lafayette, Ohio
Manufacturers of porcelain on steel enameled hospital and surgical ware and industrial lighting reflectors and flood lights.

Jova Brick Works J. L. Jova
Roseton, N. Y.
Producers of common brick.

Kentucky Clay Mining Co. W. J. Watkins
Mayfield, Ky.
Suppliers for the past 30 years of ball clays, sagger clays, and wad clays to leading plants in the United States, Canada and Mexico; ceramic engineer available for consultation.

Kentucky-Tennessee Clay Co., Inc. R. C. Meeker
807 City Savings Bldg., Alliance, Ohio
Miners and shippers of ball, sagger, wad, enamel, and plastic fire clays; numerous grades are produced from mines in West Kentucky, West Tennessee, and Mississippi; available in lump, disintegrated, and air-floated form.

Kimble Glass Division, Owens-Illinois Glass Co. H. R. Black
2626 Dorr St., Toledo, Ohio

Kimble Glass Division, Owens-Illinois Glass Co. Kenneth M. Henry
Vineland, N. J.
Manufacturers of glass containers for chemical dairy,

clinical, and pharmaceutical use; laboratory glassware; rods; tubing.

Knight, Maurice A. M. A. Knight, Jr.
Box 111, Akron 9, Ohio
Manufacturers of acid- and alkali-proof chemical equipment; full line of chemical stoneware items such as piping, valves, towers, and large acid jars; functional equipment for specific uses such as acid absorbers, gas coolers, and washers, pickling tanks, and complete acid plants; also make several types of synthetic resins, paints, and cements for corrosive service. Brand names: Knight-Ware, Pyroflex, Permanite, Sealon.

Knowles, Edwin M., China Co. J. W. Hepplewhite
Newell, W. Va.
Manufacturers of semivitreous dinnerware and cooking ware in four different shapes, both in white and colored glazes and decorated patterns; cooking ware is known as Knowles Utility Ware.

Knox Glass Associates, Inc. R. R. Underwood
Knox, Pa.
Suppliers of glass containers in amber and flint glass in all sizes up to and including gallons; affiliated manufacturing plants are located at Knox, Marienville, Oil City, Parkers Landing, Sheffield, and Pittsburgh, Pa.; Lincoln, Ill.; Jackson, Miss.; Denver, Colo.; and Palestine, Tex.

Knox Glass Bottle Co. R. K. Webb
Knox, Pa.
Manufacturers of a general line of glass containers in the Knox organization.

Kohler Company Carl J. Kohler
Kohler, Wis.
Manufacturers of cast-iron plumbing ware, vitreous china plumbing ware, closet seats, brass plumbing fittings, and electric generating sets.

Kolene Corporation J. H. Shoemaker
3105 E. Grand Blvd., Room 217, Detroit 2, Mich.
Suppliers of a process for preparing ferrous metals for applying ceramic coatings; one process for rolled stock, another for scaled, rusted, or cast stock; fewer operations and less space are required than for conventional cleaning operations.

Kopp Glass, Inc. C. E. Leberknight
Box 8255, Swissvale, Pittsburgh 18, Pa.
Producers of hand-pressed and blown ware to customer specifications; glass for railroad, traffic, and military signaling devices; heat-resisting and colored glassware for floodlighting and airplane and airport equipment; visible absorbing ultraviolet and infrared transmitting glasses; special items for stage and display lighting.

Koppers Co., Inc., Research Dept. Karl D. Ulmer
Koppers Bldg., Pittsburgh 19, Pa.
Designers, builders, and operators of by-product-coke, gas, chemical, iron, and steel plants; producers of pig iron, coke, coal chemicals, including tar products and numerous derivatives; plastics; wood preservative; poles, ties, other timber products; heavy machine-work; piston rings; airplane propellers.

Kraftile Company C. W. Kraft
Niles, Calif.
Manufacturers of structural clay products and acid brick; largest producers of glazed structural wall units in the West; headquarters for acid-proof floor and tank installations engineered to fit the job; distributors of special construction products

Kyanite Mining Corp. Gene Dixon
Cullen, Va.
Producers, for general sale, of kyanite and mullite in -35, -48, -100, and -200-mesh grain sizes. Kyanite is recovered by flotation from quartz-kyanite schists. Mullite is produced by calcination of the raw kyanite.

Laboratorio Químico M. Apart

Laclede-Christ 1711 An
Founded in 1811
fire-clay refractory glass house specialties, and

Lapp Insulators
Manufacturers of transmission, complete associated ceramics and tended applica

Latchford Mar Box 4707,
Manufacturers from 4-oz. to green, and am

Laughlin, Hor
Manufacturers ware in colored ware; eggshell dinnerware line

Lee Clay Pro
Manufacturers also firebrick clay for the n clay for firebr

Libbey-Owens 170
One of the wo cluding Therm glass, Tuf-flex, absorbing, bul safety glasses.

Locke, Inc.
Manufacturers trical, thermal power insulat radio and elect insulators; ch linings; specia

Logan Clay Pr
Manufacturers products.

Louisville Fire 4554
Manufacturers famous Carter located at Lou Ky.

Louthan Mfg.
Manufacturers celain as follow appliance porce parts; zircon setters.

Mansfield San
Manufacturers brass plumbing (1949)

Laboratorio Quimico Nacional Jorge Ancizar-Sordo
Ministerio de Minas y Petroleos
Apartado 2577, Bogotá, Colombia, S. A.

Laclede-Christy Co. W. W. Shipley
1711 Ambassador Building, St. Louis 1, Mo.
Founded in 1844, manufacturers of a complete line of fire-clay refractories, including firebrick, special shapes, glass house refractories, arch and wall tile, refractory specialties, and vitrified clay products.

Lapp Insulator Co., Inc. K. E. Stettinius
Le Roy, N. Y.
Manufacturers of Lapp vitreous porcelains for power transmission, radio, electronic, and chemical industries; complete associated assemblies; feldspathic and steatite ceramics and others especially compounded for the intended application.

Latchford Marble Glass Co. W. R. Bennett
Box 4707, Florence Branch, Los Angeles 1, Calif.
Manufacturers of glass jars and bottles for all purposes from 4-oz. to gallon capacity, inclusive; made in flint, green, and amber colors.

Laughlin, Homer, China Co. Joseph Wells
Newell, W. Va.
Manufacturers of Fiesta, Harlequin, Jubilee, and Riviera ware in colored glazes; decorated Kitchen Kraft cooking ware; eggshell semivitreous chinaware in the regular dinnerware lines.

Lee Clay Products Co., Inc. Martin S. Bowne
Clearfield, Ky.
Manufacturers of the usual line of sewer-pipe products; also firebrick and drain tile. Shippers of high-alumina clay for the manufacture of aluminum sulfate and flint clay for firebrick.

Libbey-Owens-Ford Glass Co. George B. Watkins
1701 East Broadway, Toledo, Ohio
One of the world's largest manufacturers of flat glass, including Thermopane insulating glass, Vitrolite structural glass, Tuf-flex or tempered glass, plate, window, heat-absorbing, bullet-resisting, and automobile and aircraft safety glasses.

Locke, Inc. E. M. Skipper
Box 57, Baltimore 3, Md.
Manufacturers and distributors of "clayamics" for electrical, thermal, mechanical, and chemical applications; power insulators, hardware, and associated materials; radio and electronic insulators; telephone and telegraph insulators; chemical porcelain and pipe; mill balls and linings; special "clayamic" bodies and designs.

