

PROJECT BRIEF

The Darley Decon System

January 2019



Fire Departments Turn to Ozotech Technology for Gross Decontamination of Gear

Gross decontamination commonly refers to actions taken at the fire scene to remove as much soil and contamination as possible without taking the clothing apart and cleaning it in a machine. There are differences of opinion and practice whether this also includes taking the clothing out of service for continued or more advanced cleaning.



The purpose of gross decontamination is remove contaminants as soon as possible following the exposure to limit member further contact with contamination. If a firefighter continues to wear his or her gear following the structural fire, then the exposure is prolonged. This continued contact with contamination also occurs if the firefighter transports the clothing in their private vehicle (or the apparatus) and if the clothing is worn again before cleaning.

The most common approach, rinsing down at the scene, is probably the most effective, but will also temporarily render the clothing unusable. If this is not practical, then the clothing should be temporarily removed to limit contaminant transfer and continued exposure of the firefighter. It would be best to remove as much soil — primarily soot and solid fireground contamination — as possible at the scene before transporting it back to the station.

Fire departments are adapting to these or similar procedures. If they have not already and do so in the face of tight budgets and dwindling resources. However, the statistics for increased firefighter cancers demand that proactive measures be taken, and gross decontamination is a first step.

The Darley Decon System is an effective tool in this critical first step. It provides a continuous 2 GPM spray with a built-in oxidizer, Ozone for the reduction of VOC's and other chemicals to a hydrocarbon which is then rinsed from the gear with the soot and soil.

Ozone has long been a recognized “best available technology” by the EPA for the reduction of Group 3 VOC contaminants. Below is a list of contaminants, with their classifications, listed by the International agency for research on cancer (IARC). The ability and effectiveness of the Darley Decon System shows its rated effectiveness on these compounds.

Contaminant	IARC Rating	Water	Ozone
Acetaldehydes	Group 2B	Excellent	Excellent
Acrolein	Group 3	Good	Excellent
Antimony Compounds	Toxic	Excellent	Poor
Arsenic	Group 1	Good	Excellent
Benzene	Group 1	Poor	Excellent
Beryllium Compounds	Group 1	Good	Excellent
1,3 Butadiene	Group 2A	Good	Excellent
Cadmium	Group 1, Endocrine Disruptor	Good	Good
Dibutyl Phthalate	Endocrine Disruptor	Good	Excellent
Formaldehydes	Group 1	Good	Excellent
Mercury Compounds	Group 3	Good	Good
Naphthalene	Group 2B	Good	Excellent
Nickel	Group 2B	Good	Poor
3-Nitrobenzanthrone Leading Carcinogen		Good	Good
Benzo(e)pyrene	Group 3	Excellent	Excellent
Benzo(a)pyrene	Group 1	Excellent	Good
Styrene	Group 2B	Excellent	Excellent
Toluene	Group 3	Excellent	Excellent
Xylene	Group 3	Excellent	
Excellent			

Incidents with release of chemicals the HazMat team has not only to overcome the immediate consequences of a spill but also the decontamination of casualties, fire service personnel and equipment. By following correct procedures, emergency services personnel can minimize the risk of contamination. Training of proper decontamination principles is a demanding task. When personnel understand the risks and the proper procedures to mitigate these risk's.

After decontamination turn out gear must be bagged before returning it to the apparatus. To protect hands from dermal absorption while packaging turnouts wear a minimum of EMS or nitrile gloves. Before eating or drinking after gross decontamination a hand wash station should be set up using soap and water to wash the hands, arms, face and neck. In leau of a hand wash station use disposable wipes.

For more information on Ozotech's work with Darley on the technology inside the Darley Decon System, visit Darley.com. Visit Ozotech.com to learn more about Ozotech's family of ozone prouducts.