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PAPER TITLE THE APPARATUS FOR CONTINUOUSLY MEASURING SIZE DISTRIBUTION OF RADON PROGENY

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ABSTRACT (See instructions overleaf)

The deposition of radon progeny in respiratory organs depends on the size of the radon progeny. In this study, the apparatus for continuously measuring size distribution of radon progeny has been developed. This apparatus consists of 10 ZnS(Ag) scintillation counters and 10 screen type diffusion batteries. In the diffusion batteries, various numbers (from 0 to 100) of 500-mesh wire screens are installed in series. The range of measurable particle diameter is from 0.016 to 1.6μm. Measurement can continue automatically for about 10 days, if the data are required every two hours.

Size distributions of radon progeny were measured in a tunnel where radon concentration was high. Simultaneously size distributions of aerosol particles were also measured using condensation particle counter and electrostatic classifier. The size distributions of radon progeny obtained by this apparatus agreed well with the calculated ones from aerosol data.

In outdoor air in Tokyo, the similar measurements were carried out for about two months. Activity median diameter of radon progeny were in the range of 0.095 to 0.34μm. The representative value of activity median diameter was 0.17μm. This was almost the same as 0.2 μm, which was reported in UNSCEAR 1988 REPORT.