

“Indigenous Stabilization & Decontamination Material (PS-I)”

Various physical and chemical methods have been reported in literature for decontamination of different surfaces contaminated with hazardous materials such as radioactive materials, heavy metals etc. Some examples of conventional decontamination methods include aspiration, abrasion, washing with water or with solvents, foams, gels or biomass. In particular, for stabilization and decontamination of radioactive materials, Strippable Polymeric Coatings have shown enormous advantages over above conventional methods of decontamination due to ease of application, pores / cracks infiltration, rapid cure time, excellent adhesive and mechanical properties, contaminant entrapment and removal, low-waste generation after decontamination, low-costs, wide range of application and compatibility with different types of surfaces (viz. metal, polymer, ceramic, glass, wood etc.). The most important property of such coatings is that these can be easily peeled from a surface after drying and thereby avoid possibility of damage to structures together with chances of secondary contamination through contact or by becoming airborne.

A polymeric solution is applied over the contaminated surface. Then, the decontamination agent present in this solution contains the contaminant, which is drawn and fixed into the polymer matrix. The coating, obtained after drying of polymeric solution, keeps entrapped the contaminant in its matrix and does not allow the contaminant to spread at other surfaces. The dried coating can be finally exfoliated and the surface remains decontaminated. A strippable coating serves for two main purposes first is stabilization of contaminant to the surface and then subsequently (when removed or peeled) decontamination of surface from contaminant. In other words, efficiency of such a coating is generally expressed in terms of stabilization coefficient and decontamination coefficient.

Decontamination polymeric solutions can be considered as a mixture of different additives in polymeric matrix. Polymer part provides the continuity to the film or coating. Different additives are mixed into it as per their functional requirements. These polymeric solutions are being advocated as excellent decontamination materials for strategic applications, particularly for use in facilities using radioactive materials. These facilities may include nuclear submarines (during onboard conditions), nuclear power plants, hospitals, relevant R&D laboratories etc.

The “Indigenous Stabilization & Decontamination Material” developed by DRDO/CFEES can be applied on a surface contaminated with radioactive materials. The coating obtained after drying of solution provides a means for stabilization of contaminant to the surface. This coating can be removed subsequently resulting in decontamination of surface.

Application filed for patent on "Decontamination Polymeric Solution and Method of Its Preparation Thereof".