

## **The Argonne SuperGel for CBRN Decontamination**

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The Argonne SuperGel was developed between 2003 and 2015 to fill a gap in our nation's capability to quickly decontaminate important structures following a radiological or nuclear release event. Specifically, the decontamination technology was developed to minimize damage to monuments, high valued structures, and critical infrastructure while reducing environmental and health impacts. Over the years, two formulations of the Argonne SuperGel have been developed to specifically target radioactive cesium contaminations and then, more generically, actinide and fission product contaminations. An important criteria during its development, common reagents were employed that could be easily acquired in order to minimize the timeline for its deployment. Its current formulation uses off-the-shelf superabsorbing hydrogels common to the food and agricultural industry and common salts. A biodegradable derivative of phosphoric acid is used in small amounts to promote the removal of insoluble actinide species. Since its development, we have had the opportunity to test the SuperGel in the removal of legacy contaminations in hot cell facilities and former glovebox facilities at Argonne. This has provided a unique opportunity to evaluate the SuperGel on a range of contaminants outside the original specifications for its use. We will report on the origin of the gel formulation, some highlighted experimental data, and its efficacy for removing alpha contaminations and its potential use for removal of chemical and biological hazardous agents.