

EFFECTS-HUMAN HEALTH

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centration or dose, was linear on a logarithmic scale. The equivalent concentrations and doses of benzene that produced the same inversion of the chronaxia of the antagonistic muscles were found to be 240 mg/cu m and 16,000 mg/l; 120 mg/cu m and 8000 mg/l; 60 mg/cu m and 4000 mg/l; 30 mg/cu m and 2000 mg/l, and 15 mg/cu m and 1000 mg/l. Reduced blood cholinesterase activity, and reduction of the leukocyte, erythrocyte and hemoglobin levels were among the principal symptoms of benzene poisoning. The potentiation of the effects of high doses and concentrations of benzene, and the summation effect for lower doses and concentrations were determined.

42915 APTIC NO. 66240

Chow, C. K., C. J. Dillard, and A. L. Tappel

GLUTATHIONE PEROXIDASE SYSTEM AND
LYSOZYME IN RATS EXPOSED TO OZONE OR
NITROGEN DIOXIDE. *Environ. Res.*, 7(3):311-319, June 1974. 30 refs.

Exposure to rats to low concentrations of ozone (as low as 0.2 ppm) continuously for 8 days, or intermittently (8 hr/day) for 7 days, significantly increased the activities of the glutathione (GSH) peroxidase system in lung tissue. Linear regression analysis showed the increased enzymic activities to be a function of ozone concentration. Lysozyme activity was significantly increased in lung soluble and plasma, during continuous, but not intermittent, O₃ exposure. The results indicated that lipid peroxidation damage occurred in lungs of rats exposed to relatively high levels of O₃. Rats were exposed to relatively higher levels of nitrogen dioxide for 4 days. The activities of GSH reductase and glucose-6-phosphate dehydrogenase were significantly increased during exposure to 2.3 ppm and 6.2 ppm of NO₂, respectively. There was no significant increase in the activity of GSH peroxidase in lung soluble, or of lysozyme in the plasma, during exposure to NO₂. The results suggest that the mechanism of action of NO₂ is different from that of O₃. (Author abstract)

42916 APTIC NO. 66438

Dingeon, M. and Collombel

EVALUATION OF THE NUISANCES CAUSED BY
ASBESTOS: ASBESTOS USED IN AUTOMOBILES.

(*Evaluation des nuisances provoquées par l'amiante: cas de l'amiante automobile*). Text in French. *Pollut. Atmos. (Paris)*, 16(62):183-190, April-June 1974. 28 refs.

Toxicologic and epidemiologic data on asbestos in occupationally and spontaneously exposed subjects, and the hazards of asbestos as released by automobile brake linings are discussed. Lung fibrosis, bronchopulmonary cancer, as well as pleural and peritoneal mesothelioma due to inhaled asbestos in occupationally exposed populations were determined. The latency period of asbestos-induced cancer ranges from 15 to 20 years. Crocidolite and antophyllite are more powerful carcinogens than chrysotile. The irritation of the respiratory tract is essential for the formation of lung cancer by asbestos. The carcinogenic effect of different types of asbestos may be due to and be dependent of the presence of impurities, such as chromium, iron, beryllium, magnesium, nickel, cobalt, and manganese that are carcinogenic, as well as of traces of tar, mineral oil, and benzo(a)pyrene. The metallic impurities may inhibit the benzo(a)pyrene hydroxylase activity. The increased frequency of positive findings of screenings for asbestos in the lungs of city dwellers indicates a minimum, though not negligible hazard, of asbestosis due to asbestos released by brake linings in occupationally not exposed subjects. In this respect, drum brakes, retaining worn-off asbestos particles practically quantitatively inside the brake housing, are less hazardous than disc brakes which release all worn-off asbestos into the atmosphere in nondenatured form.

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APTIC NO. 66174

Eddy, T. P.

COAL SMOKE AND MORTALITY OF THE ELDERLY.
Nature (London), 251(5471):136-138, Sept. 13. 1974. 13 refs.

