

Memorandum on Inspection of Lowe Bros. Plant, 3-13-46

The paint and varnish mixing and blending plants of the Lowe Bros. Company, Dayton, were inspected on 3-13-46. Of particular interest were certain portions of the plant on which comments are made below.

In the mixing room on the 5th floor of Building #4, local exhaust ventilation had been installed since the previous inspection in 1940. This consists essentially of exhaust ducts on each mixer at the side of the machine opposite the operator, with the opening of the duct extending roughly one-third of the way about the circumference of the top of the machine. During the operation of adding the dry pigments to the mixer, most of the visible dust appeared to enter these ducts. There was considerable accumulation of dry pigments on the wooden floor, and the janitor was observed to be sweeping up some dry freshly spilled materials. This was confirmed by our informants as the routine method of handling such spills. A visible but thin accumulation of white powdered dust was observed on the top of the ventilating ducts and other equipment. Our informants were unable to state whether this equipment had been washed down since it had been installed.

The amount of lead as white lead added to the various paint mixes was said to vary between zero and 370 pounds per batch. The method of handling this lead pigment was not seen. The observer was informed that the pigment came in drums, and was scooped out by hand, weighed, and then

added by hand scoop to the final mix. Whether this pigment was usually a dry powder, or ground in oil as outlined by J. J. Poppe, was not determined. Apparently the principal lead mixers were isolated in the southeast corner of the room.

The operation of unloading the freight cars of lead pigments was not observed.

In the lacquer plant obvious precautions against the potential fire hazard had been taken. The observer was informed that the only health hazard of practical moment to the men known to the building foreman was that new men were occasionally overcome by fumes when working unnecessarily close to the mixing vats. The heating of the mixing room was accomplished by forced ventilation, the fresh air being blown in from the floor, and the exhaust air pulled out at the ceiling. There was no local exhaust ventilation around the mixing vats.

The pump room in the basement had an exhaust duct connected to each pump. There seemed to be no general ventilation of this room, where the odor of volatile solvents was quite strong. There was no reason for men to work routinely in this room. The protection of maintenance men who repaired the pumps in case of leakage, and the entry of a night watchman into this room in case of leakage, presented apparent hazards. The methods used to protect the men in such situations were not clear.

The solvent storage room presented a problem similar to that of the pump room.

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The principal problem of the varnish makers seemed to be the occasional development of malodorous fume dependent upon meteorological conditions. The operators who added various solvents in conformity with the formulae used in making the varnishes and lacquers carried out this operation in a large open vat. This vat was situated in a room with a low ceiling, in which only natural ventilation was employed. A cooling coil was noted which was said to be lowered over the vat while the solvents were being mixed, in order to condense the fume and thus minimize loss due to evaporation. This mixing operation was not observed.

A similar vat in which paint remover was compounded, was situated within this room but was isolated from the others. The observer was informed that this remover contained 20% benzol and 11% ethylene dichloride by weight.

### Conclusions

A code prescribing the requirements for industrial health in the State of Ohio has been adopted recently. Under the provision of this code the limits of safety for exposure of workmen to many industrial chemicals have been prescribed. This code requires that the employer should know and control the concentration of the vapors, dusts, mists, etc. of harmful compounds within safe limits.

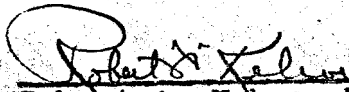
In order to assure Lowe Bros. that they are operating within these prescribed limits, and that they are adequately protecting the health of their workmen, the following specific recommendations are being made:

1. Air sampling representative of the range of the fume and dust hazard under operating conditions should be done by a qualified industrial hygienist.
2. This sampling should include the determination of
  - a) the lead content of the air in the vicinity of the lead mixers and railroad car unloading operations,
  - b) the lead content of the dust in these areas,
  - c) the concentrations of volatile solvent at breathing level near the lacquer mixers, in the pump room, in the solvent storage room, and in the solvent mixing room.
3. Analysis of the blood and urine of representative men exposed to lead dust, for their lead content.
4. Clinical examination and investigation of the possible occurrence of liver damage or blood destruction, on the part of the operators and maintenance men exposed to ethylene dichloride and benzol.

It seems probable that recommendations regarding changes in engineering design of certain of the operations and periodic examination of certain of the workmen, will follow such a study.

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Report approved by:

  
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Date: March 25, 1946

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