R.A. Moore

OCT [illegible]

October 24, 1973

TO MEMBERS OF THE NPCA INDUSTRIAL METALS TASK FORCE

I'm enclosing a confidential copy of the Final Report (2nd draft) of our Lead Ingestion Study carried out by Midwest Research Institute.

Dr. Jack Frawley of our Task Force has met with Dr. Tom Castles of Midwest Research, and discussed an initial draft of the Final Report. The draft you are receiving was rewritten after their meeting.

I feel that there are still a few errors in paint terminology that should be corrected and I think the Discussion (page 58) and Conclusions (page 59) could be written in a manner that could be more readily understood.

Dick Moore and I have discussed this matter and decided it would be good to have all Task Force members look this over and make any suggested changes in the report you think advisable. We cannot, of course, change any figures or results. I believe, however, that Dr. Castles would not object to changes in the report which will make the information easier to understand and which will incorporate correct paint industry terminology.

The draft copy is for your use only. It cannot be reproduced or published until the report is published as an official NPCA document.

Will you please make suggested changes on the enclosed draft and return it to me promptly. Thanks for your cooperation.

Sincerely,

Royal A. Brown,
Technical Director

cc: Mr. R. A. Moore

RAB/fg

[illegible]

0007-SWP-036804

N22845

October 23, 1973

SPECIFIC CONCLUSIONS

1. Only two rats out of 200 had remarkable changes.
   a) Female fed 2.08% lead acetate —> Abscess on left shoulder during 9th week.
   b) Female fed 66.08% lead carbonate —> Abscessed hind foot during 10th week and shaved off her toes.
   This is not considered significant.
2. At the end of 13 weeks, the ALAD activity of rats eating lead acetate and lead chromate-containing paints did not vary from the control. While the ALAD activity of rats eating 66.08% lead carbonate and 11.92% NIH lead carbonate was depressed - 85% and 83% respectively.
3. At the end of 13 weeks, the blood lead levels in the rats fed lead acetate and 0.42% and 1.08% lead chromate were no different than control. However, the 12.42% lead chromate - 66.08% lead carbonate and 11.92% NIH lead carbonate paints did elevate blood levels significantly.
4. At the end of 13 weeks, detectable levels of lead in the brain were found only in rats fed 11.92% NIH lead carbonate paint.
5. At the end of 13 weeks, detectable levels of lead were found in the livers of only 2 rats fed 66.08% lead carbonate paint and 9 rats fed 11.92% NIH lead carbonate paint.
6. At 13 weeks no lead was found in kidneys of control group. In contrast, lead was detected in the kidneys 1-2 rats in each lead acetate group and the 0.42% and 1.08% lead chromate groups. Lead was detected in kidneys of 3 rats, 8 rats and 12 rats in the 12.42% lead chromate, 66.08% lead carbonate and 11.08% NIH lead carbonate paint groups.

SPECIFIC CONCLUSIONS CON'T

7. The lead content in the bone (femur) at 13 weeks was significantly above control in the rats fed 88.08% lead carbonate and 11.92% NIH lead carbonate - 16.8 and 18.4 µgm of lead/gm of bone respectively - All rats fed octoate and chromate paints had no more lead in their femur than the control group.

GENERAL CONCLUSIONS

1. The pathology seen in the control and treated rats were characteristic of those in a normal population of rats. No evidence of lead induced lesions were found.
2. The feeding studies show that lead octoate and lead chromate were not either readily absorbed or available for absorption.
3. Rats fed 9.1% diet (paint/feed) of old type paints containing 11.92% lead carbonate and old type paint, freshly made, containing 88.08% lead as carbonate exhibited early signs of lead poisoning. Rats fed a diet consisting of 9.1% new paint containing 12.43% lead as chromate exhibited exhibited only elevated blood lead after 13 weeks of feeding. A similar diet of new paint containing 2.08 lead as octoate produced no signs of lead poisoning.
4. The results reported from these feeding studies support the contention that lead is not readily absorbed from the new type paint when compared to the old type lead carbonate based paints.

RAMoore

October 23, 1973

SPECIFIC CONCLUSIONS

1. Only two rats out of 200 had remarkable changes.
   a) Female fed 2.05% lead octoate —> Abscess on left shoulder during 9th week.
   b) Female fed 66.08% lead carbonate —> Abscessed hind foot during 10th week and chewed off her toes.

   This is not considered significant.
2. At the end of 13 weeks, the ALAD activity of rats eating lead octoate and lead chromate-containing paints did not vary from the control. While the ALAD activity of rats eating 66.08% lead carbonate and 11.92% NMB lead carbonate was depressed - 88% and 82% respectively.
3. At the end of 13 weeks, the blood lead levels in the rats fed lead octoate and 0.42% and 1.98% lead chromate were no different than control. However, the 12.43% lead chromate - 66.08% lead carbonate and 11.92% NMB lead carbonate paints did elevate blood levels significantly.
4. At the end of 13 weeks, detectable levels of lead in the brain were found only in rats fed 11.92% NMB lead carbonate paint.
5. At the end of 13 weeks, detectable levels of lead were found in the livers of only 2 rats fed 66.08% lead carbonate paint and 9 rats fed 11.92% NMB lead carbonate paint.
6. At 13 weeks no lead was found in kidneys of control group. In contrast, lead was detected in the kidneys 1-2 rats in each lead octoate group and the 0.42% and 1.98% lead chromate groups. Lead was detected in kidneys of 3 rats, 8 rats and 12 rats in the 12.43% lead chromate, 66.08% lead carbonate and 11.92% NMB lead carbonate paint groups.

SPECIFIC CONCLUSIONS CON'T

7. The lead content in the bone (femur) at 13 weeks was significantly above control in the rats fed 66.08% lead carbonate and 11.82% NBS lead carbonate - 18.0 and 18.4 μ gm of lead/gm of bone respectively - All rats fed acetate and chromate paints had no more lead in their femur than the control group.

GENERAL CONCLUSIONS

1. The pathology seen in the control and treated rats were characteristic of those in a normal population of rats. No evidence of lead induced lesions were found.
2. The feeding studies show that lead acetate and lead chromate were not either readily absorbed or available for absorption.
3. Rats fed 0.1% diet (paint/feed) of old type paints containing 11.82% lead carbonate and old type paint, freshly made, containing 66.08% lead as carbonate exhibited early signs of lead poisoning. Rats fed a diet consisting of 0.1% new paint containing 18.43% lead as chromate exhibited exhibited only elevated blood lead after 13 weeks of feeding. A similar diet of new paint containing 2.08 lead as acetate produced no signs of lead poisoning.
4. The results reported from these feeding studies support the contention that lead is not readily absorbed from the new type paint when compared to the old type lead carbonate based paints.

RMoore