Logan Clay Products Co. E. K. Sheffield
Logan, Ohio
Manufacturers of clay sewer pipe, flue lining, and kindred products.

Louisville Fire Brick Works, Inc. E. W. Ernst
4554 Louisville Ave., Louisville 9, Ky.
Manufacturers of a complete line of refractories using the famous Carter County, Ky., clays; producing plants located at Louisville, Ky., and Grahn, Carter County, Ky.

Louthan Mfg. Co. C. W. Gerster
East Liverpool, Ohio
Manufacturers of steatite, refractory, and electrical porcelain as follows: gas backwalls and radiants; electrical-appliance porcelain, steatite resistor tubes, steatite pressed parts; zircon porcelain; pins, stilts, firing racks, and setters.

Mansfield Sanitary Pottery, Inc. P. E. Draper
Perryville, Ohio
Manufacturers of Mansfield quality vitreous china and brass plumbing fixtures.

(1949)

Maryland Glass Corp. L. C. Roche
2147-53 Wicomico St., Baltimore 30, Md.
Manufacturers of blue and flint-glass containers for the perfume, pharmaceutical, and food-packing industries; all operations are fully automatic.

Mason City Brick & Tile Co. C. F. Garland
Mason City, Iowa
Manufacturers of structural clay tile, including smooth and textured face tile, backup, partition, and floor tile; radial chimney brick; common brick; face brick; 4 by 12-inch drain tile; silo block and staves, and mortar mix.

Maxson, Elwyn L. Elwyn L. Maxson
1208 Isabel Street, Burbank, Calif.
Distributors of pottery clays; ceramic colors; slabs, setters, and saggars; standard pyrometric cones; Frantz Ferro-Filters; Lakefield nepheline syenite.

McCoy, Nelson, Pottery Co. Nelson McCoy Melick
Roseville, Ohio
Manufacturers of popular-priced art pottery consisting of vases, jardinières, and flowerpots; several items of underglaze decoration. Also utility items such as cookie jars, pitchers, bean pots, pet feeders, teapots, and sugars and creamers.

McHose, L. H., Inc. M. M. McHose
Box 47, Perth Amboy, N. J.
For more than 100 years L. H. McHose, Inc. and the Such Clay Co. have produced crude, terra cotta, fire and sagger clays; special sagger mixture for high and low temperatures; pulverizing plant, laboratory service, and engineering department.

McKee Glass Co. Gerald Terrill
Jeannette, Pa.
Manufacturers of heat-resisting Glasbake, ovenware, Range-tec top-of-stove ware, Lumakee crystal and opal table and kitchenware and industrial ware. Machine and hand fabricating, decorating and special finishing facilities for standard and special mold work.

McLain Fire Brick Co. W. A. Turner
1239 Gulf Bldg., Pittsburgh 19, Pa.
Manufacturers of quality refractories. Specialists in pouring-pit refractories, including Dando dry-press and Champion wire-cut ladle brick, McLain refractory hot top sleeves, nozzles, runners, refractory ingot-mold plugs, and fire clay.

Metal & Thermit Corporation. George C. Betz
120 Broadway, New York 5, N. Y.
Manufacturers of a complete line of ceramic opacifiers, including sodium antimonate, antimony oxide, and zircon for enamels and tin oxide and Ultrox zirconium opacifier for use in ceramic glazes; laboratory staff available for consultation in the use of opacifiers.

Metalloy Corporation Walter M. Fenton
2560 Rand Tower, Minneapolis 2, Minn.
Specialists in lithium compounds. Several of these lithium compounds have been developed expressly for ceramic use, particularly in the field of low-temperature enamels and glazes. Such compounds as lithium manganite, cobaltite, silicate, and titanate were introduced by this company.

Mexico Refractories Co. C. A. Smith
Mexico, Mo.
Producers of a complete line of high-quality Missouri refractories: high-alumina, superduty, high heat-duty, and intermediate heat-duty firebrick; insulating firebrick; high-temperature bonding mortars, cements, castables, and coating materials; plastic firebrick; insulating firebrick cements; silica-base and chrome-base cements.

Mississippi Glass Co. R. D. Humphreys
200 Fifth Ave., New York 10, N. Y.
Manufacturers of plain and wired configured and corrugated glass, and heat-absorbing glass. Brand names are Mississippi, Misco, and Protex.

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Moler Products, Ltd., Hythe Works

Colchester, Essex, England

Manufacturers of a range of heat insulating bricks, slabs, aggregates and powders, suitable for temperatures up to 1350°C. Comprising Fosalsil, Diatomite products, Medial insulating refractories, and Super H. T.

Moore Enameling and Mfg. Co.

Walter B. Moore

West Lafayette, Ohio

Producers of Bettsy Ann porcelain enameled utensils. Hydraulically extruded, bottoms are several times heavier than sidewalls, and are left bare for high conductivity. Features of this line are covered by patents.

Moore & Munger

Murray Rushmore

33 Rector St., New York 6, N. Y.

Since 1892 importers of china clay from Cornwall, England, and ball clay from pits in Devonshire, produced largely by the same families.

Morton Pottery Co.

William Rapp

Morton, Ill.

Manufacturers of art pottery and decorative specialties.

Mosaic Tile Co.

R. E. Jordan

Zanesville, Ohio

Manufacturers of ceramic wall and floor tile for all architectural and decorative purposes. Line comprised of glazed wall tile, unglazed ceramic mosaics, Granitex, and faience.

Mount Clemens Pottery Co.

Charles E. Doll

Mount Clemens, Mich.

Dinnerware manufacturers.

Mullite Refractories Co.

Charles W. Fyfe

Shelton, Conn.

Manufacture superrefractories, special shapes, standard brick and cements of calcined kyanite, used by steel, glass, and allied industries where high softening point, good spalling resistance, and strength under load are required. Sold under trade name Shamva.

National Ceramic Company

J. A. Schermerhorn

500 Southard St., Trenton 2, N. J.

Manufacturers of steatite insulation, electrical porcelain, and small bathroom fixtures.

National Engineering Co.

E. A. Peterson

549 W. Washington Blvd., Chicago 6, Ill.

Manufacturers of the Simpson intensive mixer and auxiliary equipment. The Simpson mixer is a muller-type mixing device and is widely used in dry- and wet-mixing processes in every branch of the ceramic industry, particularly electrical porcelain, tile, pottery, and refractories.

National Fireproofing Corp.

R. A. Shipley

202 E. Ohio St., Pittsburgh 12, Pa.

Manufacturers of ceramic, salt, and unglazed facing tile, partitions, loadbearing wall, floor and back-up tile, flue lining, silo, bin and drain tile, underdrain blocks, sewer pipe, chimney blocks, face and common brick, flat arch and wide center floor tile, column and girder covering, clay conduit, raggle block, and filter tile. Also chemical tank tile and stove liners.

National Industrial Sand Assn.

V. P. Ahearn

1325 E Street, N. W., Washington 4, D. C.

A national association of the producers of sand for industrial purposes.

National Lead Company

Alexander Stewart

111 Broadway, New York 6, N. Y.

Producers of a full line of lead products for the ceramic industry; litharge, red lead, white lead, and lead silicate frits (monosilicate and bisilicate) for glass, raw glazes, and glaze and enamel frits.

National Lime and Stone Co.

L. G. Love

First National Bldg., Findlay, Ohio

Large producers at Carey, Ohio, of high-quality burned

dolomitic lime and raw dolomite for glass manufacturing and dolomitic hydrated lime for neutralizing acid wastes. Plants located on three railroads which provide excellent shipping facilities.

