PHYSICS

Films Detect Radiation

Photographic film badge, when developed, shows amount of radiation dosage. Another film dosimeter can be processed in one minute.

➤ A SIMPLE photographic film badge, pinned to the shirt of a worker in a area where he may be exposed to high-energy X-rays, has applications ranging from activities in the television industry to rescue work in regions damaged by an atomic bomb.

Details of this photographic film dosimeter, as it is called, are revealed by the National Bureau of Standards where it was developed under the direction of Margarete Ehrlich. At regular intervals this NBS film worn by the worker is developed and the amount of radiation dosage for a given period of time is determined.

Tests on a somewhat similar dosimeter, just completed, are reported from Randolph Field, Texas, by the U. S. Air Force. The device tested is called by the Air Force a self-developing film badge which was submitted to it for evaluation.

Essentially the badge is a miniature film pack, the Air Force states. The pack may be pinned on a shirt or attached to the dog tag around the airman's neck. It contains a chemical pod that develops and fixes the film automatically when it is withdrawn from the pack.

The developing process takes only one minute, and gives an immediate record of the amount of radiation absorbed while the pack was worn. The film used is described by Randolph Field officials as "those self-developing types that camera addicts wield at picnics and on fishing trips."

These film dosimeters are designed as inexpensive devices to detect dangerous radiation and supplement the standard instruments known as Geiger counters and similar radiation meters. The effectiveness of the film type depends upon the emulsion employed.

In the work of the Bureau of Standards the first major problem encountered was to select film emulsions that would detect dosages within the required ranges. A total of 16 were tested, and four were selected as satisfactory. A second problem was to devise means that would make the response of the emulsions independent of the extraneous electron flux and of the radiation energy. The NBS film badge uses an absorber made of extremely thin tin and lead placed over a container made of thin Bakelite, the latter protecting the film from secondary electrons.

Science News Letter, July 28, 1951

PHYSICS

Radioisotopes Increased For Export from U. S.

➤ TO ASSIST in extending the scope of international cooperation in science, the U. S. Atomic Energy Commission has enlarged its radioisotope export program to include all radioactive materials now sold in this country on an unrestricted basis. For the first time it has made U. S.-produced radioisotopes available to foreign users for industrial research.

The number of U. S.-produced isotopes available to buyers in foreign countries has been increased from 26 to 99. Among the more useful of the newly-available isotopes are cesium 137, yttrium 91, selenium 75 and tantalum 182, which all have valuable applications in industrial research; chromium 51, nickel 59 and 63, and tungsten 185, which are useful in metallurgical research, and rubidium 86, which is a valuable substitute for the shorter-lived sodium 24 and potassium 42 in agricultural research.

American manufacturers can now export radioactive thickness gages, which are finding increasing application in a number of different industrial processes.

Science News Letter, July 28, 1951

Question Box

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