

C O P Y

Manufacture, Sale and Use of Pigments

by

B. M. Van Cleave

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Not knowing just what facts you have, or the type of information you want, will confine this to a few statements regarding the pigment color business and you can pick out what you wish.

First: Dry Colors and their Manufacture

The value of production in 1936, according to the latest information from the Tariff Commission and Bureau of Census, indicates that the industry is approximately a \$20,000,000 proposition. The inorganics produced, that is, the CP Chrome Yellows, Green, and Blues, and the reduced types of these colors, made up just about \$10,000,000 of the total and all the organics combined, including the Lake and Extended colors, totalled \$10,177,000. This material was produced by approximately 35 companies in the U. S. But the bulk of the total, in both pounds and value, was made by four companies as follows:

Imperial Paper & Color Corporation	Kreb's Pigment Div. of DuPont
United Color and Pigment Company	The Sherwin-Williams Co.

There are a few medium sized producers and then the balance of the concerns in the industry are, for the most part, small companies engaged in the manufacture of specialties.

The increased use of color is illustrated very strikingly by the figures given above because, in the NRA days, the value of dry colors produced was about \$13,000,000.

In general, the processes for making the CP Yellows, Blues and Greens are similar in nature and familiar to all of us. They are definitely tonnage items; the batches are large and the principal inorganic color, CP Chrome Yellow, totals 36,000,000 lbs. a year as against the largest organic product, namely, Lithol Red, which runs a little over 2,000,000 lbs. a year.

Though these colors require careful control and accurate manufacture, the organic class is probably more interesting because of the wide variety of processes, types of color, and difference in the individual properties of each. For example, in the organic reds alone, we have Toluidines, Paras, Lithol Reds, Lithol Rubines, Red for Lake C, the so-called Fire Red Toners, the Eosine Reds, and a few Phospho-Tungstick Acid products giving such a wide variety of properties that it is possible to secure almost any result desired in a paint, printing ink, or other material in which color is used. Most of these organic colors have been made by us for many years, and as new developments came about, we have kept up with the procession so that today our line of organic reds is more complete than that of any other manufacturer and the quality is of the highest.

Most of these organic toners are produced by combining two intermediates by a process known as diazotisation and the various combinations of intermediates determine the specific color produced. Inasmuch as we manufacture practically all of the required

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intermediates ourselves, we are in an exceedingly favorable position to control not only the quality of the finished product but to maintain a sound fundamental position from a cost standpoint. Most of these organic colors have been known for many years but recently the scope of these pigments has been widened by the development of some excellent organic yellows such as the Hansa Yellows, characterized by their great permanence, strength, and cleanliness of tone, and to such a degree that it is conceivable that this type of color some day may even compete with CP Chrome Yellows as the price is reduced.

Within the past 10 years, there has occurred also the development of many of the organic maroons used primarily in automobile finishes and making available for the first time a fairly permanent color of this shade suitable for use in lacquers and the synthetic finishes.

One of the most interesting developments of recent years is the increased use of the Phosphotungstic Acid colors and a brief description of this development should be interesting: The use of ordinary dyestuffs in the form of lakes has been known for a long while, but most of the dyestuffs suitable for this purpose were fugitive to light, and therefore, their use was limited. Some years ago it was discovered that these same dyestuffs, when treated with a complex combination of Phosphoric and Tungstic Acids became considerably more light resistant, with the result that the old fugitive type of lake has almost disappeared and the use of the so-called PTA colors has increased materially. We have kept abreast of this development and today are making a full line of these colors also.

Until very recently we have not had an ideal pigment of any type, for example; the Toluidine Red is one of the best reds for permanence but bleeds in lacquer, Lithol Reds can be produced in a wide range of shades and are excellent as printing ink pigments but are only fairly permanent to light. If we could combine the permanence of the Toluidine with the other characteristics of a Lithol Red, we would approximate the ideal red pigment and one that could be used almost indiscriminately for paint, printing ink, etc. The nearest approach to the development of the ideal pigment has taken place within the last three years, and though the American Color Industry seems to be far ahead of European manufacturers in the quality of their products, in this particular case, credit for the discovery must go to English Chemists. I refer, of course, to the so-called Monastral or Heliogen Blue. This color is characterized by its great permanence and almost complete lack of reactivity to Acids, Alkalis, etc. Furthermore, it is non-bleeding, in practically all vehicles, will take a high baking temperature, etc. We are buying the dyestuff and offering the color in several forms and, as the cost of manufacture is reduced, unquestionably this pigment will become a very important color.

