FILE NAME: Baldwin (BALD)

DATE: 1963 Mar 21

DOC#: BALD029

DOCUMENT DESCRIPTION: Inspection Report - Baldwin-Lima Hamilton Corp. - Lima Plant with Cover Letter

March 21, 1963

Mr. R. C. Maehlman
Safety Director
Baldwin-Lima Hamilton Corp.
Box L
Lima, Ohio

Dear Mr. Maehlman:

Enclosed are two copies of my report on your plant. I appreciate your sending me copies of your specifications. As you requested, I am returning them with this report.

Very truly yours,

DeWitt Huffman
Industrial Hygiene Engineer

DH:MH

enclosures

cc: Carl Horn

THE INDUSTRIAL COMMISSION OF OHIO
DIVISION OF SAFETY AND HYGIENE
700 West Third Avenue
Columbus 12, Ohio

March 21, 1963

Baldwin-Lima Hamilton Corporation
Lima, Ohio

1. On February 22, accompanied by Carl Horn of the Division of Safety and Hygiene, a visit was made to the above named company to check conditions under which wreckers were painted and assembled. This visit was made because the Union complained of conditions and had contacted Mr. Richard Tobin, Member of the Industrial Commission.

2. Contact was made with R. C. Maehlman, Safety Director, C. A. Stang, Manager of Manufacturing and F. E. Cheney, Plant Manager.

3. The company received a military order for 700 wreckers (automobiles and trucks, etc.). At the time of this visit they had built 200 of them. They are completing 100 per month and the contract will be terminated by July 1st. The work is done in the West end of a building, which building is approximately 400' x 150' x 24' to the roof of the low bay and 40' to the roof of the high bay. This is known as department #11. The painting of the vehicles is done in an area about 50' wide by 90' long. Welding is done just outside the area.

4. Some of the materials that are used in the painting of the parts are as follows:

(a) Turco-Solve.....1.67 gal/hr
This material consists of trichloroethylene and petroleum hydrocarbons. A test was made for trichloroethylene in the breathing zone of an employee applying the mixture and only a trace was found. Trichloroethylene has a threshold limit value of 100 parts per million, while the petroleum solvent has a threshold limit value of 500 parts per million. No occupational health hazard was established at the time of this visit. It should be pointed out that trichloroethylene in the presence of heat and/or ultraviolet radiation decomposes into phosgene gas which is highly toxic. Welders in the vicinity would be affected by this gas.

(b) Wash Primer.....0.53 gal/hr
This material has military specifications P-15328. It consists of a resin to which a solution containing 15% phosphoric acid is added before it is applied. A test was made with broad range indicator paper which showed little or no acidy. This is probably because the material has a high percentage of isopropyl alcohol which

1. On February 22, accompanied by Carl Horn of the Division of Safety and Hygiene, a visit was made to the above named company to check conditions under which wreckers were painted and assembled. This visit was made because the Union complained of conditions and had contacted Mr. Richard Tobin, Member of the Industrial Commission.

2. Contact was made with R. C. Maehlman, Safety Director, C. A. Stang, Manager of Manufacturing and F. E. Cheney, Plant Manager.

3. The company received a military order for 700 wreckers (automobiles and trucks, etc.). At the time of this visit they had built 200 of them. They are completing 100 per month and the contract will be terminated by July 1st. The work is done in the West end of a building, which building is approximately 400' x 150' x 24' to the roof of the low bay and 40' to the roof of the high bay. This is known as department #11. The painting of the vehicles is done in an area about 50' wide by 90' long. Welding is done just outside the area.

4. Some of the materials that are used in the painting of the parts are as follows:

(a) Turco-Solve.....1.67 gal/hr
This material consists of trichloroethylene and petroleum hydrocarbons. A test was made for trichloroethylene in the breathing zone of an employee applying the mixture and only a trace was found. Trichloroethylene has a threshold limit value of 100 parts per million, while the petroleum solvent has a threshold limit value of 500 parts per million. No occupational health hazard was established at the time of this visit. It should be pointed out that trichloroethylene in the presence of heat and/or ultraviolet radiation decomposes into phosgene gas which is highly toxic. Welders in the vicinity would be affected by this gas.

