

SHERWIN-WILLIAMS RESEARCH CENTER

1737 Cottage Grove Ave.

Chicago, Illinois 60626

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Buildings and Zoning Committee
Chicago City Council
City Hall
Chicago, Illinois 60602

Gentlemen:

I and The Sherwin-Williams Company certainly are in full accord with the intent of the proposed ordinances for lead containing paints - i.e. the protection of our children from the dangers of lead poisoning. For example, we have not used lead pigments or lead driers in interior paints or in paints intended for use on furniture or toys which might be chewed by children for many years. However, I would like to point out some of the pitfalls and problems for paint companies and, therefore, for the people of Chicago in the currently proposed ordinances and to question the necessity for the tight restriction on lead proposed for 1973.

It must be recognized that as recently as the adoption of PL 91-697, January 17, 1971, the Lead Based Poisoning Prevention Act, it has been accepted that 1% lead paints were non-hazardous even when used on interior surfaces or children's toys. In fact, to this day we know of no evidence that any child has ever been harmed by paint containing 1% lead or less. Nevertheless, it has been Sherwin-Williams' policy to comply with health and safety regulations with a considerable margin of safety for possible errors.

Therefore, we have been working to develop formulas for all of our residential paints with less than 0.5% lead ever since passage of PL 91-697. In spite of our best efforts, we are just now at a point where we expect to get all of our production to comply in 6 to 12 months. Obviously the stocks on our shelves and our dealers' shelves do not yet comply with the 1% limit, particularly with respect to exterior paints. The task of informing our store managers and our dealers about which products would require warning labels and getting them to actually affix such labels in all of the cases is essentially insurmountable. A more feasible and practical ordinance would be to require such labeling on any stock manufactured and shipped after a certain date. Thus, the requirement for almost immediate labeling of existing stocks of paint containing more than 0.5% lead poses the first problem.

The further reduction of lead content to 0.03% poses a much more difficult technical and manufacturing problem. Such an extremely low limit means that we can use no lead intentionally in residential paints and that we must follow almost pharmaceutical methods of manufacturing to avoid accidental contamination with lead from industrial paints. Paint manufacturing is a batch

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process - i.e. paint is manufactured in tanks varying in size from 500 to 5000 gallons. It is accepted industry practice that the sequencing of batches be done in such a way as to have similar colors follow each other. This avoids the necessity for cleaning between batches in many instances. Since lead still will be an ingredient in many industrial paints, the requirement for only traces of lead will increase the need for careful cleaning between batches - almost to the extent of using pharmaceutical techniques. Furthermore, to assure accomplishing trace levels of lead our suppliers of raw materials would also have to follow such methods. In addition, this requirement to limit lead content to 0.05% would require tedious and expensive quality control tests for lead content on each batch of paint to insure compliance. These practices would add considerably to the cost of paint to the consumer.

Lead is used in a paint as a drier catalyst - i.e. lead helps the reaction of the paint with oxygen from the air so that it will form a dry, tough film. Lead is unique among drier catalysts in two ways. First it is more effective than other known drier metals such as cobalt or manganese in causing oxidation throughout a film rather than just on the surface. This gives through dry and avoids wrinkling. Second it is a milder acting drier so that extra amounts do not embrittle a film. Paints, of course, must dry whether they have been in the package one day or one year. But drier catalysts tend to absorb onto pigment particles during storage in the package. Thus, extra amounts of lead (but still under 0.5%) are being used in paints to insure drying after prolonged storage in the package. Possible substitute drier catalysts are not as mild acting as lead and cannot be used in sufficient quantity to allow for sorption by the pigment during package storage.

There will, therefore, be a question of ability of such substitute driers to retain their drying catalytic activity for long periods of time. We do not know how to check such drying retention other than trying drying after prolonged storage periods. Thus, there will be a need to conduct long term storage tests before lead can be replaced with other catalysts with any degree of assurance of retention of drying ability.

We do not now know how to make oil paints dry without the use of lead drier. This means that the substantial amounts of linseed oil based paints now used for the exterior (principally primers and white or light colored paints) would no longer be usable if the proposed ordinance is adopted. We can substitute synthetics for the oil in these types of paints, but at about a 20% increase in cost which eventually must be borne by the consumer. This also would mean further erosion of the market for flax for the American farmer.

We have for many years eliminated intentionally added lead from our interior paints, but not from exterior paints. The reason is that exterior paints are subjected to a more severe environment (ultraviolet radiation from sunlight, and greater temperature and moisture fluctuations). This means that exterior paints have more difficulty in maintaining flexibility to avoid cracking and peeling. Lead is helpful in maintaining such flexibility. Even with the use of lead, cracking and peeling is not avoided completely. Without lead this problem could become much more severe to the homeowner.

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But, given time, we certainly could try to avoid all of these pitfalls and problems if it were known that 0.5% lead containing paint is an actual hazard to children. We know of no such evidence. In fact, Prof. Loewler at Ohio State University has shown that as much as 1% lead in the diet of rats has no effect on adult rats even though fed such a diet from infancy. There is an effect on growing rats, but this disappears upon reaching adulthood. And this is with the entire diet containing 1.0% lead, not a small amount of paint chips containing 0.5% lead as a small part of the diet.

In addition, Gage and Litchfield in 1968 reported in England on rats in which dried paint films containing 2% lead as lead naphthenate or as lead chromate were fed to rats as 1% of their diet. They found increases in lead content of certain tissues (which leveled off), but no increases in lead content of blood or urine. They also found that all the animals (rats) remained healthy throughout a 12 week feeding period. This could be compared to feeding a child ~400 square centimeters of "normal" old, thick paint chips containing 0.5% lead per day for 12 weeks (assuming the child eats about one pound of food per day).

Such evidence as has been presented in the literature on the effects of low levels of lead in the diet has shown only that blood lead levels have been increased above the normal (40ug/100 ul.). And even this effect has been shown only after continuous, prolonged (weeks or months or longer) feeding. Charles Edwards, Commissioner of Food and Drugs, has stated as recently as November 2, 1971 that he is unaware of any serious injury from 1.0% lead containing paints. Dr. Stephen Hall of Southern Illinois University has concluded that the solution to the problem of lead poisoning lies in preventing access by children to old painted surfaces in sub-standard housing rather than reducing the lead content of current paints. Thus, the establishment of an 0.05% lead content limit appears to be excessively cautious in view of the problems it would cause the consumer and the paint industry.

Thus, I respectfully suggest that you consider an ordinance patterned after FL 91-695, but limiting the lead content of paints manufactured for use on inhabited structures to 0.5%. This would be consistent with normal prudence without "breaking the back of the paint industry."

Very truly yours,

THE SHERWIN-WILLIAMS COMPANY



G. G. SCHERER

Director of Paint Research

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