

and well-being and it would be unthinkable for medicine to dispense with them. It is true that their use carries its quota of hazards for some individuals and in comparison with the gains the risks are difficult to evaluate on a cause and effect basis. Permissible radiation dose levels have been set for radiation workers and for the general population. Permissible doses with radioactive isotopes are discussed.

-- Nuclear Sci. Absts.

- 992 Monitoring for Airborne Radioactive Materials at Hanford Atomic Products Operation. J. K. Soldat. J. Air Pollution Control Assn. 10, 265-270 (Aug. 1960).

The air monitoring program at Hanford employs a variety of equipment and techniques for measurement of airborne and deposited radioactive materials. Some of the instruments used were developed at Hanford for specific applications. The measurements made are complicated by the presence of naturally occurring radioactive materials and of radioactive fission products from nuclear detonations. Present methods are adequate to ensure that exposures of humans and grazing animals to airborne or deposited radioisotopes are well below applicable limits; however, refinements in air monitoring techniques are constantly being made.

-- Author's summary

- 993 Nuclear Waste Disposal by Fluidized Calcination of Simulated Aluminum-Type Wastes. J. D. Jackson, et al. Ind. Eng. Chem. 52, 795-798 (Sept. 1960).

Radioactive wastes have become a major concern of the nuclear engineering field. The calcination of the fluid waste material in a fluidized bed reactor has been tested. The present paper reports some of the fundamental kinetics of such a system. A comparison is made between fixed and fluidized bed results. The zero-order decomposition is so fast at operating temperatures that physical factors, such as heat transfer, are controlled. Thus, the fluid bed design can be based upon known methods for heat balance and heat transfer.

-- I. E. C. Brief

- 994 The Role of the Public Health Laboratory in Radiological Science. F. W. Gilcreas and G. B. Morgan. Am. J. Public Health 50, 619-626 (May 1960).

The hazards concerned with increasing uses of radioactivity and radioactive compounds make it essential that every public health laboratory, not excluding those concerned directly with water and sewage treatment operations, be prepared and equipped to make the necessary measurements of radioactivity in the environment. This requires the acquisition of new equipment and laboratory facilities, the training of specialized personnel, and the unavoidable increases in budgets. For the purpose a complete monitoring survey with sampling of air, water, sewage, and related materials is necessary and should be strategically located relative to possible present and future sources of radioactive contamination. Such a survey conducted at the University of Florida is described in detail including the facilities available and the techniques used in the radiation measurements. A major function of such surveys is the accumulation of data relative to normal background concentrations of radioactivity. With such data available the significance of any radioactive pollution of the environment can be assessed. Much can be accomplished with minimum facilities and equipment, but as the uses of nuclear operations increase more complex equipment, added personnel, and greater scientific skill will be required. The interpretation of the results of measurements of radioactivity is difficult and requires a broad knowledge and training in nuclear science.

-- Authors' summary

- 995 Chemical Protection from Radiation Effects. D. R. Kalkwarf. Nucleonics 18, 76-81; 130-131 (May 1960).

The effectiveness of chemicals in reducing radiation damage was investigated. Hypothetical and confirmed mechanisms which increase or decrease radiation effects are: energy and charge transfer from an excited molecule to an additive molecule; scavenging additives reacting with decomposition products from molecules; and complex-forming additives, the product of which is more or less susceptible to radiation than the original substance. Cysteine was one