



THE INDUSTRIAL
COMMISSION OF OHIO

Richard F. Celeste
Governor

Corporate Plaza Office Building
6500 Poe Avenue, Suite 330
Dayton, Ohio 45414

PLAINTIFF'S
EXHIBIT
BRK-28

January 4, 1989

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

RE: OD 32010-22
Claimant: Carlos Welch
Company: Inland Division
General Motors
P.O. Box 1224
Dayton, Ohio 45401

Dear Ms. Spencer:

On December 5, 1988, Mr. Ken Wilson, Industrial Hygienist, and I visited Inland Division to conduct the requested occupational disease claim investigation. Representing Inland Division were Mr. Thomas Jelenek, Administrator Health and Safety, and Ms. Edna Scheuer, Attorney-at-Law, Smith and Schnacke.

Employment History

Mr. Carlos Welch worked at Inland Division for thirty years, from November 1955 to December 1985. He worked in three general classifications: factory worker, group leader, and lift truck operator. In 1955 he began in Department 1, also believed to be Department 310 in later years. Mr. Welch, whose length of service in this department was established to be less than 3 months, worked with lampblack. His job description of record was identified as "prep, weigh, cut, raw stock". He was not listed as being involved in any type of rubber compounding operations.

From 1955 to 1962 he was listed as having several jobs such as load/unload; assembly; foam joints; and sponge

Judy Spencer
Legal Section
Page 2

From 1962 to 1972 the claimant worked in several different departments, as identified by changes in department numbers. However, the company representatives stated that the functional duties remained essentially the same. These included repair, finish, group leader, and packing. Mr. Welch handled group leader responsibilities during 1964 to 1965. Instrument panel pads were the only finished products handled in these departments. 2,4 - toluene diisocyanate, also known as TDI, was used in a mixture with MDI, also an isocyanate, at a 25/75 percent concentration ratio, in the production of instrument panel pads. Mr. Welch was reported to work with the finished product only, not in the mixing or production departments.

From 1972 to 1985 Mr. Welch worked in Departments 951 and 956 as a lift truck operator. His duties were to load and unload boxcars. The attorney provided a copy of employment history records that have been included with this report.

Medical Evaluation

From the "Attending Physician's Questionnaire", dated April 9, 1987, in the facsimile file, Mr. Welch was diagnosed as having "asthmatic bronchitis, chronic obstructive and restrictive lung disease (both severe)". The doctor (signature not legible) also noted that the "patient states he was exposed to asbestos, TDI, and lampblack. He notes his symptoms have been gradual in onset." Facsimile file documents show that the claimant has smoked one-half to two packs of cigarettes per day for 38 or more years.

Environmental Sampling Data

No environmental sampling data were reviewed during this investigation. The National Institute for Occupational Safety and Health (NIOSH) conducted an investigation of skin rashes during the late 1970's (exact dates not discussed). Numerous air sampling data were gathered during this investigation; however, the findings were never formalized by NIOSH. Mr. Jelenek stated that GM records show that no over-exposures to TDI were ever found during normal production.

Judy Spencer
Legal Section
Page 3

acetylene black, charcoal, bone black, or graphite. Carbon black may contain traces of sulfur and of ash as well as 0.1% to 1.5% adsorbed polycyclic aromatic hydrocarbons that include benzo(a)pyrene. Epidemiological studies in North America have revealed no unusual risk of malignancy or heart disease in carbon black workers (Robertson and Ingalls, 1980) despite the report of Maisbal et al. (1959) of a case of parotid duct cancer in a carbon black chemist." (3, page 341) The American Conference of Governmental Industrial Hygienists (ACGIH) "recommends a time-weighted average threshold limit value of 3.5 milligrams per cubic meter in order to minimize complaints of excessive dirtiness. This recommendation applies only to commercially produced carbon blacks. Soots derived from combustion sources, containing adsorbed polycyclic aromatic hydrocarbons, are excluded from the recommended TLV for carbon black." (2, page 101(86)).

Asbestos - Asbestos fibers enter the body by inhalation and ingestion. The fibers are retained in the tissues of the host long after cessation of exposure. Fibers may migrate to other organs following ingestion or deposition in the lung. Asbestosis and some cancers are associated with exposure to asbestos fibers.