National Mortar & Supply Company

E. F. Kearins

1807 First National Bank Bldg., Pittsburgh 22, Pa.

Manufacturers, producers, and suppliers of dolomitic lime and limestone products to the industrial, construction, and agricultural fields. Specialists in a low-iron-content fluxing lime for the glassmaking industry.

National Refractories Co., Inc.

R. A. Hitchins

225 S. Fifteenth St., Philadelphia 2, Pa.

Manufacturers of fire-clay brick and specialty refractory products at a subsidiary, the Big Savage Refractories Corp., Frostburg, Md., and silica brick at Van Dyke, Pa. Sales agents for products of the Mexico Refractories Co. and other brick manufacturers.

National Research Corp.

Philip Godley

70 Memorial Drive, Cambridge, 42, Mass. Industrial research specialists; makers of high-vacuum equipment.

National Sales Corp.

Frank Koch

31-35 E. Thirteenth St., Cincinnati 10, Ohio

Manufacturers of filter press cloths for the ceramic and chemical industry; importers of french flint grinding pebbles; distributors of pulverized and lump Georgia kaolin, quartzite grinding cubes and mill liners, and bentonite.

National Sanitary Co., Division of

Erwin Sohn

Eljer Co.

Salem, Ohio

Producers of enameled cast-iron plumbing fixtures and brass goods.

Newbold General Refractories, Ltd.

26-30 Clarence St., Sydney, N.S.W., Australia

Chief products: silica, high alumina, kyanite, silicon carbide, chrome, magnesite, insulation refractories and cements; also assay ware and graphite crucibles. Works at Waratah, Port Kembla, Thirroul and Coniston, New South Wales, Australia.

New Castle Refractories Co.

R. W. Rowland

New Castle, Pa.

Manufacturers in six plants of a complete line of kiln furniture including saggers, tile setters, slabs, dish setters, etc.; hot tops, fire brick, insulating brick for industrial furnaces, and special refractories of silicon carbide, sillimanite, and mullite.

New Jersey Porcelain Co., Inc.

J. M. Gilfillan

New York Ave. and Plum St., Trenton 5, N. J.

Established in 1920, this company manufactures electrical porcelain specialties and bathroom accessories under the brand names Monarch and Champion in a modern plant with two oil-burning tunnel kilns.

Niles Fire Brick Co.

J. R. T. Clingan

165 E. Park Ave., Niles, Ohio

Established in 1872, this company makes silica brick from quartz, silica conglomerate and silica cements; high-heat duty fire-clay brick from Pennsylvania and Kentucky clays, and ground fire clays; blast furnace and stove linings.

North American Refractories Co.

E. M. Weinfurter

National City Bank Bldg., Cleveland 14, Ohio

Manufacturers of all types of fire-clay and silica refractories, including high-alumina and insulating firebrick; also a complete series of mortars, plastics, ramming mixes, castable refractories, and raw and calcined fire clay and ganister rock.

North Carolina Feldspar Corp.

W. F. Deneen

Erwin, Tenn.

Miners and grinders of feldspar for the ceramic industry either of the high-potash or the high-soda variety in any desired mesh; also serve glass plants with any mesh or quality, including flotation feldspar.

Northwestern Glass

5801 E. Ma

Manufacturers of a flint and amber glass purposes; two furna

Northwestern Terra

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Manufacturers of ar

Norton Company

Producers of grind manufacturers of pre bottle labeling ma special refractories f tory laboratory war processes involving :

Ohio Brass Co.

Manufacturers of w voltage transmission stations; porcelain e for electrical appa sulators for military

Ohio Clay Co.

Box 1

Manufacturers of co

Ohio Hydrate & Sup

Producers of dolomit 8- by 30-mesh, 16-hydrate and superfin by 30-mesh, 16- by carbonate.

Old Hickory Clay Co.

Box

Miners and shippers (and plastic fire clay; form according to s Ky.

Onondaga Pottery Co

1858 W. Fay

Manufacturers of Sy nonabsorbent ware u in decorated, plain-tir

Orefraction, Inc.

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Manufacturers of th ramic and electrical, 1 mesh, and 400 mesh in granular and miller of Orfrax refractory w mortars and casting sl

Orton, Edward, Jr., C

Foundation

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A testamentary trust cones in large and su Excess income from c laboratories of the Fo the benefit of the indu

Owens-Corning Fibery

Manufacturers of gla mineral wool, filter an for thermal and acou trical insulation, plas service fabrics. Hom in Newark, Ohio; Ash sas City, Kans.; Santa ark, Ohio, and Ashton,

(1949)

Northwestern Glass Company Edward S. Campbell
5801 E. Marginal Way, Seattle 4, Wash.
Manufacturers of a complete line of jars and bottles in flint and amber glass for foods, beverages, and general purposes; two furnaces.

Northwestern Terra Cotta Co. Burnette Purcell
1750 Wrightwood Ave., Chicago 14, Ill.
Manufacturers of architectural terra cotta.

Norton Company O. J. Whittemore, Jr.
Worcester 6, Mass.

Producers of grinding wheels and abrasive products; manufacturers of precision grinding and lapping machines, bottle labeling machines, ceramic surface plates, and special refractories for use at high temperatures; refractory laboratory ware and porous media for commercial processes involving aeration and filtration.

Ohio Brass Co. J. J. Taylor
Barberton, Ohio

Manufacturers of wet-ware porcelain insulators for high-voltage transmission lines, distribution lines, and substations; porcelain entrance bushings and switch insulators for electrical apparatus; radio and communication insulators for military use.

Ohio Clay Co. George W. Denison
Box 1776, Cleveland 5, Ohio
Manufacturers of common and facing brick.

Ohio Hydrate & Supply Co. A. H. Nieman
Woodville, Ohio
Producers of dolomitic lime in the following forms: lump, 8- by 30-mesh, 16-mesh, dust ground burnt regular hydrate and superfine hydrate; kiln dried dolomite, 10- by 30-mesh, 16- by 120-mesh, filler dust, and 300-mesh carbonate.

Old Hickory Clay Company L. F. Powell
Box 271, Paducah, Ky.
Miners and shippers of high-quality Kentucky ball, sagger, and plastic fire clays furnished in crude and air-floated form according to specifications. Mines near Mayfield, Ky.

Onondaga Pottery Co. R. H. Pass
1858 W. Fayette St., Syracuse 4, N. Y.
Manufacturers of Syracuse china, a thoroughly vitrified, nonabsorbent ware used in public eating places and homes, in decorated, plain-tinted, and white.

Orefraction, Inc. John F. Hunt
7425 Thomas Blvd., Pittsburgh 8, Pa.
Manufacturers of three grades of zircon, technical, ceramic and electrical, produced in granular, 140 mesh, 200 mesh, and 400 mesh sizes; alloy and welding rod rutile in granular and miller forms, and ceramic rutiles. Makers of Orfrax refractory washes, Orelectric cements, refractory mortars and casting slips. Purity grinding.

Orton, Edward, Jr., Ceramic Foundation J. L. Carruthers
1445 Summit St., Columbus 1, Ohio
A testamentary trust manufacturing standard pyrometric cones in large and small sizes from cone 022 to cone 42. Excess income from cone sales is used for research in the laboratories of the Foundation and in various schools for the benefit of the industry.