Mortality from falls in old people is so closely related to mortality from fractures of long bones, particularly of the proximal femur, that it seems related to bone fragility. Common contemporary factors may affect mortality and possibly bone fragility for both sexes. Coal smoke may be one such factor. A statistical study was made on British mortality, and death rates from falls were correlated with death rates from bronchitis and domestic smoke pollution. Mortality from falls seemed to be related to domestic smoke pollution independently of the relationship to mortality from bronchitis. Since increased smoke levels decreased ultraviolet radiation, the effect of smoke on mortality from falls and fractures may have been due to reduced endogenous synthesis by ultraviolet light.

42918

APTIC NO. 66386

Freeman, Gustave, Laszlo T. Juhos, Nazzareno J. Furiosi,
Rowena Mussenden, Robert J. Stephens, and Michael J.
Evans

PATHOLOGY OF PULMONARY DISEASE FROM EXPO-
SURE TO INTERDEPENDENT AMBIENT GASES
(NITROGEN DIOXIDE AND OZONE). *Arch. Environ.
Health*, 29(4):203-210, Oct. 1974. 27 refs.

Rats in exposure chambers were subjected to mixtures of nitrogen dioxide and ozone at levels reached in severe smog and were subsequently examined histologically for injury. The major site of injury observed was at the level of the junction of the respiratory bronchiole and the alveolar duct, somewhat more peripheral than the lesion caused by NO₂ alone. Ozone, the more toxic component, was largely responsible for the injury at the selected concentrations and for the characteristic fibroblastic activity in that region. The observations suggested that potential injury from ambient smog resulted mainly from O₃, whereas injury from tobacco smoke was due largely to its relatively high concentration of NO₂. Smoking and residing in smoggy areas appear to be additively injurious. (Author abstract modified)

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APTIC NO. 66247

Fukuie, Noriko

BIOLOGICAL EFFECT OF HEAVY METALLIC
CATALYST PARTICLES TO BE EXHAUSTED IN THE
AIR. (*Jukinzoku shokubai biryushi no seibutsu ni
oyobosu eikyo*). Text in Japanese. *Nippon Jidosha Ken-
kyujo Kenkyu Sokuho (Res. Lett. Japan Automob. Inst.)*,
no. 19:63-69, March 1974.

Copper, chromium, iron, and aluminum catalysts were administered orally to rats over a 1-month period, followed by examination of the internal organs for metal distribution and pathological changes in an investigation of the toxicity of the heavy metals. No pathological changes were observed, although the point of maximum accumulation rate was different between Cu and Cr among respective groups of rats. The results indicate that there may be an optimum absorbing concentration for each of the metals.

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APTIC NO. 66379

Fukuta, Shinji, Toru Yamamoto, Takanari Tokuhisa, Junichi
Mise, and Urizo Fujii

SERUM IGE LEVEL IN CHRONIC OBSTRUCTIVE
LUNG DISEASES; WITH SPECIAL REFERENCE TO
BRONCHIAL ASTHMA. (*Heisokusei hai shikkan ni
okeru kessei IgE chi-kikanshi zensokushorei o chushin to
shite*). Text in Japanese. *Nihon Kyobu Shikkan Gakkai
Zasshi (Japan. J. Thoracic Dis.)*, 12(7):386-391, July 1974.
24 refs.

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B U L L E T I N

N O. 5 5 0

October 7, 1975

OSHA PROPOSED NEW ASBESTOS STANDARD

Enclosed is a copy of an article as it appeared in the New York Times of Sunday October 5, 1975. The full publication of the proposed standard will be in the Federal Register on October 9, 1975.

The proposed new standard is rough. The current regulations call for the 5 fibers/cc limit to be reduced to 2 fiber/cc on July 1, 1976. This new proposal calls for a standard of 0.5 fibers/cc (effective date not established).

I have excerpted some of the more significant parts of the OSHA proposed standard (from a covering letter from the Asbestos Information Association):

1. Reduce the permissible exposure limit to a TWA of 0.5 fibers per cubic centimeter (500,000 fibers per cubic meter) and reduce the ceiling limit to 5 fibers per cubic centimeter (5 million fibers per cubic meter).
2. Add a 15 minute sampling period for determination of the ceiling limit.
3. Establish additional requirements for regulating areas, employee rosters, hygiene facilities, employee information and training, signs and labels, monitoring and medical surveillance.
4. Extend the period for retention of monitoring and medical records to 40 years or for the duration of the employees' employment plus 20 years, whichever is longer.

