Lead and Mercury—Where Are We?

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THE NATIONAL Paint and Coatings Association has done an excellent job in trying to prevent the enactment of legislation and rulings that are harmful to the coatings industry. Unfortunately, despite their heroic efforts, they have not been completely successful. Such regulations have been made, and if their further efforts to correct these conditions are not successful, we may have to live with them.

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We will briefly review these regulations as they affect driers, mercurials, and loss-of-dry agents, and they are as follows:

Lead—As of January 1, 1973, no trade sales paints, except maintenance paints, may contain more than 0.5 per cent lead as metal based on the total weight of the paint. As of January 1, 1974, this is reduced to 0.06 per cent. This, practically speaking, eliminates all lead from trade sales paints.

Mercury—During April of 1972, all mercurial manufacturers who supply the coatings industry were notified by the EPA that their registration on phenyl mercurials had been revoked. Without a registration mercurials cannot be shipped interstate, though they may still be shipped intrastate. We did, however, file an appeal, and such an appeal automatically stops such a ruling from taking effect until a decision is reached by a special committee. The EPA has just recently asked the National Science Foundation to set up such a committee to determine allowable levels of these mercurials for the coatings industry. We feel that until such a committee is formed, investigates the whole matter, and comes to a decision, at least another six months will pass, during which time mercurials can be shipped interstate.

Let us now briefly examine the technical aspects of each of these regulations.

Lead: The industry can continue using during 1973 lead-containing driers or loss-of-dry agents, up to a maximum of 0.5 per cent lead based on the weight of the paint. This means that as much as 10-15 lbs. of 24 per cent lead may be used per 100 gallons of paint—more than is normally used. If less than the 0.5 per cent lead is used as a drier, the rest may be added as loss-of-dry agent.

What's available as substitutes for both of these lead-containing products?

A great deal of work has been done to try to find suitable substitutes for lead as a drier. None of the work has been completely successful, especially in oil-based house paints. However, in most formulations we have been fairly successful in finding replacements for lead as a drier. The replacement driers have generally been calcium, and/or zirconium, though occasionally ortho phenanthroline has been suggested. Our own work indicates that in most formulations straight calcium drier is adequate and is lowest in cost. Thus, for every pound of 24 per cent lead, the substitution of two pounds of six per cent calcium will normally suffice. A more universal, though somewhat more expensive, recommendation is for the use of 1½ lbs. of six per cent calcium and ½ lb. of 12 per cent zirconium for every pound of 24 per cent lead. All the other driers in

prennished wood coatings will mean little growth in furniture and fixtures coatings.

During the 1973 growth, we will also see continued cost pressure on the materials suppliers. The fourth quarter of this year is already giving indications of price firmness or increases in organic chemicals, such as methanol, formaldehyde and styrene. Undoubtedly, this trend will be reflected in price changes in specialty chemicals and resins, which are based on the general chemicals.

Forecasting the future direction of the coatings industry is not a dangerous game, but neither is it a wholly precise one.

Some interesting turns, for example, are being made in the industry at the moment, which may indicate some long range trends. This certainly seems to be the case for formulation, which has become a necessary move due to growing government regulations.

In the past, raw material and equipment suppliers were a major factor in developing formulations. Now, however, the major paint companies are becoming the major factor. They are developing not only paint, but entire coating systems.

This has come about in a number of ways. For one thing, responsibility for the coatings is being shifted. Where this responsibility has in the past been shared by the paint company and the end user, who specified the system, it is now being placed squarely on the paint company.

Consequently, as this trend continues the coatings supplier must more and more supply the complete design package—from the coating to the application equipment, from detailed application instructions to actual start-up responsibility. This full line of responsibility is especially seen in electrocoating and radiation cure systems.

What of the role of the materials supplier in such a business? With rising costs and level prices, the raw material supplier cannot continue to generate broad research and development programs—especially when he is often duplicating work already being done by the paint companies.

A similar type of shift occurred in the plastics industry in the 1950s. Major plastics end-users began integrating back toward the raw materials, while soft price structures kept materials suppliers' profits low. Materials selling prices continued to approach manufacturing costs. As the profit margin shrank, the plastics producers were forced to decrease technical service to their customers and research for new polymer development. In its place they began to look for other routes than basic synthesis work to build product value through their technical efforts.

It seems likely that the trend in our in-