

## $^{22}\text{Na}$ IN FALLOUT AND FOODS IN ITALY

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**Abstract**—The concentration of  $^{22}\text{Na}$  and its ratio with  $^{137}\text{Cs}$  were measured in fallout and in some foods (milk, meat, etc.) in the period 1961–1965. The samples of milk were collected in 15 areas scattered all over the country and may be considered representative of 80 per cent of the whole Italian production. Other samples of foods were collected in General Wholesale Markets and may also be considered representative of wide areas. Fallout was collected at the Casaccia Nuclear Centre, Rome.

The gamma ray spectra of the food chain samples obtained in previous years by a low background spectrometer (NaI(Tl) crystal 5 cm  $\times$  5 cm and 400 channel analyzer) were analyzed by an IBM 7094 computer. A linear least-squares fitting program including a gain-shift routine (R. G. HELMER *et al.*, IDO-17015), slightly modified in order to meet the requirements of the present research was utilized. In such a way the concentrations of  $^{22}\text{Na}$ ,  $^{137}\text{Cs}$  and natural K were determined.

A random check of the computer results was made by determining directly  $^{22}\text{Na}$  in a certain number of samples by gamma-gamma sum coincidence spectrometry. A good agreement was obtained between the values obtained by the two methods described.

The measurements of  $^{22}\text{Na}$  in fallout samples were obtained by gamma-gamma sum coincidence spectrometry, while  $^{137}\text{Cs}$  was determined by a stripping technique on gamma ray spectra.

This paper was withdrawn and it will be published probably not before Spring 1968.