

POLYMERIC COMPOSITIONS FOR “DRY” DECONTAMINATION OF NPP EQUIPMENT AND PREMISES

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Despite the widespread application of chemical decontamination of surfaces based on the use of solutions, they have significant drawbacks, especially in the case of large surfaces decontamination.

In order to optimize the technology of decontamination "dry" surface decontamination methods and technologies based on the use of decontaminating coatings and pastes become widely used. Application of "dry" decontamination methods leads to significant reduce of solid radioactive wastes quantities, and thus, cost of their recycling and disposal become less.

In JIPNR – “Sosny” NASB developed decontaminating polymeric compositions based on binder - polyvinyl alcohol solution with active additives such as nitric and borohydrofluoric acids, 1-hydroxyethylidenediphosphonic acid and its salts, detergents and fillers - natural tripoli; tripoli modified by ferrocyanides of nickel and copper; pulverized dolomite modified by manganese oxides, ferrocyanides of nickel and copper; clinoptilolite modified by iron chlorides (III) and calcium sodium phosphate and potassium ferrocyanide; hydrolytic lignin.

It is shown that the developed decontaminating polymeric compositions (pastes) possess high decontaminating capacity ($FD 10^2 - 10^3$) and low adhesion to the surfaces of stainless and carbon steels, including painted, plastic, self-leveling floors, Teflon- surface.

Prolonged leaching method according to GOST 29114-91 allowed determine the chemical resistance of "dry" decontamination wastes, strength of ^{137}Cs and ^{60}Co fixation in wastes obtained in result of using new decontamination pastes.

It has been demonstrated that the use of natural and the modified fillers (tripoli, clinoptilolite, and dolomite) in decontaminating pastes reduces the rate of radionuclides leaching. The cesium and cobalt radionuclides were most firmly fixed by pastes containing natural and modified clinoptilolite and tripoli as fillers.

Effectiveness and relevance of the results is contained in ensuring the reliability, efficiency and safety of "dry" decontamination radioactive wastes storage obtained after external surfaces equipment and facilities decontamination with the use of new pastes.

Production of these pastes can be organized directly at the place of carrying out of decontamination works, such as chemical department of nuclear power plants.