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Pacific Northwest National Labs (PNNL) and Isotron report that IsoFIX™ radionuclide lockdown system will successfully contain radioactivity from dirty bomb attack

Isotron product can serve as significant resource in protecting first responders and public from fallout associated with dirty bomb attack

In an article published in Health Physics' June 2008 volume, PNNL reported on the performance of Isotron Corporation's radionuclide fixative coating for its long-term effectiveness in preventing the spread of radiation as a result of a dirty bomb attack.

IsoFIX-RC™, the radionuclide fixative coating, was monitored over an extended period at the HAMMER facility at Richland, WA. The coating was shown to effectively hold cesium and cobalt contaminant simulants in place during the trial, while nearly all of the contamination spread via migration and aerosolization in two adjacent control plots that were not treated with IsoFIX-RC.

The article concludes that IsoFIX-RC is superior in its ability to affix surface contamination in place for at least several months. The authors of this article surmise that additional benefits from the use of a film-forming fixative coating during emergency response to a Dirty Bomb attack could be psychological. The thick, white, highly visible IsoFIX-RC coating could provide real assurances to first responders and members of the public that protective measures are being implemented.

After the events of 11 September 2001, and the 2002 arrest of Jose Padilla, the possibility of a dirty bomb being detonated within the United States is a strong potential. In Attorney General John Ashcroft's first announcement on the subject, he explained that "[a] radioactive 'dirty bomb' involves exploding a conventional bomb that not only kills victims in the immediate vicinity, but also spreads radioactive material that is highly toxic to humans and can cause mass death and injury". As a result, the development of tools for use in an urban response to a dirty bomb detonation has become a topic of both discussion and research.

It has been recently estimated that there would be relatively few casualties directly resulting from the detonation of a dirty bomb. However, the greater casualty impact would be from the spread of radioactive materials that can be inhaled and the spread of the radioactive plume.

IsoFIX is designed for large scale urban application and prevents both smearable and wind-borne spread of contamination in the face of emergency response vehicle and foot traffic. The IsoFIX material is easily broadcast over large areas and is non-toxic. Nanoparticle technology contained in the coating is designed to bond with target radionuclide contaminants to prevent their spread. In the event that the area is determined not to be contaminated, the coating can be left in place to biodegrade.

“We are extremely confident that IsoFIX is a product that has clear and distinct advantages in the response to a dirty bomb attack,” said Jayne Shelton, President of Isotron. “This report underscores its advantages both in terms of its technology, and also in terms of its real-life ability to protect first-responders and allow them to focus on saving lives and not worrying about the spread of radioactive dust spread by plumes resulting from a dirty bomb attack.”

The IsoFIX coating was developed under contract for the Technical Support Working Group (TSWG) with funding support from the U.S. Department of Homeland Security and the U.S. Department of Defense. The IsoFIX technology provides emergency responders valuable time to evacuate and characterize the contaminated area while preventing inhalation hazards and contamination plume migration. For more information on this article, please reference pages 512-518 of the June 2008 issue of the Health Physics journal or contact Isotron Corporation at (877) 632-1110.

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