

PLAINTIFF'S
EXHIBIT
USX-88



PROCEEDINGS FIBROUS DUST SEMINAR

November 22, 1968

Medical Series
Bulletin No.
16-70

INDUSTRIAL HYGIENE FOUNDATION OF AMERICA

5231 CENTRE AVENUE

PITTSBURGH, PA 15201

USEI000138

PROCEEDINGS

FIBROUS DUST SEMINAR

November 22, 1968
Mellon Institute of
Carnegie-Mellon University
Pittsburgh, Pennsylvania

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Industrial Hygiene Foundation of America, Inc.
5231 Centre Avenue
Pittsburgh, Pennsylvania 15232

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PREFACE

This Fibrous Dust Seminar represents an important step towards fulfillment of the first goal in which direction industry should be moving according to Dr. Theodore Hatch, IHF Trustee Emeritus, in Industrial Hygiene Highlights - Vol. 1—i. e., protection of employee health.

These proceedings exemplify industry's attempts with IHF's help to advance scientific progress by use of epidemiological and biostatistical studies, in plant as well as in the experimental research laboratory.

Studies on fibrous glass, which appears to have no demonstrable pathogenic effects, provide an effective control over those investigations on asbestos bioeffects reported herein, all of which have been performed in or for IHF. It can be seen that studies designed to investigate pathogenic effect become highly sophisticated in an attempt to prove the "null hypothesis." These studies of fibrous dusts are still under way and further progress will be reported as it develops in an effort to keep our members and the interested scientific and professional communities advised.

The use of fibrous dusts is so widespread today that all those responsible for employee health should find this bulletin interesting and useful.

Robert T. P. deTreville, M. D., Sc. D.
President

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ANALYSIS OF OCCUPATIONAL DISEASE COMPENSATION STATUTES AND
DEVELOPMENTS IN 1947 SESSIONS OF STATE LEGISLATURES
PREPARED FOR FOUNDATION MEMBERS

by

Theodore C. Waters
Chairman, Legal Committee
Industrial Hygiene Foundation

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May, 1947

USEI000143

TENN. CODE

1. Effective date of Act - March 12, 1947.
2. Schedule of compensable diseases: (See Item 6 below)
 - Lead poisoning
 - Metal fume fever
 - Silicosis
 - Benzol poisoning
 - Dermatitis
 - Miner's disease, including only cellulitis, bursitis, nystagmus, ankylostomiasis, tenosynovitis
 - Anthrax
 - Asbestosis
 - Chronic manganese poisoning
3. Compensation is payable for partial disability, total disability or death resulting from occupational disease in the same manner as compensation is payable under the Workmen's Compensation law for injury by accident.
4. Medical Board
 - (No provision)
5. Limitations
 - (a) An employee must give written notice to the employer within thirty (30) days after the first distinct manifestation of the disease
 - (b) Suit must be commenced within one year after the beginning of incapacity for work resulting from an occupational disease, and if death results from the occupational disease, suit must be commenced within one year thereafter.
6. Election of employer

By the provisions of Senate Bill No. 1088 (Chapter 197, Laws of 1947) an employer may elect general coverage for any and all occupational diseases.

TEXAS

1. Effective date of the Act - The bill was signed by the Governor on April 19, 1947 and becomes effective ninety days after the adjournment of the Legislature (date of adjournment now not certain).

2. Schedule of compensable diseases:

Poisoning by:

Aluminum trioxide
Arsenic
Benzol or its homologues and derivatives
Beryllium
Cadmium
Carbon bisulphide
Carbon dioxide
Carbon monoxide
Chlorine
Cyanide
Formaldehyde
Halogenated hydrocarbons
Hydrochloric acid
Hydrofluoric acid
Hydrogen sulphide
Lead
Manganese
Mercury
Methanol (wood alcohol)
Methyl chloride
Nitrous fumes
Nitric acid
Petroleum or petroleum products
Phosphorus
Selenium
Sulphuric acid
Sulphur dioxide
Sulphur trioxide
Tellurium
Thallium
Zinc

Anthrax caused by handling of wool, hair, bristles, hides and skins

Blisters caused by prolonged or repeated use of tools or mechanical appliances

Synovitis, tenosynovitis, or bursitis due to an occupation involving continual or repeated pressure on the parts affected

Chromic ulceration

Compressed air illness

Dermatitis, that is, inflammation of the skin due to oil, cutting compounds or lubricants, dust, liquids, fumes, gases or vapors

TEXAS (Cont'd)

Diseased condition caused by exposure to x-rays or radioactive substances

Diseased condition of the eyes due to electric arc and welding, and cataract in glass workers

Epitheliomatous cancer or ulceration of the skin or of the corneal surface of the eye caused by tar, pitch, bitumen, mineral oil or paraffin or any compound, product, or residue of any of these substances

Glanders and other diseased conditions caused by handling any equine animal, or the carcass of any such animal

Infectious or contagious disease contracted in the course of employment in or in immediate connection with a hospital or sanatorium in which persons or animals suffering from such disease are cared for or treated

Nystagmus incurred in underground work

Asbestosis

Silicosis

3. Special provisions for silicosis and asbestosis

- (a) Compensation is payable for partial disability, total disability and death
- (b) Limitation of monetary liability

If incapacity or death occurs within the first twelve months after the effective date of the Act, compensation limited to 20% of the number of weeks of compensation otherwise payable for such incapacity or death; this amount is increased in each succeeding twelve months period by an additional 20% of the number of weeks of compensation otherwise payable for such incapacity or death until the amount attained equals the amount payable for incapacity in the same manner had such incapacity or death been due to an injury other than an occupational disease.

