

## STRONTIUM-90 IN MILK AND MIXED DIET IN THE CZECH REPUBLIC

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Among various activities of National Radiation Protection Institute (SÚRO) monitoring of radionuclides in environment and food chain plays an important role. The monitoring takes place in frame of Czech Radiation Monitoring Network (RMN). Determinations of  $^{90}\text{Sr}$  are performed according to the monitoring schedule of RMN. Strontium 90 was released into environment during the tests of nuclear weapons in the fifties and sixties of XX. century and to some extent in 1986 owing to the Chernobyl accident. Strontium is a chemical analogue of calcium and accordingly when entering a mammal body, it behaves very much like calcium. A large portion of the strontium will accumulate in bone and like calcium it transfers to milk. Since the Sr uptake by the human body from milk is an important pathway for radiostrontium incorporation, milk and milk powder are good indicators of  $^{90}\text{Sr}$  content in human diet. Along with milk and milk powder, mixed diet samples composed of representative locally purchased food items according to food consumption statistics are also analysed for  $^{90}\text{Sr}$ . The analyses are made using oxalate precipitation method, when interfering radionuclides are removed by precipitation scavenging and after its ingrowth  $^{90}\text{Y}$  is separated and repeatedly measured by gas flow proportional counter. Strontium 90 activity is calculated as equal to  $^{90}\text{Y}$  activity in equilibrium. Time evolution of  $^{90}\text{Sr}$  activities in milk in Northern Moravia region (1988 present) and in Prague (1965 - present), in milk powder from the regions of the Czech Republic and in the mixed diet samples from the whole republic is presented on the poster. A very small increase due to the Chernobyl accident can be seen in milk (see Fig.2). After the ban of atmospheric tests the level of  $^{90}\text{Sr}$  has steadily been falling. The decrease is caused by radioactive decay and migration of the radionuclide in the environment. Due to this decrease activity concentrations in many samples have recently fallen under minimum significant activity (MSA) of the method. For example in cow's milk we can see decrease from nearly 0.7 Bq/L in 1965 to  $< \text{MSA} = 0.06 \text{ Bq/L}$  in 2014. Funding This work was supported by the project funded by the Ministry of the Interior of the Czech Republic, identification code VF20102015014, and by the State Office for Nuclear Safety with the use of the database of Radiation Monitoring Network "MonRaS".