

FILE NAME: Goodyear (GY)

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DOCUMENT DESCRIPTION: Letter from Industrial Commission to Goodyear RE Claimant and Work History, Carcinogen Exposure



The Industrial Commission
Of Ohio
Division Of Safety & Hygiene
246 N. High St., Col., O. 43215

June 29, 1982

Legal Section
Industrial Commission of Ohio
246 North High Street
Columbus, Ohio 43215

Re: OD-18378-22
Donald Lusby, Sr.
Goodyear Tire & Rubber Co.
1144 East Market Street
Akron, Ohio 44316
Risk #SI 2351 - Manual 4420

Attention: Judy Spencer

Dear Ms. Spencer:

A visit was made to the above company to determine the employment history and working conditions of the claimant. The claimant believes his condition, a Grade III transitional cell carcinoma of the urinary bladder, is related to chemical exposure during his employment at Goodyear Tire and Rubber Company, with emphasis on Department 104 B, Quality Control Lab.

The personnel record was very sketchy with few details as to the claimant's actual job within a given department, which was listed only by numerical designation, many of which no longer exist, or have changed significantly in process or product.

The claimant had prior employment at Grant Hide Company in Vermont.

Goodyear employment records indicate the following:

- 5/19/30 Mechanic Department 197 - Probably garage repair of trucks, buses, forklifts. An employment physical dated June 17, 1930, was unremarkable.
- 1/1/36 Unknown, no listing of employment.
- 9/6/40 Balloon assembly Department 180 - Probably stitched and cemented fabric for barrage balloons and blimps.
- 9/42 Wing deicers/aircraft - Plant 3, Dept. 379.

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8/20/45 Department 271 C - Assemble and cure V belts (industrial products).

8/27/45 Department 238 - Refiner operator. Inadequately mixed rubber from the banburys is sent back to a refiner for re-milling.

7/46 Ditto.

9/46 Department 272 C - Making large industrial belts such as conveyor belts and curing in an open side platten press.

1947 Department 272 A - Same department. Miscellaneous work, probably relief man or trucker.

8/52 Department 251 D - Inflatable airbags (probably similar to balloon assembly).

11/52 Department 251 D - Quality cleaning. Remove mold marks, brush white side wall tires with blue sodium silicate.

10/54 Department 291 A - Elevator operator industrial products. Probably transporting belts, hoses, raw rubber stock and chemicals.

20/20/54 Department 152 B - Lab from baggers. Probably took samples from tire cure presses, which used air bags to form the uncured tire, to the physical test lab.

6/2/55 Department 104 B - Quality Control. Physical test lab. A small 2" x 2" x 1/4" square of rubber is heated and cured and then tested for modulus and specific gravity.

8/1/71 Pensioned.

Those contacted were: Mr. Hal Ward, Manager of Waste Control; Mr. Jim Anderson of Compound Technology; Mr. Joe Hóltshouser, Manager, Corporate Industrial Hygiene; Mr. John Pflaum, Industrial Hygienist; and Mr. N. R. Adams, Group Leader of the Quality Control Test Lab.

In approximately 1972 the physical test lab location was changed. The presses in the old test lab operated on steam and air pressure. There were five presses with two operators per shift in a 20' x 20' room. Rubber stock samples from the banbury were heat cured for eight minutes and tested for specific gravity and modulus. Ventilation apparently consisted of wall exhaust fans behind the presses and open windows.

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A small 16" mill was in the lab room to make test batches of rubber compound. Typically, it was used one hour per day and used approximately 80 grams of dry additives to the base rubber. Ventilation consisted of a wall exhaust grille. The claimant reportedly, did not operate the mill. Apparently beta-naphthylamine was phased out of the rubber industry at about the point in time the claimant worked in this area. Solvents were not used in Department 104 B.

An adjacent lab tested adhesives for solids and viscosity. There were two female employees per shift. Probably solvent vapors from the cement lab permeated the quality control physical test lab. The claimant specifically mentions several code named solvents.

Robene = Toluene, causes central nervous system depression.