4. Medical Board

Upon motion by either party the Workmen's Compensation Board shall appoint a medical committee of three doctors who shall examine the claimant and report to the Board its opinion regarding all medical questions in the case. The opinion of the medical committee is advisory to the Board.

5. Limitations:

An employee shall give notice to the employer thirty (30) days after the first distinct manifestation of the disease and file claim within six months after the first distinct manifestation of the disease, or in case of death within six months after date of death. The Workmen's Compensation Board may, in meritorious cases, waive strict compliance with the foregoing limitations as to notice, and the filing of the claim before the Board.

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EXEMPTS FROM THE INDUSTRIAL HYGIENE CODES OR REGULATIONS

DATED APRIL, 1949

Illumination (Section 15)

1. Seeing tasks requiring discrimination of fine detail under conditions of fair contrast and where the nature of the work is very exacting and prolonged shall be provided with a minimum of 100 foot-candles of illumination.
 2. Similar seeing tasks under conditions of moderate contrast should be provided with a minimum of 50 foot-candles of illumination.
 3. Seeing tasks requiring moderate discrimination of detail over intermittent periods of time under conditions of normal contrast should be provided with a minimum of 30 foot-candles of illumination.
 4. Casual seeing tasks not involving discrimination of fine details should be provided with a minimum of 10 foot-candles of illumination.
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Ventilation and Temperature Requirements (Section 16)

1. Outside air should be provided to all workrooms at the rate of 15 cubic feet per minute per person, or 1-1/2 air changes per hour, whichever is greater.
2. Workers should not be subjected to air velocities exceeding 200 feet per minute.
3. In work rooms where strenuous work is performed, the minimum air temperature should be 60° F.
4. In all other workrooms, unless prohibited by process requirements, minimum air pressure should be 65° F. *P. T. O. E. F.*

Sanitation (Section 20)

1. Every place of employment shall be provided with adequate toilet facilities (water closets)* conveniently located and separate for each sex according to the following:

1 to 9 employees	1 facility
10 to 24 "	2 facilities
25 to 49 "	3 facilities
50 to 74 "	4 facilities
75 to 100 "	5 facilities
Over 100 "	1 additional facility for each additional 30 employees

- * Where the installation of a water-carriage sewerage system may be impracticable, the authority may designate another type of toilet facility approved by the public health agency having jurisdiction.

(Urinals instead of water closets for male employees may be substituted in a ratio of not more than one-third urinals in the above minimum facility schedule).

2. Every place of employment shall be provided with adequate washing facilities in the ratio of one lavatory (or equivalent wash place) for each 10 employees up to 100 persons and one lavatory (wash place) for each additional 15 persons. Each lavatory (wash place) shall be provided with soap and hot and cold running water.
3. A minimum of one shower bath with ample supply of hot and cold water from one fixture shall be provided for every 15 employees or fraction thereof exposed to excessive heat, or to skin contamination with poisonous, infectious, or irritating material.

Service Facilities (Section 21)

1. Where 10 or more women are employed at any one time, at least one retiring room for their exclusive use shall be provided.
2. Where less than 10 women are employed and a retiring room is not furnished, some equivalent space shall be provided which can be properly screened and made suitable for the use of women employees.
3. The minimum space provided for a retiring room for 10 women shall be 60 square feet. The minimum increased space for more shall be at least 2 square feet for each additional women employed.
4. At least one couch or bed shall be provided in every place where more than 10 women are employed. The number of such beds or couches required shall be as follows: 10 to 100 women, one bed; 100 to 250 women, two beds; and one additional bed for each additional 250 women employed.

Values Recommended by the Committee on Threshold Limits at Eleventh Annual Meeting of the American Conference of Governmental Industrial Hygienists, April 1950.

