

FILE NAME: Goodyear (GY)

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September 19, 1949

Jack Kidney, Safety Director
Goodyear Tire & Rubber Company
Akron, Ohio

Dear Mr. Kidney:

Copy of a survey report of the Aircraft Division
of Goodyear submitted to me by Don Hanna, Safety
Advisor in the Division of Safety and Hygiene, is
enclosed for your information and guidance.

Please feel free to call on this Division at any
time we can be of further service to you.

Very truly yours,

Encl

JAMES H. FLYNN, SUPERINTENDENT.

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DIVISION OF SAFETY AND HYGIENE
September 19, 1949

James H. Finkler, Superintendent
Division of Safety and Hygiene
Columbus, Ohio

In re: Goodyear Tire & Rubber Company
Aircraft Division
Akron, Ohio

On September 14, 1949 a visit was made to the above named Division of Goodyear Tire and Rubber Company to check dust conditions in the manufacturing of brake blocks.

Contact was made with Jack Kidney, Safety Director for Goodyear, and W. C. Wright, Manager of Training and Personnel Services, Aircraft Division.

I would like to state first that Goodyear uses a code system for all materials which go into their manufacturing processes and where it is impossible to obtain the correct name of the materials used, there is always the possibility of a chance for error in determining the toxicity of these materials unless a complete analysis is made of each such material.

On the date of visit no analysis was made of any material used in the manufacturing of brake blocks. The materials used on some of the batches were:

Ruthic	Iron Dust	10570x
Asbestos	Brass Chips	10515
Lead Black	Carbonumum	10514
Dicalite	Ajux	

TOXICOLOGY OF MATERIALS USED

Ruthic:

According to information obtained from the company, this material is a phenol formaldehyde plastic. Phenol is carbolic acid; formaldehyde is a gas soluble in water. These two compounds would be present in the material. We have, on some occasions, experienced a form of dermatitis on certain individuals who were exposed to dust from this type materials. Blondes seem to be more susceptible to this dermatitis.

10570x; 10515; and 10514:

These code numbers represent cements used. The writer was informed that none of the cements used in the compounding of brake blocks contained benzene. Methyl ethyl ketone (MEK) is the solvent used in place of benzene.

MEK is known as "butanone" which is $\text{CH}_3\text{CO CH}_2\text{CH}_3$. This is a colorless liquid with an odor resembling that of acetone. The commercial product boils between 78.5° and 90.7° C. MEK has a distinct odor and is markedly irritating to the nose and eyes of man. It has moderate warning properties producing an irritation of the eyes and throat in concentrations apparently harmless to animals, such as guinea pigs, even after several hours of exposure.

Flammable mixtures of the vapor in air are practically intolerable to man because of the odor and eye and nose irritation.

ASBESTOS:

The long fibered type asbestos is used and the inhalation of asbestos dust over a period of years produces a lung disease known as "asbestosis". There is no known cure for this disease. Its action is similar to that of silicosis. Various States, including Ohio, have set a maximum allowable concentration of dust from asbestos as not to exceed 5 million particles of dust per cubic foot of air.

I would like to suggest that 2 million, or even less, be established where there is the possibility of employees inhaling asbestos dust.

LEAD BLACK:

There is a possibility that only lead black is used in the compounding of the brake

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blocks and that no powdered lead in any form is used. I am not certain if this is the case. If only lead black is used, then no lead hazard would be produced since lead black is graphite and graphite is carbon.

I am wondering why this company maintains periodic urinary analyses for lead on the employees working in this department if no lead compounds are used.

DICTALITE:

The writer has no information available on the toxicity of this coded material.

IRON DUST:

This type dust, while not considered toxic, will produce a lung condition which simulates silicosis on x-ray plates. It is called "siderosis" and is not disabling. The dust coats the lungs a brownish red color and, although not toxic, should not be inhaled.

BRASS CHIPS:

Brass is a copper-zinc alloy of varying composition. It usually contains some lead or tin, sometimes both, with small percentages of other material. We of the Division of Safety and Hygiene do not feel that the small percentage of lead in the brass would ever be a factor in producing lead poisoning. Our chief complaint from brass grinding operations is the discoloration of the skin experienced by the employees. This operation produces a greenish color.

CARBORUNDUM:

This is a registered proprietary name for silicon carbide. Silicon carbide does not contain any free silica and is not considered toxic. It is an extremely hard substance. Silicon carbide does produce irritation of the nose and throat.

IRON DUST AND BRASS CHIPS:

The inhalation of iron dust, dust from brass chips and carborundum dust may produce a bronchitis or a nasal inflammation on certain individuals.