Owens-Corning Fiberglas Corp. A. C. Siefert
Newark, Ohio
Manufacturers of glass in fiber or filament form (glass mineral wool, filter and mat products, and glass textiles) for thermal and acoustical insulation, air filtration, electrical insulation, plastics reinforcement, and industrial service fabrics. Home office in Toledo, Ohio; factories in Newark, Ohio; Ashton, R. I.; Huntingdon, Pa.; Kansas City, Kans.; Santa Clara, Calif. Laboratories in Newark, Ohio, and Ashton, R. I.

(1949)

Owens-Illinois Glass Co. W. A. Mahaffy
601 36th Ave., Oakland 1, Calif.
Manufacturers of a complete line of glass containers.

Owens-Illinois Glass Co. E. W. Summers
General Engineering Dept., Alton, Ill.
Makers of Duraglas containers, wide and narrow mouth, for food products, pharmaceuticals, prescriptions, chemicals, proprietary items, milk, cosmetics, beverages, wine, and liquor; tumblers and crystal; structural block; Hemingray insulators; corrugated fiber containers; wood cases; metal and plastic closures; molded products.

Pacific Clay Products Roy Lacy
Box 145, Station A, Los Angeles 31, Calif.
Manufacturers of glazed floor and wall tile, sewer pipe, firebrick, fire clay, drain tile, stoneware, electrical conduit, ceramicweld clay pipe, hollow building tile, quarry tile, flue lining, chimney pipe, architectural terra cotta, and ceramic veneers.

Pacific Coast Borax Co. M. H. Pickard
51 Madison Ave., New York 10, N. Y.
Manufacturers and distributors of borax, boric acid, anhydrous borax, boric anhydride (anhydrous boric acid), sodium borate ore concentrates (anhydrous rasorite and rasorite special concentrates) for the glass and ceramic industries. Bulletins and technical service offered.

Paden City Pottery Co. Merrill C. Sondles
Paden City, West Virginia
Manufacturers of three lines of semivitreous dinnerware in sets and open stock: (1) Shenandoah Ware, underglaze decalcomania in brilliant, colorful floral decorations and four solid colored glazes; (2) Tu-tone ware, wide underglaze ivory shoulder and plain ivory, with gold lines, stamps, and floral border decalcomania; and (3) Trend Ware, square shape in solid colored glazes and floral decorations.

Page-Madden Co., Inc. Jesse F. Madden
76-96 Second St., Mineola, N. Y.
Manufacturers of whitewares, with facilities for dry-pressing, extruding, and casting. Superior porcelain, enamel guides, glass rods and syphons, glass pitons and dents; other supplies for the textile trade.

Paper Makers Importing Co., Inc. Charles Brian
Room 504, Drake Bldg., Easton, Pa. For 60 years importers of fine English china and ball clays.

Pass & Seymour, Inc. R. H. Pass
Solvay Station, Syracuse 9, N. Y.
Since 1890, manufacturers of electrical wiring devices consisting of switches, lamp sockets, power outlets, etc.; also of porcelain electrical fixtures and special electrical products made to customer needs; during the war developed and produced new types of land mines and fuses for the Ordnance Department; also produced for the Navy special electrical fittings for warships.

Pearson, E. J. & J., Ltd. C. W. Thomas
Stourbridge, England
Established in 1860 to manufacture fire-clay, silicious, and high-alumina refractories of every description for all types of industrial furnaces, by the casting, dry-press, stiff-plastic, pneumatic, and hand-molding processes. Five associated companies.

Pemco Corporation Richard Turk
5601 Eastern Ave., Baltimore 24, Md.
Manufacturers of porcelain enamel frits and clays; ceramic glaze frits; colors for enamels, glazes, glass, plastics, and paints; special chemicals for the industry; plant and laboratory layout and engineering service on request.

Pennsylvania Pulverizing Co. William J. Woods
Box 587, Lewistown, Pa.
Producers of flint which over the past forty years has become the standard of quality for American ceramic industries; plants located at Mapleton, Pa., Hancock, W. Va., and Newport, N. J.

Pennsylvania Salt Mfg. Co. R. S. Roeller
1000 Widener Bldg., Philadelphia 7, Pa.
Manufacturers of acids, pickling agents, acid and alkaline

cleaners, aluminum hydrate, calcined alumina, and Kryolith (from natural Greenland cryolite ore) for use in the ceramic industry.

Pettinos, George F., Inc. George F. Pettinos, Sr.
1206 Locust St., Philadelphia 7, Pa.

Pioneers in mining, importing, and refining of graphite; miners and producers of foundry sands, glass sands, industrial sands, filter and sandblast sands; foundry supplies; high-temperature cements and insulating cements; pulverized and crude clay; massive quartzite. Plants at Millville, Manumuskim, Grenloch, Mt. Holley, Williamstown Jct., and Penbryn, N. J., and Honey Brook and Spring City, Pa.

Pfandler Co. S. W. McCann
1000 West Ave., Rochester 3, N. Y.

Engineers and fabricators of corrosion-resistant process equipment, consisting of glass-lined steel, stainless steels, and other metal alloys, including clad materials.

Phoenix Brick Yard A. R. Campbell
1814 South Seventh Ave., Phoenix, Ariz.

Manufacturers of common and face brick, structural tile, and roof tile. All ware burned in a continuous tunnel kiln except common brick, which are burned in field kilns. Distributors in Arizona for Los Angeles Clay Products Co. and Kraftile Co.

Pierce Glass Company J. G. Bozzo
Port Allegany, Pa.

Manufacturers of glass containers for the food and drug trade, chemical and household products, and cosmetics and toiletries.

Pittsburgh Corning Corp. Walter D. Ford
Port Allegany, Pa.

Manufacturers of structural PC glass blocks of three basic sizes in fourteen different patterns. Also manufacturers of PC Foamglas, a purely inorganic, permanent, multicellular quality glass insulating material.

Pittsburgh Plate Glass Co. C. E. Fulton
Creighton, Pa.

Manufacturers and distributors of plate, window, and structural glass; a full line of paints and varnishes; heavy chemicals including soda ash, caustic soda, and chlorine; paint and industrial brushes; plastics, including the Selectron series of polyester resins and CR-39 Allymer.

Pittsburgh Plate Glass Co., R. W. Miller
Columbia Chemical Div.

Barberton, Ohio
Producers of Columbia soda ash, made to the most exacting standards, which is especially suitable for the preparation of frit; also alkalis; service to customers through offices in principal cities and distributors in every market area.

Polynesian Arts Hugh H. Gantt
Mayfield, Ky.

Manufacturers of unusual art pottery and fine chinaware.

Porcelain Metals Corp. P. B. McBride
Louisville 10, Ky.

Manufacturers of porcelain enameled stampings, metal parts, and shapes to order; deep drawn, formed, rolled or stamped to close tolerances; fabricated and welded assemblies; design, engineering, tooling service; other specified finishes and stainless steel shapes.

Porcelain Products, Inc. John G. Loy
Box 300, Findlay, Ohio

Manufacturers of a complete line of electrical porcelain insulators ranging from the smaller types for low-voltage house wiring to high-voltage insulators for power transmission; also a limited line of porcelain wiring devices.

Posey Iron Works, Inc. Frank A. Fix
Lancaster, Pa.

Manufacturers of Lancaster counter-current rapid batch

mixers and the Arnold-Creager and Martin line of brick-making machinery; plate and pipe work; refining equipment, asphalt plants, rotary kilns and driers, furnaces, industrial waste treatment plants and concrete forms. Fabricating, foundry, and machine-shop facilities.

Potters Supply Co. William W. Irwin
East Liverpool, Ohio

Manufacturers of kiln room supplies. Products: potters pins, stilts, spurs, and thimbles. Distributors of domestic whitening, bitstone, modeling clay.