Texene = Petroleum naphtha, rubber solvent, boiling range 4:-130°C. Petroleum naphtha is not a distinct entity, but rather an amorphous combination of numerous hydrocarbons of higher average molecular weight than the average hydrocarbons of gasoline. The chief manifestation of exposure has been described as central nervous system depression.

Mekyl = Methyl Ethyl Ketone, an irritant of the eyes, mucous membranes and skin, at high concentrations may cause symptoms of central nervous system depression such as dizziness or drowsiness.

Benzine = Petroleum Naptha, boiling range 60-110°C (see above). Also known as ligroin or petroleum ether, although technically it is not an ether, do not confuse with benzene.

Alcohol = Isopropyl alcohol, an irritant of the eyes and mucous membranes, ingestion causes central nervous system depression and it is expected that inhalation of high sustained concentrations will produce the same effect.

None of the above named compounds are known bladder carcinogens at this time.

Hamilton and Hardy^[1] reported in 1974 that the so-called aniline tumor of the bladder was currently believed to be related to absorption of any one of the following aromatic compounds:

- 2-Naphthylamine (Beta-naphthylamine)
- 4-Aminodiphenyl (xenylamine)
- 4-Nitrodiphenyl
- 4,4-Diaminodiphenyl (benzidine)

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They further state: the fact that many aromatic amines are present in those segments of the chemical industry in which occupational bladder tumors have arisen has produced speculation as to relative toxicities of compounds, the proximate carcinogen, and the carcinogenic mechanism. As far as known, only these compounds listed above produce bladder tumors in man.^[2]

Beta-naphthylamine was used in past years as an anti-oxidant in the rubber industry, including Goodyear. Reportedly, it may have constituted 0.1 of 1% of the rubber compound used for tires, and was phased out in the mid 1950's when the hazard became known. The average latent period is 16 years. It is a white to reddish crystal with a melting point between 112° and 113° C.

Raw ingredients (rubber, filler, antioxidants) are weighed then mixed together in a banbury mixer. Environmental exposure to particulates is high at this step. The rubber mix from the banbury is processed further under heat and pressure in a mill until the rubber is in a soft, plastic state. This is probably the first work area where there is substantial exposure to "reaction" products. During curing of the green uncured product (tires, tubes) the product is cured under heat and pressure in a press. The major environmental exposure is to reaction products.

4-Aminodiphenyl was previously used as a rubber anti-oxidant. However, according to Mr. Holtshouser it was not used at Goodyear.

4-Nitrodiphenyl is a chemical intermediate in the preparation of 4-aminodiphenyl.

4,4-diaminodiphenyl (benzidine) was a hardener for rubber. According to Mr. Holtshouser, it was not used at Goodyear.

Bladder cancer is known to be associated with occupational exposure to certain aromatic amines, with cigarette smoking, and possibly, but no means certainly, with coffee drinking. It has been suggested that in industrialized areas in England and the United States, 20-30% of bladder cancer in man is occupational, that about 30% is a consequence of the cigarette smoking habit and, if an association really exists, 30% of the disease may be attributable to coffee drinking.^[3]

According to Segi^[4] the age-adjusted death rate in the United States for 1964 from cancer of the bladder and other urinary organs was 4.96/100,000 in white males.

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References:

1. A. Hamilton and H. C. Hardy, Industrial Toxicology, 3rd ed., 1974.
2. R. R. Beard and J. T. Noe, Patty's Industrial Hygiene and Toxicology, Volume 2A, 3rd revised ed., 1981.
3. D. B. Clayson, Occupational Bladder Cancer, Preventive Medicine 5, 228-224 (1976).
4. M. Segi, etal, Cancer mortality for selected sites in 24 countries. No. 5 (1964-1965) p. 122; Dept. Public Health, Tokoku University, Sendai, Japan 1969.
5. R. R. Monson and K. K. Nakano, Mortality among rubber workers I. White male union employees in Akron, Ohio: Am J. Epidemiology 1976; 103:284-96.
6. A. J. McMichael etal. Cancer mortality among rubber workers. Ann N.Y. Academy Sci 1976; 271:125-37.
7. H. Checkoway, etal, A case control study of bladder cancer in the United States rubber and tire industry. British Journal of Industrial Medicine 1981; 38:240-246.