It would appear that comments on technical feasibility, costs to the employer, and possible plant shut-downs might have some bearing on adoption of this stringent new standard.

From the draft copy I have seen, they are asking for objections or comments prior to December 8, 1975. Written data should be in quadruplicate to:

Docket Officer, Docket H-033
U.S. Department of Labor
Room N-3620
200 Constitution Avenue, N.W.
Washington, D.C. 20210
Telephone (202) 523-8076

Again, this proposed new standard will be in the Federal Register of October 9, 1975.

E. W. Drislane
Executive Director

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NEW YORK TIMES - SUNDAY OCTOBER 5, 1975

THE PROPOSED OSHA ASBESTOS STANDARD REVISION

NEW RULES URGED FOR ASBESTOS RISK

Labor Department Seeking
Reduction in Exposure of
Workers and Families

By JANE BRODY

The United States Department of Labor has proposed a new standard to protect workers and their families from the lung-scarring and cancer-causing effects of asbestos, a mineral of a thousand uses to which millions of American workers are exposed.

The existing asbestos standard, which has been widely contested by labor groups, was designed only to prevent asbestosis, a scarring of the lungs that, if severe, can turn a worker into a cripple in a respirator.

However, the Labor Department's Occupational Safety and Health Administration said in its proposal that new information had developed showing that the existing standard would not prevent asbestosis and would certainly not prevent asbestos-caused cancers.

Cancers, especially those involving the lung, gastrointestinal tract and lining of the chest and abdominal cavities, have accounted for more than 40 per cent of deaths among some groups of asbestos workers, a rate three to four times higher than that in the general population.

In addition, studies in South Africa and New Jersey have shown that the families of asbestos workers also face an increased cancer risk because they are exposed to asbestos fibers carried home on the workers' clothing.

Delayed Fiber Effect

Asbestos enters the body mainly through inhalation. It may also be ingested in food or drink contaminated with the mineral fibers. Once in the body, the fibers tend to persist, remaining dormant for many years. However, 20 or more years later, cancers caused by these fibers may become clinically apparent.

The Labor Department's proposed standard would greatly reduce the amount of asbestos fibers now allowable in the air a worker breathes and would sharply reduce a lower standard scheduled to take effect next year. Currently the standard permits a level of five million fibers per cubic meter of air. This was to have been reduced to two million fibers per cubic meter by next July.

The two million level was decided upon on the basis of experience in one British asbestos factory, where a study of 290 men indicated that, at about twice that level, only a small percentage of workers exposed for 10 years or longer developed lung scarring.

However, these workers have since been re-examined, and X-ray evidence of lung abnormalities was found in 40 to 70 per cent of the same group of workers in addition, a number of asbestos-related cancers was found.

The proposed standard would reduce worker exposure to asbestos to 500,000 fibers per cubic meter, averaged over an eight-hour day, with a maximum exposure at any one time of five million fibers. Workers would have to be educated as to the hazards of asbestos and how to avoid them and tested periodically to be sure they were suffering no ill effects.

Records Kept Longer

Records of both the medical examinations and tests of asbestos levels in the work environment would have to be kept for 40 years, or for the duration of the worker's employment plus 20 years, whichever is longer. The current standard requires retention of medical records for 20 years and monitoring of records for only three years.

Employers would also be required under the new standards to provide shower and change rooms for asbestos workers to guard against their inadvertently carrying the fibers home. No food, drink or smoking would be allowed where asbestos was used and workers would have to wash thoroughly before eating during the work day.

The new standard would cover an estimated total of 50,000 workers involved in the manufacture of asbestos-containing products and about 40,000 field insulation workers who are exposed to asbestos dust, plus many thousands of others who work with products that contain asbestos.

The standard would not cover millions of workers in the construction industry, where three-fourths of all asbestos products are used. The Labor Department said it intended to formulate a separate standard for these workers, since they are usually employed in nonfixed work places and tend to be highly transient.

The Labor Department must now prepare an environmental impact and an inflationary impact statement before holding a hearing on the proposed standard.

In addition to asbestos standards, the department last week issued proposed new standards to limit worker exposure to lead and toluene, both widely used hazardous industrial substances, and established procedures for handling other toxic chemicals in the work environment.