Precision Grinding Wheel Co., Inc. Roland J. Clark
8301 Torresdale Ave., Philadelphia 36, Pa.

Established in 1920 to manufacture a complete line of vitrified and organic bonded abrasive products, of outstanding quality of performance, such as high-speed snagging wheels, and "cavity clearance" wheels for tungsten carbide tools.

Promat Division, Poor & Co. A. E. Chester
851 S. Market St., Waukegan, Ill.

Ceramic and electrometallurgical research.

Puerto Rico Clay Products Corp. David S. Ramirez
Box 2672, San Juan, Puerto Rico

Manufacturers of vitreous china sanitary ware, wall tile, face brick, and structural clay tile.

Purinton Pottery Co. B. S. Purinton
Shippenville, Pa.

Free-brush decorations on tableware, containers for packing, and miscellaneous items.

Pyro Refractories Co. O. E. Miller
Oak Hill, Ohio

Organized in 1909, this company manufactures standard refractories, special shapes, and refractory specialties consisting of Ohio select first-quality brick of Sciotoville flint and second-quality brick of Lower Kittanning clay; also cements, castables, plastics, and ladle-lining material.

Ramtite Company Louis J. Jacobs
2563 West 18th St., Chicago 8, Ill.

Manufacturers of Ramtite plastic refractory, Fracto-crete castable refractory, and Esso Bond high-temperature bonding mortar; engineering and construction departments design and erect solid and suspended-type walls and arches and economy boiler baffles.

Remmey, Richard C., Son Co. G. Bickley Remmey
Hedley St. and Delaware River, Philadelphia 37, Pa.

Manufacturers of fire-clay, silicon carbide, semisilicon carbide, mullite (clay bonded), Crystalite (recrystallized mullite), alumina (clay bonded), and alumina (99% plus) refractories; plastic firebrick; high-temperature cement; fire clay; alumina oxide cement; and silicon carbide cement.

Republic Stamping & Enameling Co. P. A. Mallonn
Box 471, Canton 1, Ohio

Manufacturers of porcelain enameled kitchenware.

Republic Steel Corp. Burton Longwell
1424 Republic Bldg., Cleveland 1, Ohio

Manufacturers of iron and steel products. Of particular interest to the ceramic industry are the following products: flat-rolled products including Toncan iron enameling sheets; alloy and stainless steels; bolts, nuts, and rivets; tubular products, and pig iron.

Riddell, W. A., Corp., American W. H. Merkel
Clay Machinery Division

Bucyrus, Ohio
Manufacturers of a complete line of clay machinery to produce brick or tile and other clay products, either under the stiffmud wire cut process or dry press. Engineering department is available for customer service.

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Robeson Process Co.
500 5th Ave.
Producers of binding n
industries.

Rookwood Division, S.
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Founded in 1880, Ro
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Roseville Pottery, Inc.
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Royal China, Inc.

Manufacturers of hig
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Royal Copenhagen Por
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Smith, A. O., Corporat
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Manufacturers of a b
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(1949)

Robeson Process Co. 'Asgeir Riis
500 5th Ave., New York 18, N. Y.
Producers of binding materials for the ceramic and foundry industries.

Rookwood Division, Sperti, Inc. Ralph A. Lostro
Beech and Kenilworth Aves., Cincinnati 12, Ohio
Founded in 1880, Rookwood Pottery produces fine ceramic artware and is noted the world over for individual underglaze decorated items; pledged to maintain the high standards of quality, craftsmanship, and beauty that gained this enviable reputation for Rookwood.

Roseville Pottery, Inc. Robert P. Windisch
Zanesville, Ohio
In business for more than fifty years as manufacturers of artware and decorated utility ware; major output consists of underglaze decorated art pottery and some decorated items of utility value such as teapots and pitchers.

Ross-Tacony Crucible Co. A. M. Johnson
Tacony, Philadelphia 35, Pa.
Manufacturers of crucibles (both clay graphite and carbon-bonded types) for melting metals and graphite stopper heads for pouring steel; also special refractory shapes and refractory cements.

Royal China, Inc. B. L. Miller
Sebring, Ohio
Manufacturers of high-grade semiporcelain dinnerware for all classes of trade.

Royal Copenhagen Porcelain Manufactory, Inc. Chr. Christensen
Copenhagen F., 45 Smallegade, Denmark
Founded 1779. Producers of porcelain, earthenware, artistic stoneware, dinnerware and hotel porcelain, Copenhagen underglaze decoration, artware, sculpture, and monumental ceramic works.

Rustless Iron Co., Ltd. H. Whitaker
Trico Works, Keighley, England
Vitreous enamel finish is applied to goods made by customers, comprising ranges, gas and electric cookers and washing equipment, refrigerators, reflectors, and a wide variety of similar articles for domestic use.

Salem China Co. F. W. McKee
Salem, Ohio
A medium-sized, well-modernized plant devoted to the manufacture of medium-priced dinnerware, which is nationally advertised. A splendid reputation for steady employment over a long term of years.

Seaport Porcelain Metals, Inc. M. Jesse Salton
28-20 Borden Ave., Long Island City, N. Y.
Manufacturers of architectural and marine porcelain enamelware.

Shenango Pottery Co. James M. Smith
New Castle, Pa.
Producers of Rimrol hotel and restaurant vitrified china and Castleton and Haviland dinnerware.

Simonds Worden White Co. F. R. Henry
N. Summit St. and Negley Place, Dayton 7, Ohio
Manufacturers of grinding wheels, machine knives, paper mill engine bars and plates; and butcher tools.

S. I. R. M. A. U. Guido Ringler
Marghera, Venice, Italy
Precision manufacturers of chamotte brick and high-alumina brick. Natural sillimanite and light refractories. Silica brick for coke oven, Siemens-Martin and arc furnace. Blocks for glass ovens. Magnesite, chrome, and chrome-magnesite refractories.

Smith, A. O., Corporation W. A. Deringer
3533 North 27th St., Milwaukee 1, Wis.
Manufacturers of a broad variety of capital goods and consumer products such as automobile frames, gas-line
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pipe, oil-well casing, welding electrodes and equipment, pressure vessels, heat exchangers, glass-lined storage tanks and automatic storage water heaters.

Smith & Stone, Ltd. W. B. Ford
Georgetown, Ontario, Canada
Established in 1920, manufacturers of porcelain insulation, both wet and dry, and porcelain moldings of all types; refractory porcelain, phenolic moldings, and a complete range of wiring devices.

Socony-Vacuum Oil Co., Inc. J. C. Dean
26 Broadway, New York 4, N. Y.
Manufacturers of a line of wax emulsions for use as binders in ceramic bodies, particularly those that are dry-pressed or have low clay content, and in ceramic glazes for greater handling strength and more uniform application.

Solvay Process Div., Allied Chemical & Dye Corp. L. W. Peterson
Syracuse 1, N. Y.
Manufacturers of dense soda ash, calcined potassium carbonate, hydrated potassium carbonate, and ammonium bicarbonate used in glass and ceramics; technical consulting service for the ceramic industries.

Sovereign Potters, Ltd. W. G. Pulkingham
Hamilton, Ontario, Canada
Producers of dinnerware under the trade name Sovereign.

