

ENVIRONMENTAL AND INDUSTRIAL TOXICOLOGY

See also: Public Health - Occupational Health, Radiation Health

- † 11443. JONES, R. D. (Pharm. Div., I. C. I. Ltd., Alderley Park, Macclesfield, Cheshire, Ensl., UK.), B. T. COMBENS and A. A. CTRNDK. Blood lead and carboxyhaemoglobin levels in London taxi drivers. *LANCET* (NORTH AM ED) 2(7772): 302-303, 1972. Among 30 London taxi drivers the mean blood-lead was 28.7 $\mu\text{g}/100\text{ mL}$. There was no difference of statistical significance in the blood-lead levels of smokers and non-smokers, nor between the blood-lead levels of night-shift and day-shift drivers. Carboxyhaemoglobin levels of smokers were significantly higher than those of non-smokers, and the levels were significantly higher in day drivers than in night drivers.
- † 11446. MC INTIRE, MATILDA S. and CAROL R. ANGLE. (Dep. Pediatr., Univ. Nebr., Coll. Med., Omaha, Nebr., 68105, USA.) Air lead: Relation to lead in blood of black school children deficient in glucose-6-phosphate dehydrogenase. *SCIENCE* (WASH.) 177(4048): 320-322, illus., 1972. Black children (44) at 2 elementary schools within 0.7 mi. of a battery plant had significantly higher ($P < 0.01$) concentrations of Pb in their bloods (34.1 ± 9.7 , $\mu\text{g}/100\text{ mL}$, mean $\pm$ SD) than 122 students (26.3 ± 7.1) at 7 schools 1-3 mi. distant; 5 mo. later there was a comparable difference between red cell Pb values (34.1 ± 18.5 vs. 37.4 ± 12.6). Among the blacks, those deficient in glucose-6-phosphate dehydrogenase had a higher ($P < .005$; concentration of Pb in the blood after correction for anemia (32.9 ± 6.7) than the nondiseased (25.7 ± 6.8), and a higher concentration in the red cells (47.3 ± 14.7 as compared to 35.6 ± 15.8 , $P < .001$); the enzyme effect was independent of geographic location.
- † 11447. MARKOWITZ, SAUL S., CHARLES J. MC DONALD (Roger Williams Gen. Hosp., 825 Chalkstone Ave., Providence, R. I., 02908, USA.), WILLIAM FETHERE and MARVIN S. KERNZ. Occupational acrosteolysis. *ARCH DERMATOL* 106(2): 219-223, illus., 1972. Occupational acrosteolysis is an unusual disease in which affected persons have acrodermiform-like lesions of the skin, conditions similar to Raynaud's phenomenon, and asymptomatic, bony defects of the extremities. Evidently, the disease is confined solely to workers in the plastics industry, specifically those engaged in the production of polyvinyl chloride from vinyl chloride. The incidence of the disease is unknown but is thought to occur in 2% or less of workers.
- † 11448. WILDER, D. J. (Fish. Res. Board, Can. Biol. Stn., St. Andrews, N. B., Can.) Acute toxicity of polyoxyethylene esters and polyoxyethylene ethers to *S. salar* and *G. oceanicus*. *WATER RES* 6(7): 759-762, illus., 1972. Polyoxyethylene esters are more toxic to aquatic fauna than polyoxyethylene ethers. Polyoxyethylene (4) lauryl ether is 9 times more toxic than polyoxyethylene (14) monolaurate at the LL₅₀ (incubent lethal levels) to *Salmo salar* and 14,000 times more toxic at the 96-hr LC50 [lethal concentration median] to *Gammarus oceanicus* Sergestale.
- † 11449. HOFMANN, A. (Inst. Toxikol., E. Merck Darmstadt, D-6100 Darmstadt 2, West Ger.) and H. NEUFELDER. Tierexperimentelle Untersuchungen zur gewerbetoxikologischen Beurteilung von 2-chlor-äthylisocyanat. [An investigation of 2-chloroethyl isocyanate in laboratory animals with regard to the implications as a potential occupational hazard.] *ARCH TOXIKOL* 23(1): 73-84, illus., 1972. [Engl. summ.] The acute oral toxicity of 2-chloroethyl isocyanate (CAIC) is 396 mg/kg for male rats and 630 mg/kg for female mice. The extremely small quantity of 5 μL CAIC caused severe irritation in the eyes of rabbits, particularly of the conjunctiva. The skin was also affected considerably. Inhalation experiments, involving a new version of a proven method for generating air-vapor mixtures, produced no evidence of systemic toxicity, but let CAIC be classified as an irritant vapor to the respiratory tract. The LC50 for rats is 6.2 ppm after exposure for 6 hr, while rats in 2 experiments involving 10-day exposures to vapor concentrations of 3.1 and 3.8 ppm, respectively, survived. After a four-hour withdrawal following each experiment, histological examinations showed tracheobronchitis and broncho-pneumonia but no pathological change in any other organ examined. A threshold limit value (TLV) of 0.02 ppm was suggested.
- † 11450. JOSE, FRANCISCO R. (Dep. Physiol. Hec. Nuts., Univ. Philipp., Manila, Philipp.) A study of lead hazard in some lead processing industries. *ACTA MED PHILIPP* 8(1-2): 48-51, 1972. Two battery plants, 2 paint establishments and 1 company manufacturing lead oxide were studied to evaluate the extent and intensity of Pb hazard. Methods of evaluation used were levels of Pb in air, and urinary Pb, stippled red cell count and clinical manifestations suggestive of Pb intoxication among employees in the establishments. Levels of Pb in air, Pb concentration in the urine and stippled red cell count were higher in the lead oxide and battery plants than in those engaged in paint manufacturing. Clinical manifestations suggestive of Pb poisoning were also more frequent. Good correlation was observed between the laboratory findings and the clinical manifestations indicative of mild Pb poisoning.
