

CHR-X NUCLEAR DECONTAMINATING AGENT

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Nowadays, radioactive waste resulting from technological procedures represents a pressing problem, due to the fact that it cannot be properly managed, being stored in inadequate conditions that lead over time to the degradation of the storage containers, to the release of stored radioisotopes, to the contamination of the ecosystem and subsequently having a huge negative impact on human health.

Also, another widely-spread contaminant is plastic waste, including polyethylene terephthalate (PET) items (bottles, wraps, straws, utensils, etc.), polystyrene items (extruded/expanded Styrofoam, single use cups, casseroles, insulation, etc.), polyester items (synthetic fabrics), polyamide items (nylon fishing lines, nylon fabrics, etc.) and many others.

Both of these issues are integrally solved by the **CHR-X polymeric decontaminating agent**, a unique product capable of fully decontaminating weak, medium, and strong radioactive surfaces. It is composed of numerous polymeric compounds, copolymers, chelating agents, surfactants and catalysts.

The substance comes as a gel with a high viscosity, which can be applied to radioactively contaminated surfaces, the oxygen in the air initiating a polymerization reaction that lasts for about 10 minutes, the result being a hydrophobic polymeric film, which can be easily prelevated and efficiently stored. After removing the peel, the surface is considered non-radioactive, as the formed peel absorbed all the radionuclides.

The CHR-X decontaminating agent contains over 5 anionic surfactants, 3 chelating agents, 7 catalysts, 4 polymers and 3 copolymers, being the most complex and efficient product available in this range of products. Despite its reagents, most of them are inexpensive when bought in large quantities and some can even be extracted from waste. This means that by processing polyester-derived waste such as Styrofoam, packaging and synthetic fabrics using ordinary solvents and catalysts we can obtain the needed polymers with a very low cost.

The decontaminating agent works by chelating the contaminating agents, trapping them in molecular casings, which completely limits the radioactive contamination.

The reagents contained by the CHR-X polymeric decontamination agent form hydrophobic copolymeric compounds with the radioisotopes, which cannot be decomposed under normal conditions. In this way,

the radioactive contaminant is trapped inside a chain of polymeric casings, which act as a sealed isolation medium.

Through the characteristics of the isolating medium, the rate of decay is considerably attenuated, the radioisotope entering a phase of artificial stability.

In conclusion, besides the fact that the CHR-X decontaminating agent is an innovative product, it is a premiere in the scientific environment as it can integrally neutralize over roughly 93% of natural and artificial radionulides. Also, this product is very easy to use, as it can be spread on the contaminated surfaces using various methods, including spreading, pulverizing or pouring it. After the decontamination procedure has ended, the film is easily removed and accordingly stored. This makes it possible be used even by non-specialized personnel.