

CHEMICAL HAZARDS

- 1170 Range-Finding Toxicity Data for 43 Compounds. W. E. Rinehart, Marianne Kaschak and E. A. Pfitzer. Industrial Hygiene Foundation, Chemical-Toxicological Series, Bull. No. 6, 11pp. (196

Short-term toxicological research findings on 43 compounds are presented in tabular form. An explanation is given of interpreting the animal data in terms of approximate hazard to man. There are 8 references. -- Public Health Eng. Absts.

- 1171 Factors Affecting the Formation of Sulphur Trioxide in Flame Gases. A. B. Hedley. J. Inst. Fuel 40, 142-151 (April, 1967).

This paper is concerned solely with the formation of sulfur trioxide in flame gases and does not discuss its formation due to catalytic oxidation by stationary surfaces over which the gases pass. Thermodynamic considerations are briefly presented as well as a discussion of previous work on sulfur trioxide formation in flames which is divided into enclosed and unenclosed flame studies. In a section on the kinetics and mechanisms involved, the role of oxides of nitrogen as a homogeneous catalyst, and airborne ash particles as a heterogeneous catalyst, are discussed. The importance of residence time, and temperature of gases in combustion appliances is emphasized and the paucity of information available on suitable reaction rate data is indicated. -- Author's abst., APCA Absts

- 1172 Beryllium Carcinogenesis: I. Inhalation Exposure of Rats to Beryllium Sulfate Aerosol. A. L. Reeves, D. Deitch, and A. J. Vorwald. Cancer Research 27, Pt. 1, 439-443 (March, 1967).

The results of an inhalation exposure of 150 rats for 72 weeks at a mean concentration of 34.25 micrograms of Be/cu.m. in the form of a beryllium sulfate aerosol are reported. The average lung weight toward the end of the exposure was 4.25 times normal. The two gradually developing pathologic processes were: an inflammatory response characterized by an accumulation of histiocytic elements forming clusters of macrophages in the alveolar spaces and also a proliferative response, progressing from early epithelial hyperplasia of the alveolar surfaces, through metaplasia and anaplasia to lung cancer. The first tumors were found in 9 months and the incidence was 100% in 13 months. All tumors were alveolar adenocarcinomas with some focal intermixture of other types. Three of 56 tumors reached a very large size comparatively early. Females appeared to be more vulnerable to the exposure than males in terms of attritional mortality and body weight loss. It is recalled that the attack rate of industrial berylliosis in humans is also higher in women than in men. -- APCA Absts.

- 1173 Beryllium Carcinogenesis: II. Pulmonary Deposition and Clearance of Inhaled Beryllium Sulfate in the Rat. A. L. Reeves and A. J. Vorwald. Cancer Research 27, Pt. 1, 446-451 (March, 1967).

The deposition and clearance of the beryllium sulfate from a group of rats exposed to 34.25 micrograms of beryllium per cu.m. for 72 weeks in the form of a beryllium sulfate aerosol is reported. At 36 weeks there was a concentration plateau which was interpreted as an equilibrium between deposition and clearance. The clearance mechanisms included not only the solubility of intrapulmonary precipitates, but also certain host-dependent factors involving the lymphatic route primarily. Females were less efficient in utilizing this clearance route which resulted in slower removal of pulmonary beryllium deposits, lower accumulation of inhaled material in the regional lymph nodes, and earlier morbidity and mortality. Only about half of the original pulmonary load was cleared rapidly; the remainder remained in the lungs for longer periods and later became incorporated into the nuclei of certain pulmonary cells and was involved in a carcinogenic challenge. The beryllium assays made by spectrographic beryllium analysis are reported for the lungs, tracheobronchial lymph nodes, and blood. The ultimate site of beryllium in the organism appears to be the skeleton although temporary deposits were noted in the liver. The inhaled beryllium which is retained in the lungs for long periods is of greater significance from the viewpoint of pulmonary carcinogenesis -- APCA Absts.