

REDUCING RADON CONCENTRATION IN BUILDINGS

R.A. Khaydarov, B.S. Yuldashev, O.U. Gapurova, R.R. Khaydarov
Institute of Nuclear Physics, Tashkent, Uzbekistan

It is known that radon concentration is particularly great in regions with the heightened content of uranium in soil and water and with geological breaks of the earth crust. In the Republic of Uzbekistan concentration of uranium exceeds 10 g per ton of soil in 14% of its territory. Concentration of radon in soil's air varies from 1000 Bq/m³ in the west parts of the country up to 20,000 Bq/m³ in the submontane parts. And the radon concentration exceeds the regulation level 10-100 times in 14-45% of premises in different cities. The purpose of this work is creating a method to reduce concentration of radon gas in buildings and underground structures. The method is based on using polymeric compositions (silicoorganic compounds) which fill pores inside the construction materials (concrete, gypsum, etc.) and decrease coefficient of permeation of radon atoms in them. Gas (air, Ar, ²²²Rn, H₂O) permeability of concrete and gypsum after treatment by chemicals has been examined. Experiments have shown that chosen method of treatment of the construction materials allows reducing the coefficient of gas permeability 200 – 400 times. The treatment of floor, walls and ceiling of 5 buildings' basement has reduced the radon concentration in the premises of the first floor from 400 - 600 Bq/m³ to the background value of 17-20 Bq/m³.