GASES AND VAPORS

SUBSTANCE	P.P.M.	SUBSTANCE	P.P.M.
Acetaldehyde	200	Benzene (benzol)	35
Acetic Acid	10	Bromine	1
Acetic anhydride	5	1, 3-Butadiene	1000
Acetone	500	n-Butanol	100
Acrolein	0.5	2-Butanone	250
Acrylonitrile	20	n-Butyl acetate	200
Ammonia	100	Butyl cellosolve	200
Amyl acetate	200	Carbon dioxide	5000
Isamyl alcohol	100	Carbon disulfide	20
Aniline	5	Carbon monoxide	100
Arsine	0.05	Carbon tetrachloride	50

SUBSTANCE	P.P.M.	SUBSTANCE	P.P.M.
Cellosolve	200	Mesityl oxide	50
Cellosolve acetate	100	Methanol	200
Chlorine	1	Methyl acetate	200
Chlorobenzene	75	Methyl bromide	20
2-Chlorobutadiene	25	Methyl butanone	100
Chloroform	100	Methyl cellosolve	25
1-Chloro-1-nitropropane	20	Methyl cellosolve acetate	100
Cyclohexane	400	Methyl chloride	500
Cyclohexanol	100	Methylcyclohexane	100
Cyclohexanone	100	Methylcyclohexanol	100
Cyclohexene	400	Methylcyclohexanone	100
Cyclopropane (propene)	400	Methyl formate	100
o-Dichlorobenzene	50	Methyl iso-butyl ketone	200
Dichlorodifluoromethane	1000	Naphtha (coal tar)	500
1,1-Dichloroethane	100	Naphtha (petroleum)	1
1,2-Dichloroethane (ethylene dichloride)	75	Nickel carbonyl	1
1,2-Dichloroethylene	200	Nitrobenzene	100
Dichloroethyl ether	15	Nitroethane	25
Dichloromethane	500	Nitrogen oxides (other than N ₂ O)	0.5
Dichloromono-fluoromethane	1000	Nitroglycerin	100
1,1-Dichloro-1-nitroethane	10	Nitromethane	50
1,2-Dichloropropane (propylene dichloride)	75	2-Nitropropane	5
Dichlorotetrafluoroethane	1000	Nitrotoluene	500
Dimethylaniline	5	Octane	1
Dimethylsulfate	1	Ozone	1000
Dioxane	100	Pentane	200
Ethyl acetate	400	Pentanone (methyl propanone)	1
Ethyl alcohol	1000	Phosgene	0.05
Ethyl benzene	200	Phosphine	0.5
Ethyl bromide	200	Phosphorus trichloride	400
Ethyl chloride	1000	Isopropyl alcohol	200
Ethylene chlorohydrin	5	Propyl acetate	500
Ethylene oxide	100	Isopropyl ether	0.1
Ethyl ether	400	Stibine	500
Ethyl formate	100	Stoddard solvent	200
Ethyl silicate	100	Styrene monomer	1
Fluorotrichloromethane	1000	Sulfur chloride	10
Formaldehyde	5	Sulfur dioxide	5
Gasoline	500	1,1,2,2-Tetrachloroethane	100
Heptane	500	Tetrachloroethylene	200
Hexane	500	Toluene	5
Hydrogen chloride	5	Toluidine	100
Hydrogen cyanide	10	Trichloroethylene	100
Hydrogen fluoride	3	Turpentine	500
Hydrogen selenide	0.05	Vinyl chloride	200
Hydrogen sulfide	20	Xylene	
Iodine	1		
Isophrene	25		

TOXIC DUSTS, FUMES AND MISTS

SUBSTANCE	Mg. per Cu. M.	SUBSTANCE	Mg. per Cu. M.
Antimony	0.5	Manganese	6
Arsenic	0.5	Mercury	0.1
Barium	0.5	Pentachloronaphthalene	0.5
Cadmium	0.1	Pentachlorophenol	0.5
Chlorodiphenyl	1	Phosphorus (yellow)	0.1
Chromic acid and chromates as CrO ₃	0.1	Phosphorus pentachloride	1
Cyanide as CN	5	Phosphorus pentasulfide	1
Dinitrotoluene	1.5	Selenium, as Se	0.1
o-Dinitrocresol	0.2	Sulfuric acid	1.0
Fluoride	2.5	Tellurium	0.1
Iron oxide fume	15	Tetryl	1.5
Lead	0.15	Trichloronaphthalene	5
Magnesium oxide fume	15	Trinitrotoluene	1.5
		Zinc oxide fume	15

MINERAL DUSTS

SUBSTANCE	M.P.P.C.F.	SUBSTANCE	M.P.P.C.F.
Alundum	50	Talc	20
Asbestos	5	Silica	
Carborundum	50	high (above 50% free SiO ₂)	5
Dust (nuisance, no free silica)	50	medium (5 to 50% free SiO ₂)	20
Mica (below 5% free silica)	50		
Portland cement	50	low (below 5% free SiO ₂)	50
		Slate (below 5% free SiO ₂)	50
		Soapstone (below 5% free SiO ₂)	20
		Total dust (below 5% free SiO ₂)	50

RADIATIONS

MATERIAL OR RADIATION		MATERIAL OR RADIATION	
Gamma (roentgens per week)	0.3	Roentgen ray (roentgens per week)	0.3
Radon (curies per cubic meter)	10 ⁻⁸		
Thoron (curies per cubic meter)	10 ⁻⁸		

Safety Committee
United States Steel Company
Research and Development Laboratory

USE1000150

July 2, 1952