Spinks, H. C., Clay Co. R. B. Carothers
1000 1st National Bank Bldg., Cincinnati 2, Ohio
Producers of the following ball, sagger, and wad clays: Bandy Black ball clay, Bandy Tan ball clay, Black Charm ball clay, Black and Tan wad clays, Buckskin ball clay, Champion and Challenger ball clay, Gizmo ball clay, Gleason clay and Old Whittier ball clay.

Square D Company H. S. Freeman
6060 Rivard St., Detroit 11, Mich.
Manufacturers of an extensive line of safety switches, motor controls, circuit breakers, panel boards, switchboards, bus duct, pressure, float, and vacuum switches; circuit breakers for airplanes and special shockproof switches and molded insulation.

Standard Brick and Tile Corp. H. C. Kleymeyer
Fourth and Vine Sts., Evansville 19, Ind.
Manufacturers of shale and clay rough-texture and smooth face brick, ranging from red to gun metal; common brick; structural clay tile and farm drain tile. Distributors of glass block, firebrick, glazed brick and tile; buff and gray face brick.

Standard Ultramarine Co. L. F. May
Huntington 18, W. Va.
Manufacturers of ultramarine blues, organic reds, iron blues, alkali blue toners and methyl violet toners, and blanc fixe (barium sulfate) for the paint and printing ink industries. Also soluble and acid blues for writing inks and laundry bluing.

Stangl Pottery J. M. Stangl
Trenton, N. J.
A flexible, modern, two-tunnel kiln ceramic plant engaged in the manufacture of earthenware, dinnerware, and quality art ware. Trade name Stangl.

Star Porcelain Co. H. Collin Minton, Jr.
Muirhead Ave., Trenton 9, N. J.
Manufacturers of electrical porcelain, electrical refractories, low-loss steatite, and semisteatite by pressing, casting, turning, and extrusion; complete toolmaking and diemaking facilities and research laboratory for special insulating problems.

Stark Brick Co. J. H. Stewart
Box 230, Canton 1, Ohio
Manufacturers of ceramic glazed, clear glazed, salt glazed and unglazed facing tile; glazed and unglazed standard

and heavy-duty floor brick; acid resisting brick and block. Trade names: Brictile, Tribic, Sanitary Floor Brick.

Stauffer Chemical Co. G. W. Poland, Jr.
420 Lexington Ave., New York 17, N. Y.

Manufacturers of borax, boric acid, anhydrous borax and borax glass; potassium nitrate, and sulfur; also other industrial chemicals such as sulfuric acid, chlorine, caustic soda, carbon bisulfide, carbon tetrachloride, silicon tetrachloride, tartaric acid, cream of tartar, tartar emetic, and insecticides and fungicides.

Steele, J. C., & Sons, Inc. J. C. Steele, Jr.
Statesville, N. C.

For sixty years makers of clay-working machinery. Complete line of feeders, disintegrators, and crushers for feeding and preparing clay; pug mills, auger machines, de-airing extrusion machines, extrusion dies, and cutting machines for extrusion production of building brick, structural tile, and refractory products.

Sterling China Co. W. T. Pomeroy
East Liverpool, Ohio

Manufacturers of vitrified china tableware for hotels, restaurants, steamships, hospitals, and other institutions, also for the armed forces. Wide variety of decorations, decals, prints, and line treatments, offered on three different bodies, white, tan, and ivory.

Sterling Grinding Wheel Div., A. E. Tulk
Cleveland Quarries Co.

Tiffin, Ohio

Manufacturers of artificial abrasive grinding wheels, brick, sticks, and specialties since 1885; vitrified, silicate, resin and shellac-bonded products for use on standard and high-speed grinding machines of all types and makes.

Steubenville Pottery Co. W. J. Mould
Steubenville, Ohio

Manufacturers of high-quality semivitreous tableware distributed by the leading china departments of the country and including the Monticello ware by Herman C. Kupper and the American Modern by Russell Wright.

Stillwater Clay Products Co. J. P. Duffy
3334 Prospect Ave., Cleveland 15, Ohio

Manufacturers of vitrified clay pipe, Interlok wall coping, standard coping, flue lining, liner plates, artistic chimney tops, refractory hot tops, and tile conduit for heat distribution piping. Plants at Urichsville, Dennison, and Junction City, Ohio.

Streator Brick Co. D. P. Ogden
Streator, Ill.

Producers of shale and fire-clay face brick in smooth and rough textures; shale building brick, oversize brick, and packing-house floor brick; tunnel-kiln and periodic-kiln production facilities; annual capacity 50 million brick.

Strong Manufacturing Co. T. F. Shaffer
Sebring, Ohio

Complete manufacturing facilities for black shapes for both hollow ware and flatware; modern enameling equipment for producing fluorescent reflectors, incandescent reflectors, refrigerator equipment and accessories (pans, doors, panels, etc.), contract job enameling.

Structural Clay Products Institute Harry C. Plummer
1520 18th Street N. W., Washington, D. C.

A national association of brick and tile manufacturers which represents the industry before Government offices and on committees of national technical organizations. Its principal activities consist of education, engineering and research, advertising, publicity, and public relations.

Stupakoff Ceramic & Mfg. Co. Semon H. Stupakoff
Latrobe, Pa.

Mass producers of precision-made ceramic and related products for electronic, electrical, and other applications. Alumina, capacitor ceramics, cordierite, magnesia, por-

celain, steatite, temperature sensitive resistors, titania, and zirconia; plain, metallized, and assembled. Kovar-glass hermetic seals. Distributors of Kovar in all forms.

Sümerbank Bulent Buktas
Ankara, Turkey

Sur Enamel & Stamping Works, Ltd. M. M. Sur
9, Middle Rd., Entally, Calcutta, India

Established in 1918. Producers of household ware of all kinds, hospital ware, sign plates, reflectors, table tops, and industrial acidproof containers.

Surface Combustion Corp. Harvey C. Weller
2375 Dorr St., Toledo 1, Ohio

Manufacturers of continuous annealing and decorating lehrs, batch-type ovens, convexing and bending furnaces, special processing furnaces, continuous conveyor-type pottery decorating kilns, recuperative tanks for special glasses; combustion engineering service.

Swindell Brothers J. J. Jeffries
Bayard and Russell Sts., Baltimore, Md.

Manufacturers of handmade and machine-made glass containers for foods, drugs, chemicals, pharmaceuticals, prescriptions, wines, whiskies, toilets, perfumes, and cosmetics.

Swindell-Dressler Corp. Philip Dressler
Box 1888, Pittsburgh 30, Pa.

Engineers and manufacturers; designers and builders of every kind of direct-fired, semi-muffle and full muffle, circular and straight tunnel kiln, operating at temperatures from decorating to cone 32, fuel fired or electric heated; car, roller-hearth, and walking-beam conveyor types; recirculating radiant gas tube installations.

Sylvania Electric Products, Inc. B. S. Ellefson
208-20 Cross Island Parkway, Bayside, Long Island, N. Y.

Manufacturers of radio receiving tubes, cathode-ray tubes, transmitting tubes, incandescent lamps, fluorescent lamps and fixtures, fluorescent powders, tungsten powder and rod, tube parts, wire welds, and electronic equipment. Research and Development laboratories at Flushing, Bayside, and Kew Gardens, New York; manufacturing plants and engineering laboratories in five states; main offices at 500 Fifth Ave., New York, N. Y.

Taylor, Smith & Taylor Co. Charles R. Landback
Chester, W. Va.

Manufacturers of Lu-Ray pastels, underglaze prints, and overglaze decorations. The forty-ninth year of service to the trade with quality dinnerware.

Tegellaboriet Christer Enberg
Box 5073, Stockholm 5, Sweden

Brick research laboratory.

