***TWO NEW METHODS FOR PEELING OFF THE FAST EMULSION
FROM THE KODAK PERSONAL MONITORING FILM TYPE 2***

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The Kodak Personal Monitoring Film Type 2 is widely used by many institutions in the field of personnel dosimetry. The useful dose range of this detector lies between 100 μ Sv and 200 mSv under normal conditions but can be extended to at least 10 Sv by peeling off the fast emulsion on one side of the double coated film.

This peeling process was relatively easy up to 1982 with the old Kodak RM film, when the two emulsions showed a different softening behaviour under the influence of warm water. It was sufficient to leave the film for one to two minutes in water of 30°C which made it possible to peel the fast emulsion without damaging the slow one.

When the production of the Kodak RM-film was stopped in the UK the situation became difficult since the different emulsions of the US product became soft at the same water temperature. Taking off the fast emulsion resulted nearly always in damage to the slow emulsion. A protective device proposed by NRPB which was supposed to avoid the wetting of the soft emulsion did not give full satisfaction when tested [1]. The use of PHOTO-FLO on the fast emulsion and eventually scraping it off also affected the slow emulsion [2]. Finally the chemical bleaching with Farmer's solution did not show the reproducibility required.

The basic idea of the two new methods proposed consists, as in the solution of the NRPB, in a full protection of the slow emulsion while peeling the fast one. Two possibilities were successfully tried out: a) covering the slow emulsion with a transparent lacquer, b) protecting it with an adhesive tape.

a) Transparent lacquer

These lacquers were applied using spray cans. The following products were used: Lucite spray (colourless) by Dupont, and LET fixative by Mc Canorma. The lacquer once applied can either stay on the emulsion or be removed by a solvent (toluene) since the optical density of the film remains practically the same. The spraying is performed from a distance of about 20 cm for 1 to 3 seconds to achieve a homogeneous coating. After 15 minutes another layer is applied in order to assure full water tightness. Now the film can be placed in water of 30°C where after 1 to 2 minutes the fast emulsion can be removed by scratching. Remaining spots can be taken off with a wet cotton wool stick.

b) Adhesive tape

The adhesive tape method depends very much on the type of tape employed. The only satisfying results were obtained using the electrical insulating tape PERMACEL, type P290, 50 mm wide. The tape is cut to the desired length and placed, with its adhesive face up, on a smooth surface. The films to be peeled are applied on the tape with the slow-emulsion face down. The tape and film combination is then turned around and pressed for better adherence.

The peeling of the fast emulsion is done as before but great care has to be taken not to bend the film as the gluing tape may come off the emulsion. After the peeling operation, both the film-tape combination and the hands must be completely dry before the tape is taken off the slow emulsion.

Both methods proposed have given excellent results in routine but should be practiced before being applied to real cases. Both methods are fast but the second method is preferred to the first, since it avoids the use of sprays.

REFERENCES

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2. T.O. Marchal, W.J. Iles, J.K. Overend, A. Twyman, R. Birch, L.H. Peaple and J.W. Smith, An evaluation of the Eastman Kodak Type 2 film, National Radiological Protection Board NRPB Report 103, 1980.