- † 11451. GOODWIN, JOHN W. (Day, Zimmerman, Inc., Lone Star Div., Tezakawa, Tex., 75501, USA.) Twenty years handling TNT in a shell loading plant. *AM IND HYG ASSOC J* 33(1): 41-44, illus., 1972. In the handling of TNT within the munitions industry, human exposure to this substance cannot be completely avoided. The goal of a Preventive Medical Program is to prevent such exposures from causing any permanent damage to workers. Exhaust ventilation with wet scrubbers, use of protective clothing, mandatory practice of good personal hygiene, and careful medical supervision have combined to accomplish this goal. The use of the Thymol Turbidity Test in such a program was a valuable indicator of liver malfunction.
- † 11452. KRAMER, C. G. (New Chem. Co., Midland, Mich., 48640, USA.) and J. E. MUTCHLER. The correlation of clinical and environmental measurements for workers exposed to vinyl chloride. *AM IND HYG ASSOC J* 33(1): 15-39, illus., 1972. A method is described for the statistical consolidation and correlation of environmental measurements and clinical findings using as an example a group of healthy male workers exposed routinely to vinyl chloride for periods up to 25 yr. Retrospective in nature the study reveals several statistically significant effects from chronic exposures to vinyl chloride and traces of vinylidene chloride.
- † 11453. EL-DAKRAKHNY, ABDEL-AZIZ and YASSIN M. EL-SADIK. (Dep. Occup. Health, High Inst. Public Health, Alexandria Univ., Alexandria, UAR.) Lead in hair among exposed workers. *AM IND HYG ASSOC J* 33(1): 31-34, illus., 1972. In a study performed on 87 Pb exposed workers, a correlation was found between levels of Pb in hair and the biochemical and clinical findings. A Pb level in hair of more than 30 $\mu\text{g/g}$ could be considered as a sign of excessive Pb level.
- † 11454. LAUWERYS, R., R. DELBROECK and M. D. VENS. (Unite Toxicol. Pathol. Travail, Catholie Univ. Louvain, Ave. Chapelle-aux Champs 4, 1200 Brussels, Belg.) Automated analysis of di- α -amino-levulinic acid in urine. *CLIN CHEM ACTA* 40(2): 443-447, illus., 1972. The addition of an internal standard of 8-amino-levulinic acid to the urine allows the colorimetric determination of this metabolite without the need of a preliminary chromatographic separation. The speed and accuracy make the procedure suitable for the periodic control of workers exposed to Pb.
- † 11455. MDCSIC, J. and S. HUKOVIC. (Inst. Farmakol. Tiskol., Med. Fak., Sarajevo, Yugo.) Uzroci i nastajanje kronicnog opstruktivnog bronhitis u radnika crne metalurgije. [Causes of chronic obstructive bronchitis in ferrous metallurgy workers.] *ARCH HIG PATA TOXIKOL* 22(1): 9-32, illus., 1972. [Engl. summ.] An analysis was performed on 430 people working and living under different conditions of exposure to air pollution. Respiratory symptoms were questioned and the ventilation function of the lungs, O_2 and CO_2 content of arterial blood, presence of allergic phenomena, data on smoking habits and the consequences in pulmonary and cardiovascular systems were studied. The 8 metal ions that constituted the dust were investigated. Experiments were also performed on frogs (*Rana ridibunda*).—J. F. L.
11456. GONCHARUK, E. I., A. A. POLYANSKI, I. I. SHVADKO and A. A. CHIDIN. (Dep. Public Hyg., Kiev Med. Inst., Kiev, USSR.) Fazovy izmeneniya funktsii shchitovidnoi zhelezы pri khronicheskom vozdeystvii dibromantuna. [Phase alterations of thyroid function in rats exposed to the chronic activity of dibromanthine.] *GIG SANIT* 30(10): 100-109, illus., 1971. [Russ. 1971.] The functional condition of the thyroid was studied in rats with 1-131 after drinking H_2O with dibromanthine concentrations close to those found in swimming pools disinfected with this chemical. In the 1st mo., there was some excitation of thyroid function. In a 4 mo. experiment, this latter effect was replaced at later periods by pronounced inhibition. Harmful effects on humans are not certain.—N. L. G.
11457. FROLOVA, A. D. [On the methods of studying biotransformation of poisons in organisms.] *PHAC LEX* 24(2/3): 61-66, 1972. [Russ. and Engl. summ.] The mechanism of the toxic effect of industrial poisons was discussed. The lack of methods for identification of chemical substances and products of their transformation in biologic material, made these studies rather difficult. Simple methodic approach affording indirect assessment of the fate of foreign substances in the organism had not yet lost its importance. The effectiveness of proposed simple procedures for studies of the fate of poisons was demonstrated with 3 representatives from the series of fluorinated compounds.—J. A. L.
11458. FISEROVA-BERGEROVA, VERA (Reprints: Vera Fiserova-Bergerova Thomas, 145 S.E. 35th Road, Miami, FL, 33129, USA.) and J. LUDVIG CFTTL. Elektricky model pro vystrebovani metabolizmu a vychovani benzenu v cloveku. [Electric model for the absorption metabolism and excretion of benzene in man.] *PHAC LEX* 24(2/3): 66-68, illus., 1972. [Russ. and Engl. summ.] The values for the resistance and capacitance in the electrical analogue were derived by analogy to physiological factors for a 70 kilo man (blood flow in man