

EFFECTS-HUMAN HEALTH

42920

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 benzotolpyrene. The metallic impurities may inhibit the benzotolpyrene 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 nondetached form.

42917 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 EXPOSURE 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)

42919 APTIC NO. 66247

Fukue, 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 Kenkyujo 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.

42920 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.

93

F-17

FMSI--0161

FMSI 03286