

The use of organic aluminum compounds has introduced new problems, because they often penetrate the skin with comparative ease, and because their inhalation may cause more aluminum retention than in the case of inorganic dusts. These problems are not considered in this paper because they present a totally different type of situation from those with which the review is concerned.

The quantities of aluminum required to induce harmful effects are large (of the order of 100 mg. per kg., subcutaneously) as compared with those found in the body under the severest conditions of ordinary or occupational environment, or as compared with the quantities of metals and their compounds which are known to be dangerous. The quantities absorbed into the body are practically independent of the quantities in the environment, specifically in food and in the atmosphere. This means that a significant increase in human exposure to the present types of situations and compounds will result in no significant increase of aluminum in the body. New developments may create new situations which will call for investigation, but no such developments appear on the horizon. There are many interesting details in the paper not covered in this abstract.

- 732 Safe Handling of Alkylaluminum Compounds. J. E. Knap, R. E. Leech, A. J. Reid, and W. S. Tamplin. *Ind. Eng. Chem.* **49**, 874-879 (May 1957).

Alkylaluminum compounds are becoming industrially important as catalysts for low-pressure polyethylene. They are extremely hazardous because of their reactivity, and must be protected from air, moisture, and other compounds with active hydrogen atoms by blanketing with inert gas during handling. Fire and personnel-burn hazards are increased by the possibility of exothermic addition reactions and metathetical reactions that liberate gases. Vapor toxicity tests (from unpublished reports by H. F. Smyth and C. P. Carpenter) show that under conditions simulating spills of one gallon of alkylaluminum compound per 2000 cubic feet of volume, two of six rats exposed to fumes from diisobutyl aluminum chloride for one hour died the same day of lung hemorrhage. The toxicity of triisobutylaluminum was somewhat less, but in either case it was termed "moderate". The animals were in obvious distress, which indicates that unconfined persons might be forced from an affected area. The fumes are white and have an unusual musty odor, and so are detectable even in small concentration. Other experiments show that the skin, even if protected by cloth or polyethylene sheeting, can be easily burned by the undiluted materials in the presence of air. Dilutions of 5 to 20% caused no reaction. Suggestions are given for treatment of burns and for safe handling of the compounds.

- 733 Sodium Diethyldithiocarbamate in the Treatment of Nickel Poisoning. B. West and F. W. Sunderman. *Federation Proc.* **16**, 268, 269 (Mar. 1957).

Mice, rats, and rabbits were exposed to nickel carbonyl in concentrations found lethal to corresponding animals in previous experiments. One half of each group of animals were untreated and the other half received sodium diethyldithiocarbamate parenterally in doses of 50 to 100 mg. per kg. body weight immediately after exposure. No fatalities occurred in the treated animals, whereas the fatality rate was high in the untreated groups (80% in the mice). This compound was also found to protect mice receiving lethal amounts of nickel nitrate. Preliminary studies indicate that sodium diethyldithiocarbamate is therapeutically effective when administered orally. Excretion of nickel is increased by the treatment. Sodium diethyldithiocarbamate, per se, is relatively non-toxic; the LD₅₀ value by either oral or intraperitoneal administration is approximately 1.5 g. per kg. body weight.

- 734 Experimental Researches on Nickel Poisoning and Its Treatment with Calcium Disodium EDTA. U. Scudier and V. Tinazzi. *Med. lavoro* **47**, 161-166 (Mar. 1956). Italian.

Rabbits were poisoned with nickel administered intravenously in the form of chloride. The fatal dose was determined to be 12 mg. nickel per kg. Calcium disodium EDTA proved able to save the animals, and showed positive antidotism when injected with fatal doses of nickel, whether administered before or up to one hour after the nickel. Its efficiency for clinical application is therefore considered probable.

-- Cond. from English summary