

period and summarized the reported cases of radiation injury. Later, long-term effects of radiation began to appear. Cases of leukemia, aplastic anemia, and cancer, and reduced life spans have been reported within the past three decades. Standards of radiation protection have been promulgated and techniques of dosimetry have been greatly improved. The rate of radiation injury today is significantly less than in the first five years following Roentgen's discovery. Injury rates of the present period have been compared with those of the early period following the discovery of x-rays and radioactivity. It is evident, however, that further progress in the areas of radiation protection, standards of exposure, and dosimetry is required. There are 6 references.

-- Author's summary

- 894 Measurement of the Performance of Film Badge Services. D.E. Barber.
Am. Ind. Hyg. Assn. J. 27, 243-251 (May-June, 1966).

A film badge performance test has been devised to generate data sufficiently broad in scope to serve as a basis for control limits to be applied in the periodic examination of film badge service. Irradiation procedures, dosimetry, and a measure of film badge accuracy appropriate to the practical use of film badges are discussed. Approximately 2,000 film badges were irradiated with various types and energies of radiation. Exposures ranged from 2 milliroentgens to 497 roentgens. Private, industrial, and federal suppliers of film badge services (1) helped design the test procedures, (2) submitted badges for exposure (3) reported exposure interpretations, and (4) assisted in determining provisional performance control limits.

-- Author's abst.

- 895 A Portable Monitor for the Estimation of Tritium in Aqueous Samples. T.S. Iyengar, et al.
Am. Ind. Hyg. Assn. J. 27, 288-292 (May-June, 1966).

A portable instrument utilizing an ionization chamber for the estimation of tritium in aqueous samples is described. The ionization chamber is filled with acetylene from the test specimen by simple displacement of air. The ionization current resulting from the beta disintegrations of tritium is measured by a sensitive electrometer. The instrument, which is highly useful in field work for checking spot samples of irradiated heavy water, coldstrip air samples, etc., has a fairly linear response over a wide range of specific activity values. The lowest limit of estimation is 0.16mCi/liter, corresponding to a current of 1×10^{-13} ampere.

-- Authors' abst.

ENVIRONMENTAL MEASUREMENTS

- 896 A New Tape Reagent for the Determination of Hydrogen Sulfide in Air. J.P. Pare.
J. Air Poll. Control Assn. 16, 325-327 (June, 1966).

The lead acetate paper tape reagent method for the estimation of hydrogen sulfide in air has been reviewed with the conclusions that the colored spots on which the quantitative estimation is based are not stable and do not lend themselves to accurate results. Although it may be retained for grab sampling work, the lead acetate paper tape reagent is not acceptable as a stoichiometric reagent in any case where long duration sampling periods are concerned like in air pollution studies. A new mercuric chloride paper tape reagent has been developed as a substitute. Due to the fact that the colored spots resulting from the action of hydrogen sulfide on mercuric chloride are sensitive and very stable, this new paper tape reagent is proposed as an adequate and reliable analytical tool for the estimation of hydrogen sulfide in air. Also, a more comprehensive application of the paper tape analytical system is proposed throughout a suitable control of the factor tape retention capacity vs sampling rate which imposes some restrictions in the selection of the practical working range of concentrations. Nevertheless this working range is still wide enough to encompass all the hydrogen sulfide concentrations normally encountered in the city atmosphere.

-- Author's abst.

- 897 Limitations of the Lead Acetate Impregnated Paper Tape Method for Hydrogen Sulfide.
H.P. Sanderson, R. Thomas, and M. Katz. J. Air Poll. Control Assn. 16, 328-330 (June, 1966).

Field experience with the lead acetate impregnated paper tape sampler has indicated that large errors may arise in this method due to fading of the color of the precipitated lead sulfide spots. This fading is due to the action of light, sulfur dioxide, ozone, or other substances capable of oxidizing lead sulfide. The moisture content or relative humidity of the air sample must be maintained at an appropriate level to ensure reaction with the impregnated paper tape. The effects of the factors have been investigated in laboratory experiments with known concentrations of hydrogen sulfide. A number of antioxidants were studied in relation to the stability of the resultant spots to light and oxidation. Orthophenyl phenol was found to be the most effective antioxidant for this purpose. A number of necessary precautions to be employed in the use of the lead acetate method are recommended and the limitations are discussed. There are 10 references.

-- Authors' abst.