Thatcher Manufacturing Co. Roy S. Arrandale
1901 Grand Central Ave., Elmira, N. Y.

Manufacturers of glass containers for milk, foods, beverages, beer, and liquors; also Fastpak, vacuum packing machine for food products in glass. Factories at Elmira, N. Y., and Streator, Ill.

Thermo Fire Brick Co. Howard Hicks
Sulphur Springs, Texas

Manufacturers of first-quality and intermediate heat-duty fire-clay brick and a 2600°F. insulating firebrick; first-quality and intermediate brick are made by both the dry-press and stiff-mud processes; also special shapes, cupola blocks, wall and arch shapes, high-temperature cement, plastics, and castables.

Titanium Alloy Mfg. Div., National Alex Stewart
Lead Co.

111 Broadway, New York 6, N. Y.

Manufacturers of zirconium oxide opacifiers, zircon for frits, zirconium silicates for glaze opacification, zircon for bodies, zircon refractories, ferro titanium alloys for the steel industry, rutile and titanates for welding rods,

titanium compound, zirconium compound, Zirconium compound catalysis.

Trenton Potteries Co.
Plants No. 5 and
Manufacturers of plumbing fixtures; fountain receptors; agency baths, auto; closet combination.

Twyford, Ltd., Cl
St

Manufacturers of china, and enamel equipment for every fixtures required for tories.

Tygart Valley Glas

Manufacturers of jars to be used exclusively products.

Tyler, W. S., Co.

3615 Superior
Largest weavers of square mesh, Ton-cloth and testing screening machinery Ty-Rocket screens,

Union Electrical Po
Works, Inc.

Box
Manufacturers of neon accessories, in stitutes for metal facilities; during t armed services.

Union Francaise de
Refractaires

15 Rue
A technical and co manufacturing abor

United Clay Mines

Oakland and
Producers of domestic industry; domestic Direct importers of following materials Albany slip, vitrox,

United Glass Bottl

8, Leicester
Manufacturers of flint, amber, blue, colors; pressed don and plastic closures.

United States Glass

Manufacturers of pl bar, and restaurant scientific ware.

United States Gyps

300 W. Ar
Manufacturers of U strength gypsum ce plasters, U.S.G. pla stone, dolomite and and terra alba thr world.

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Walsh Refractories Corp.

J. L. Crawford

101 Ferry Street, St. Louis 7, Mo.

Manufacturers of a complete line of fire-clay refractories, including Walsh vacuum cast flux block, CSR (cast sillimanite refractory), and refractory grade upper structure, feeder parts, checker-brick, high-alumina, high-fired superduty, superduty, high heat-duty, and intermediate-duty firebrick, high-temperature bonding mortars, plastic refractories, and castable refractories.

Walsh Walsh, John, Ltd.

W. G. Riley

Soho & Vesta Glassworks, Birmingham 18, England

Producers of first-quality handmade decorative domestic crystal and tableware; special lighting glass for illuminating fittings; scientific reflectors for floodlighting shop windows and the cinema industry.

Washington Brick Co.

Thomas Somerville, III

Washington-Baltimore Blvd., Muirkirk, Md.

Manufacturers of common and face brick; originators of the Circle System; cinder block and Spectra Glaze on cinder block; distributors in metropolitan Washington for firebrick, structural clay products, drain tile, sewer pipe, flue lining, glazed brick and tile, glass block and terracotta.

Washington Porcelain Co.

C. H. Ackerson

Willow St., Washington, N. J.

Manufacturers since 1917 of electrical porcelain for the parent company, The Arrow Hart & Hegeman Electric Co., Hartford, Conn., which is engaged in the manufacture of electrical wiring devices and electrical controls.

Watt Pottery Co.

Loren M. Watt

Crooksville, Ohio

Manufacturers of matched kitchenware and ovenware, Peasant Ware with free hand underglaze decorations. Wild Rose with underglaze decoration kitchenware. Past-L Kitchenware with five pastel colors. Flav-R-Bake Ovenware with two color bands, hand blown.

Western Brick Co.

I. R. Cline

Danville, Ill.

Producers of face and common building brick in shades of red and buff; Haydite, a lightweight fired-clay aggregate; facilities for the manufacture of paving brick and hollow tile, not regularly produced.

Western Electric Co., Inc.

W. B. Tall

7810 Hawthorne Station, Chicago 23, Ill.

Bell System Supply Branch. Manufacturers of telephone, telephone-exchange, and outside-telephone-plant equipment. Purchases supplies and acts as distributor of telephone equipment and supplies.

Western Feldspar Milling Co.

J. W. Magnuson

1333 W. Maple St., Denver 9, Colo.

Producers of western feldspars for glass, pottery, and enamel plants.

Westinghouse Electric Corp.

John D. Harnish

Derry, Pa.

This plant makes electrical porcelain products. In particular, it manufactures high-tension porcelain for transmission and distribution systems; also Prestite and zircon Prestite porcelains for special designs of the communications industry.

**Westinghouse Electric Corp.,
Glass Plant**

Fairmont, W. Va.

Joseph Early

This plant produces fluorescent tubes used in the manufacture of fluorescent lamps and exhaust stem and bulb blowing tubing for making incandescent and fluorescent lamps.

West Virginia Brick Co.

Charleston, W. Va.

Claude F. Wiseman

Manufacturers of unglazed facing tile, face brick, and fire brick.

Wheaton, T. C., Co.

Frank H. Wheaton, Jr.

1118 N. High St., Millville, N. J.

Manufacturers of borosilicate glass for the biological trade for packaging such items as blood plasma, penicillin, and insulin; all types of industrial glassware, radar, and electronic glass components; also a line of perfume and cosmetic containers, including glass-stoppered bottles.

Wheeling Steel Corp.

Ernest B. Snyder

Steubenville, Ohio

Manufacturers of semifinished and finished steel products. Includes sheet steel for porcelain enamel ware, auto bodies, furniture stock, etc. Finished products include galvanized sheets and containers, tin plate, pipe and expanded metal. Steel plants at Steubenville, Ohio and Benwood, W. Va. Manufacturing plants at Yorkville and Martins Ferry, Ohio, Beech Bottom, Warwood, and Wheeling, W. Va.; General Offices at Wheeling, W. Va.

Willson Products, Inc.

Thomas A. Willson

Box 622, Reading, Pa.

Originators of Willsonite, Willson-Weld, Alubro-Weld, Super-Tough, and other special glasses for eye protection; manufacturers of sunglasses and a complete line of eye, head, and respiratory protective devices; also air-analysis apparatus for industry.

Wisconsin Porcelain Co.

Sun Prairie, Wis.

L. A. Stohl

Manufacturers of insulators, standard and special, high-heat refractories in colored glazes, steatite, and ceramic filtering material.

Woodville Lime Products Co.

J. Robert Cowell, Jr.

2140 Jefferson Ave., Toledo 2, Ohio

For more than forty-five years producers of finest-quality high-magnesium lime, oxide and hydrated; consistently low iron content; prompt shipments can be made from plant of large capacity.

Worcester Royal Porcelain Co., Ltd.

Joseph F. Gimson

Worcester, England

Producers of fine bone china dinnerware, statuettes, and ornamental ware; hard felspathic porcelain laboratory ware and cooking hotel ware; alumina porcelain sparking-plug insulators and technical porcelains.

**Worthington Pump and Machinery Corp.,
Ransome Industrial Mixer Division**

J. C. Lukas

Dunellen, N. J.