Second: Dry Color and Their Market

There are approximately fifteen industries consuming pigment colors, but the paint and printing ink trades are by far the largest users and, between them will consume about 70% of the total produced. In the paint industry, the important items, from a tonnage standpoint, are the Chrome Yellows and Chrome Greens. Relatively little Iron Blue is used. There is also a large demand for many of the organics but any paint manufacturer with a complete line of products is primarily interested in the colors first named.

In the printing ink industry just the reverse is true. This industry does use a considerable amount of Chrome Yellow, to be sure; but no Chrome Green at all, as the Greens are secured by blending the Yellow and Blue right on the mill, but here the Reds occupy the favored position. This can readily be appreciated if you compare the

amount of Red used in magazine advertising, comic sheets, cartons, etc., with, for example, the greens or blues. Also, when you remember that there are approximately 200 printing ink concerns in the U.S. compared with about 1,500 paint grinders, it can be seen that the consumption of color per printing ink account, is much greater than the consumption by the average paint grinder. The ink industry, therefore, represents an exceedingly valuable market, and one which has been cultivated by us with great care and some considerable success over the last fifteen years. The requirements in selling to the ink industry are also considerably more stringent because the color itself represents a large share of the cost of a pound of ink, and though there are exceptions, the cost of color per gallon of average paint is relatively small. This has caused the ink industry to become discriminating buyers of colors not only because of the cost feature, but also because a knowledge of the individual properties of the products is required so they may formulate to produce inks that will meet the many and varied conditions under which ink is used. In our own case, the fact that we are in the color business has been of great assistance to the manufacturing organization in making available to them a knowledge of color and what it will do that is not available to ordinary paint companies.

In addition to these two main outlets for the sale of color, considerable amounts are used by the following industries: floor coverings such as linoleum; wallpaper and wall covers of which Sanitas is an example; window shades; rubber; cosmetics; carbon paper and typewriter ribbons; plastic compounds such as bakelite and beetle-ware; and other miscellaneous requirements.

Each of these industries has its own specific requirements. The paint grinder usually wants a heavy gravity yellow; the ink man just the reverse. He needs a light, fluffy product with a low specific gravity. The rubber man must have a very finely ground product which will disperse readily. The cosmetic man wants material washed free of poisonous salts. To successfully supply these industries, the color manufacturer must necessarily have an intimate knowledge of the manufacturing processes of each and every type of color and be prepared to meet their special conditions.

Third: White Pigments

The principal white pigments we make for our own consumption or for sale are Lithopone, Leaded Zinc, Zinc Sulfate, and White Lead - - practically all of the white pigments required by the paint industry except Zinc Oxide and the Titanium pigments. Tonnage-wise, Lithopone is the most important and is a business of a little over 150,000 tons per year, produced by six manufacturers. The paint industry is by far the largest consumer, using about 122,000 tons of the total, the balance being consumed by the floor covering, textile and rubber industries, with a number of other small consumers spread over a variety of businesses.

Leaded Zinc Oxide is a business of 40,000 tons per year. Practically 100% of this goes into the paint game.

No accurate figures are available showing the distribution of Zinc Sulfate by industries but the amount produced has been increasing steadily due, probably, to the development of an entirely new market through its use in the manufacture of rayon. Total yearly volume of this has nearly reached a little over 10,000 tons.

We can claim the credit for being the originators of the co-fumed process for manufacturing Leaded Zinc and our process on Zinc Sulfate also represents a definite contribution to the industry.

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It can readily be seen, by remembering the figures for some of the principal colors and comparing them with these figures, on white pigments, that the White Pigment business is on a much larger and entirely different scale tonnage wise, though the stringent requirements of the industries that use both groups of products have forced the manufacturers to the ultimate in a high degree of control and perfection of their manufacturing operations in both the colored and white pigment businesses.

Many of the points in this letter could be enlarged on considerably. If you want additional information along any specific line, let me know and I'll attempt to supply it.

bmvc dlm

(Signed BMVC)

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