Asbestosis is a progressive restrictive pulmonary fibrosis. Malignancies associated with asbestos exposures include carcinomas of the lung; mesotheliomas of the pleura and peritoneum; and neoplasms of other sites.

Asbestos has a synergistic effect with cigarette smoking in producing carcinoma of the lung. Asbestos workers who are smokers have a much greater risk of developing lung cancer than non-smoking asbestos workers. A study of asbestos insulators by Hammond and Selikoff showed that nearly all cancers occurred in cigarette smokers. (2, pages 40-42)

TDI - Diisocyanates can irritate the respiratory tract and are respiratory sensitizers, producing asthma-like symptoms in sensitized individuals with exposure at very low concentrations. Exposure to diisocyanates may result in chronic impairment of pulmonary function.

This group of substances includes toluene diisocyanate (TDI) hexamethylene diisocyanate (HDI), diphenyl methane

Chronic Obstructive Pulmonary Disease - A literature review of the claimant's diagnosed condition yields the following information. Emphysema and chronic bronchitis make up the disease category called chronic obstructive pulmonary disease (COPD). At one time they were viewed as distinct clinical conditions, but it is now clear that in most patients they coexist, although one or the other may predominate. These are chronic disorders and are characterized by progressive limitation of the air flow into and out of the lungs. Emphysema is identified by its characteristic alteration of lung architecture. A person with emphysema has destruction of the walls of the smallest air passages, called bronchioles, and the walls of the small air sacs, called alveoli, that function as the gas exchanging units of the lung. The alterations result in abnormally enlarged air spaces. Chronic bronchitis is characterized by excessive mucus secretion in the bronchial tree which leads to a persistent, productive cough. An individual is considered to have chronic bronchitis if cough and sputum are present on most days for a minimum of three months for at least two successive years or for six months during one year.

In emphysema, the limitation of airflow is caused by abnormalities of lung elastin, as supporting tissue in the bronchioles and the walls of the alveoli. This abnormality in elastin results in collapse or narrowing of the small airways which in turn limits airflow out of the lung. Once this damage occurs, it is irreversible. Emphysema can follow chronic bronchitis or any other lung condition in which the airways become seriously clogged or obstructed. (A few people have an inherited enzyme deficiency that predisposes them to emphysema, regardless of other lung diseases or exposure to hazards.)

In chronic bronchitis, airway obstruction is due to inflammatory changes in the walls of the bronchi which causes them to thicken. This thickening, together with excessive mucus production obliterates some of the smaller air passages and narrows larger ones. These changes are to some degree reversible.

The three most significant factors contributing to the disease are smoking, air pollution, and occupational exposures. The effects of cigarette smoking are massive and obscure the effects of environmental agents such as dusts.

Judy Spencer
Legal Section
Page 5

Employment history information suggests that Mr. Welch's exposure to these materials was either of short duration or in a form that would be unlikely to produce significant exposure risk (finished product or wetted mixture). The literature points out that increased risk of malignancy or heart disease has not been associated with exposure to lampblack. The claim file states that asbestosis has not been diagnosed in the claimant. TDI can produce an asthmatic-like sensitization of the respiratory system; however, the onset of asthmatic symptomology does not correlate to the claimant's employment history where TDI exposure (by job classification) may have occurred. It is not known how often the claimant may have passed through areas (non-job classification) where isocyanates were used.

Respectfully,



CHRIS OTTOSON
Certified Industrial Hygienist

References

1. Criteria for a Recommended Standard . . . Occupational Exposure to Diisocyanates, NIOSH, 1978.
2. Documentation of the Threshold Limit Values, Fifth Edition, American Conference of Governmental Industrial Hygienists, 1986.
3. Hamilton and Hardy's Industrial Toxicology, Fourth Edition, Revised by Asher J. Finkel, PSG Publishing Company, Inc., Littleton, Massachusetts, 1983.
4. Encyclopedia of Occupational Health and Safety, International Labor Office, Geneva, Switzerland; 3rd Edition, Vol. 1, 1983, pages 331 - 332, 436 - 438.