Manufacturers of industrial mixers of all kinds for the ceramic industries; also welding and work positioning equipment.

The interests of a not only by its officers, mittees. Each of these tions for the general go of course, have comm work in their particul be, in most instances, pointed by the Division sion offices have, in e precedent of successio program chairman gene of the Division, and t mittee after so doing. program chairman is, portant appointment r is of course not manda tained, for if a poor ch stances arise which ma an appointee, he certain

By experience and g formulated along sensib possible. The rules d responsibilities of the way do they eliminat people for our committe

These are highly re not always recognized appointee or a nomine considered from many p factors given the least is, whether the individ and willing to work on Often a man is appoin qualified for the job to interested in the job, Very often the busy m work, is a poor cho qualifications or his bu or less successful, but wil of time, may contribute

Matters of experienc consideration. While t to serve they may not pered imagination need it to a practical solutio are composed of enough to possess the required

Continuity in our co encouraged by reappointi Projects of one year will

titanium compounds in high dielectric applications, zirconium compounds for water repellance of textiles and Zirconium compounds for pigment lakes and toners and in catalysis.

Trenton Potteries Co.

Leonard H. Hepner

Plants No. 5 and No. 6, Box 141, Trenton 1, N. J.
Manufacturers of high-grade vitreous china and Duraclay plumbing fixtures; the line ranges from small drinking-fountain receptors to large hospital pieces such as emergency baths, autopsy tables, etc., including fine water-closet combinations, lavatories, bathtubs, and sinks.

Twyford, Ltd., Cliffe Vale Potteries

A. V. Pimble

Stoke-on-Trent, England

Manufacturers of sanitary pottery in earthenware, vitreous china, and enameled fire clay; patterns cover sanitary equipment for every class of building, including specialized fixtures required for hospitals, clinics, schools, and factories.

Tygart Valley Glass Co.

O. C. Noble

Washington, Pa.

Manufacturers of narrow- and wide-mouth bottles and jars to be used exclusively by commercial packers of food products.

Tyler, W. S., Co.

C. E. Jenks

3615 Superior Ave., N.E., Cleveland 14, Ohio

Largest weavers of precision wire cloth: Double-Crimped square mesh, Ton-Cap and Ty-Rod high-capacity screen cloth and testing sieves. Pioneers in developing efficient screening machinery: Hum-mer, Tyler-Niagara, Ty-Rock, Ty-Rocket screens, and Ro-Tap testing sieve shaker.

Union Electrical Porcelain Works, Inc.

F. W. Van Orden

Box 762, Trenton 5, N. J.

Manufacturers of porcelain for electrical wiring devices, neon accessories, industrial specialties, noncorrosive substitutes for metal parts, and special shapes; die-shop facilities; during the war, practically all production for armed services.

Union Francaise des Produits Refractaires

Louise Halm

15 Rue de Milan, Paris 9^e, France

A technical and commercial association of 32 producers manufacturing about half the total of French refractories.

United Clay Mines Corp.

K. E. Ward

Oakland and Prospect Sts., Trenton 6, N. J.

Producers of domestic china and ball clays for the pottery industry; domestic ball clays are available purified. Direct importers of English ball and china clays. The following materials carried at Trenton: clay, spar, flint, Albany slip, vitrox, artware clays.

United Glass Bottle Mfgs., Ltd.

J. Tipping

8, Leicester St., London, W.C. 2, England

Manufacturers of glass containers of all descriptions in flint, amber, blue, dark green, light green, and opal colors; pressed domestic tableware and tumblers; metal and plastic closures.

United States Glass Co.

C. W. Carlson

Tiffin 15, Ohio

Manufacturers of plain and decorated tableware; fountain, bar, and restaurant glassware; industrial specialties and scientific ware.

United States Gypsum Co.

J. S. Offutt

300 W. Adams St., Chicago 6, Ill.

Manufacturers of U.S.G. pottery plasters, Hydrolac super-strength gypsum cements, AA dolomite, special polishing plasters, U.S.G. plate-glass plasters, raw dolomite limestone, dolomite and high-calcium lime, glasshouse gypsum, and terra alba throughout the United States and the world.

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Universal Clay Products Co.

C. A. Bloor

Sandusky, Ohio

Manufacturers of dry-process electrical porcelain insulators, standard and special electrical porcelains, glazed and unglazed; also specialists in producing items to customers' drawings and specifications.

Universal Dental Co.

Joseph Kohn

48th and Brown Sts., Philadelphia 39, Pa.

Organized in 1917 for the manufacture of porcelain teeth exclusively, for use by dentists in making prosthetic restorations. Products are sold in every country of the world where business can be done.

Universal Potteries, Inc.

G. D. Agnew

Cambridge, Ohio

The products of this company consist of Ballerina colored glaze dinnerware in blue, yellow, green, and gray colors, Camwood shape dinnerware, with complete line of Oven-proof cookingware in various colors and types of decorative treatments.

Universal-Rundle Corp.

J. R. Beam

New Castle, Pa.

Manufacturers of vitreous china and cast iron enamel plumbing fixtures, with factories at Camden, N. J., New Castle, Pa., Milwaukee, Wis., and Redlands, Calif. Central Research Division at New Castle.

Valentine Fire Brick Co.

W. H. Peterson, Jr.

Woodbridge, N. J.

Manufacturers of firebrick, fire clays, refractory cements, etc. Modern, highly mechanized production methods. Burning facilities include tunnel kilns as well as standard periodic kilns. Valentine XX, a semisilica brick, is widely known for its production records in ceramic kilns and steel mill furnaces.

Vanderbilt, R. T., Co., Inc.

Ira E. Sproat

230 Park Ave., New York 17, N. Y.

Sales agents for Nyal talc, Peerless kaolin, Pyrax pyrophyllite, clay deflocculant, Rayox titanium dioxide, Radium selenium, cerium hydrate, and tellurium; research on new and old ceramic materials; assistance given to customer problems.

Vesuvius Crucible Co.

Francis L. Arensberg

Box 8275, Swissvale, Pittsburgh 18, Pa.

The products of this company are in three categories: (1) graphite stopper heads and nozzles for pouring steel ingots and castings, (2) graphite crucibles for melting all metals, and (3) special shapes such as stirrers, base blocks, covers, saggars, and pyrometer protection tubes.

Victor Insulators, Inc.

H. Failmeizer

Victor, N. Y.

Producers of wet-process high-voltage porcelain insulators and chinaware; also special-design porcelain for manufacturers of transformers, switchgear, capacitors, fuse cutouts, potheads, junction boxes, and ceramic specialties.

Vidriera Monterrey, S. A.

Alfonso F. Rodriguez

Apartado 162, Monterrey, N. L., Mexico

Vitreous Steel Products Co.

Edgar H. Weil

Box 1791, Cleveland 5, Ohio

Manufacturers of porcelain enamel table tops and break-fast sets; job enameling. (Factory at Nappanee, Ind.)

Vitro Mfg. Co.

A. J. Strod

Corliss Station, Pittsburgh 4, Pa.

Founded in 1909 to manufacture ceramic colors and specialty chemicals; producers of a complete line of colors for potteries, glass, and porcelain enamels; also owners and operators of an ore-refining plant in Canonsburg, Pa.

Vollrath Company

Jean C. Vollrath

Michigan Ave. and 18th St., Sheboygan, Wis.

Manufacturers of stainless steel, cast iron, and porcelain enameled utensils—for homes, restaurants, hospitals, and dairies—under the brands Vollrath and Vollrath Ware.