AJAX:

No toxicity information is available on this material.

The rathic material is first mixed with the MEK in an open vessel. No exhaust is provided for this mixing operation. I recommend that an exhaust be provided for this unit because of the dermatitis which might be produced from any dust generated.

There is a fire hazard in connection with the use of MEK. It is therefore recommended that the motor on the agitator be of a vapor-proof type, that it be non-explosive and that it be correctly grounded.

After the plastic material is mixed with the MEK, it is placed in a dry mixer and the asbestos, lead, brass chips, dictalite, iron dust and carborundum, etc. are added. This mixer is enclosed and a seal is maintained around the opening on the door at the top. A slight vacuum is produced therein. There is a condenser unit connected to the mixers so that the solvent MEK can be retained. Since these two mixers are all enclosed, no dust would escape and no exhaust system is deemed necessary.

After the material is thoroughly mixed, it is removed and allowed to dry, after which it is placed in a Cumberland grinder. An employee ground some of this dry material in the grinder on the date of this visit. Extremely high dust concentrations escaped into the atmosphere during the operation. It is, therefore, recommended that this Cumberland grinder be adequately exhausted.

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The ground material is then made into pellet form. An employee weighs specific amounts of the materials and places them by hand in a press. No great amount of dust is produced in this operation but when the company replaces this hand operated press with an automatic pelleting machine some dust may be produced in the operation thereof. The actual amount can only be found by taking dust counts. If the counts are high, such as over 5 million particles of dust per cubic foot of air, then exhaust should be provided for the new machine.

In the weighing out of various materials for the batch, a respirator should suffice as protective equipment for the operator. Because of the few moments spent each day in this weighing, elaborate exhaust systems are not practical. However, the use of a gauze mask is inadequate protection from dust and only an approved Bureau of Mines respirator should be furnished.

After palleting, the brake block is then placed under heat and pressure and no dust is generated at this operation.

The only other dust produced is at a vertical surface grinder which is used to remove rough edges from the block. Since this grinder fractures the dust into extremely small micronic particles, it is recommended that this grinder be exhausted.

The chief dust hazards appear to be non-toxic in nature with the exception of the asbestos and any lead, if used. However, these dusts, which are from the many compounds used, can very easily produce troublesome problems. All dusts are compensable providing proof can be shown by medical authorities that they, the dusts, are a factor. It should, therefore, behoove management to exhaust each dust producer to an outside collector.

The brass chips in the barrels are immersed, barrel and all, in a trichloroethylene degreasing tank. Employees complain of the fumes from the trichloroethylene. The writer did not find any holes in the bottoms of the barrels which would allow the trichloroethylene to escape. It is therefore recommended that all odor of trichloroethylene be removed from the barrel of chips before it is brought into the brake block area. It may be necessary to install a specially exhausted cabinet in which to place the barrels until all odor is removed.

Investigation disclosed that employees are required to notch chips of asbestos board with a circular saw. They also must sand several layers of these boards on a spindle type sander. The dust generated on both these operations is excessive and constitutes a health hazard. It is, therefore, recommended that the saw and sander be exhausted and that the dust from such a system be collected in an outside dust collector.

Asbestine type talc, air floated, is used to dust platens. Since the toxicity of the talc is questionable, I suggest that it be replaced with that of a dusting powder which has been proved to be non-toxic.

While walking through the kitchen of a cafeteria in the Aircraft Division, it was noted that a meat grinder was not adequately guarded. The distance from the worm to the throat of the hopper was approximately 8 inches. No wooden meat stomper is used. A man grinding the meat uses his hand to press the meat into the hopper. The possibility of the loss of a hand or all fingers is extremely great. It is, therefore, recommended that a safety type hopper be obtained for the grinding of all meat in all Goodyear-operated kitchens. The A & P Tea Company, in conjunction with The Hobart Manufacturing Company, has designed a special guard for meat grinders.

There is one more hazard which seems to have been overlooked. A paint spray booth located in the area where small white porcelain cabinets are being constructed is in a deplorable condition. Used paint rags were on the floor and a heavy coating of paint was adhering to the inside walls of the booth. It is, therefore, recommended that this booth be cleaned and kept clean; that all paint rags be immersed in a metal container one-third full of water. The use of water in this container will prevent spontaneous combustion. At the present time this booth is a definite fire hazard.

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The writer wishes to thank management for the privilege of surveying the brake block area and sincerely trusts that the company will immediately take steps to determine whether any form of lead is used in the brake block operation.

Respectfully submitted,

JOHN HANNA
SAFETY ADVISOR

Dm:fm

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