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Determination of cesium-137 radioactivity level in imported milk powder

Milk and milk products are important components of diet in many countries. Milk is one of the few foods produced over large areas and collected on a daily basis. Its composition is almost identical all over the world and it is easy to collect a representative sample that can be analyzed in liquid or dried form. Milk is likely to be contaminated by radioactive elements after a release of radionuclides due to a nuclear accident into the environment. Contamination of milk will be greatest when cows are graxing during the fallout period. But even when cows are kept indoors, contamination of milk may occur by ingestion of radionuclides in drinking water and contaminated feed. As such all over the world the food items specially milk food are tested for radioactive contamination. The Atomic Energy Authority (AEA) has launched a monitoring program to ascertain the radioactive levels of imported milk food items to protect the general public from undue exposure to radiation due to consumption of

contaminated milk food. There are set standards for contamination levels for Cs-137 in milk food items should be below 20Bq/kg.

About 1500 of imported milk food samples per annum are tested for radioactive contamination by gamma spectroscopy at the AEA. This paper presents results obtained during 1999/2000. The radioactivity levels of Cs-137 in the samples tested range from 3 to 15 Bq/kg. The minimum detectable activity (MDA) of the Cs-137 in milk powder for the method used in this work is (1.6 ±0.7)Bq/kg.