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# DeconGel helps decontaminate Japan's Fukushima Daiichi nuclear plant

By Linda Jameson

March 11, 2012 marked one year since a 9.0 magnitude earthquake rocked the northeastern coast of Japan, generating a tsunami that ended operations at the Fukushima Daiichi Nuclear Power Plant. The disaster stemmed from a series of events, the first of which was the massive tsunami, followed by a series of equipment failures, nuclear meltdowns, and releases of radioactive materials. It is the largest nuclear disaster since Chernobyl in 1986.

The Fukushima Plant was one of the largest nuclear power stations in the world. While the plant itself covers 860 acres, the effects of the disaster extend far beyond and will affect human lives and the environment for decades.

## Removing and decontaminating Caesium-137

DeconGel™, a product invented by CBI Polymers, Inc., is one of the solutions being considered for Japan's long-term decontamination efforts, especially to remove Caesium-137 (Cs-137) which is a radioactive isotope of caesium which is formed by nuclear fission. It has a half-life of 30.17 years.

As a result of the disaster at the Fukushima-Daiichi Nuclear Power Plant, significant outdoor areas have surface contamination, predominantly Cs-137. Be-



Applying DeconGel.

cause of the prolonged exposure to weather, most of the contamination has become more difficult to remove from outdoor surfaces. DeconGel's efficacy has been proven through extensive testing in Fukushima Prefecture, including government and municipal buildings, residences, and the Fukushima Daiichi Control Room.

rubber, Plexiglas, herculite, wood, porcelain, tile grout, and vinyl ceramic and linoleum floor tiles. When the hydrogel dries, the product locks the contaminants into a polymer matrix. The film containing the encapsulated contamination can then be peeled off and disposed of according to applicable government regulations. It captures radioactive isotopes and hazardous waste, including PCBs, beryllium, mercury, and chromium.

## Beyond buildings

The CBI Polymers team collaborated with partners in Japan to remediate harmful radiation from the campus of Asahimachi Baptist Church and Little Lamb Kindergarten in Fukushima, Japan. Children today are playing outside on swings, slides and a playground once deemed hazardous which kept the youngsters inside for more than four months following the meltdown. CBI Polymers donated \$250,000 worth of DeconGel toward this effort.



Letting it dry.



The film containing the encapsulated contamination can then be peeled off and disposed of.

Cham Dallas, PhD, a radiation mitigation expert and Director of the Institute for Health Management and Mass Destruction Defense at the University of Georgia, oversaw the application of DeconGel and removal of radiation for the project. Unlike traditional methods of using soap and water which moves the radiation into the soil and water table, DeconGel absorbs the harmful radioactive material and provides a safe environment for personnel while preventing the toxins from spreading. Personnel peel back the thick dried hydrogel and roll it up like a painter's tarp for safe disposal.

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The water-based DeconGel coating can be applied to horizontal, vertical and inverted surfaces, including bare, coated and painted concrete, aluminum, steel, lead,