(b) Wash Primer.....0.53 gal/hr
This material has military specifications P-15328. It consists of a resin to which a solution containing 15% phosphoric acid is added before it is applied. A test was made with broad range indicator paper which showed little or no acidy. This is probably because the material has a high percentage of isopropyl alcohol which keeps it from ionizing and acting like an acid. When the acid is added to the resin a reaction takes place which neutralizes the acid. Employees were concerned because there was a warning label on the acid constituent. There should be no great health hazard in the use of this wash primer.

30

4. Cont'd.

(c) Red Oxide Primer.....1.72 gal/hr

The pigment consists of:
iron oxide - 50%
chromium oxide - 10%
zinc oxide - 10%
siliceous extenders - 30%

The vehicle which constitutes 60% of the paint is composed of oils and phthalic anhydride. The thinner is mineral spirits which has a threshold limit value of 500 parts per million.

(d) Olive Drab Enamel.....1.72 gal/hr

This material consists of the following:

Composition of Paint

Pigment - 33%
Vehicle - 67%

Composition of Pigment

Carbon Black - 2%
Ferrite Yellow - 42%
Crystalline Silica - 54%
Litharge - 1%
Aluminum Stearate - 1%

Composition of Vehicle

Linseed Soya Alkyd Resin - 38%
VM & P Naphtha - 62%

A sample taken in the breathing zone of an employee spraying small straps indicated a concentration of 10 parts per million of thinner. The material sampled would be the naphtha constituent (petroleum solvent) which would have a threshold limit value of 500 parts per million.

5. It should be pointed out that the day on which this visit was made was extremely cold and the paint would not readily volatilize so that the concentrations obtained would be lower than on a warmer day. Nevertheless the concentrations measured would not approach the threshold limit values.

6. The company has a small paint booth with a face to this booth 15' x 11' high. There are two fans in the booth. Air velocity measurements at the fans indicate that they exhaust approximately 4,250 cubic feet of air per minute. The velocity at the face of the booth was too low to be measured, but calculated from the amount of air exhausted by the fans, the face velocity would be 26' per minute. A test with smoke indicated that there was a slight air movement into the booth.

7. A write-up on spray painting was left with the company. This write-

siliceous extenders - 30%

The vehicle which constitutes 60% of the paint is composed of oils and phthalic anhydride. The thinner is mineral spirits which has a threshold limit value of 500 parts per million.

(d) Olive Drab Enamel.....1.72 gal/hr

This material consists of the following:

Composition of Paint

Pigment - 33%
Vehicle - 67%

Composition of Pigment

Carbon Black - 2%
Ferrite Yellow - 42%
Crystalline Silica - 54%
Litharge - 1%
Aluminum Stearate - 1%

Composition of Vehicle

Linseed Soya Alkyd Resin - 38%
VM & P Naphtha - 62%

A sample taken in the breathing zone of an employee spraying small straps indicated a concentration of 10 parts per million of thinner. The material sampled would be the naphtha constiuent (petroleum solvent) which would have a threshold limit value of 500 parts per million.

5. It should be pointed out that the day on which this visit was made was extremely cold and the paint would not readily volatilize so that the concentrations obtained would be lower than on a warmer day. Nevertheless the concentrations measured would not approach the threshold limit values.

6. The company has a small paint booth with a face to this booth 15' x 11' high. There are two fans in the booth. Air velocity measurements at the fans indicate that they exhaust approximately 4,250 cubic feet of air per minute. The velocity at the face of the booth was too low to be measured, but calculated from the amount of air exhausted by the fans, the face velocity would be 26' per minute. A test with smoke indicated that there was a slight air movement into the booth.

7. A write-up on spray painting was left with the company. This write-up indicates that 15,000 cubic feet of air per minute should be exhausted for every gallon of paint used per hour. Several gallons of paint is used per hour, so the amount exhausted should be more than 30,000 cubic feet of air per minute. The building in which the work is done is very large, so much of the paint vapors would escape through natural ventilation, otherwise, more ventilation would be suggested.

7. (cont'd.)

If this work in the plant were continuous, a regular paint spray booth would be recommended, or it would be recommended that this work be done in that part of the plant where the company has a regulation paint spray booth.

8. It is recommended that the company exhaust at least 30,000 cubic feet of air per minute from the area in which spray painting is done.

9. It was a pleasure to visit this plant, and the cooperation extended by both management and employees is greatly appreciated.

DeWitt Huffman
Industrial Hygiene Engineer

DH:MH

enclosures: Write-up on Spray Painting

Chemical Safety Data Sheet SD-70