

CLOTHING FOR ANTHRAX RESPONSE

The threatened or actual use of a bioterrorism weapon is a federal crime. If you believe you are involved in a bioterrorism incident, contact your local emergency response department immediately (911 where applicable).

Recent anthrax incidents in the U.S. have attracted global attention and heightened the awareness of the need for chemical/biological personal protective apparel (PPE). To better prepare you to respond to bioterrorism incidents, this document provides information on anthrax and suggests DuPont protective apparel to consider for anthrax response.

DuPont garments have not been tested against anthrax nor are we aware of any other commercial protective apparel that has been directly tested against anthrax. Actual pathogens are seldom used to evaluate barrier performance of protective equipment.

Anthrax is a naturally occurring spore forming bacteria. Anthrax can infect the skin, gastrointestinal tract and respiratory system. Skin infections are the most common, naturally occurring result of anthrax exposure. Cutaneous anthrax is 5% to 20% fatal if not treated and less than 1% fatal if treated. Gastrointestinal anthrax infections are caused by insufficiently cooked, contaminated foods. This form of infection is rare, difficult to diagnose and highly fatal.

Inhalation anthrax infections occur when a large number of spores (8,000–10,000) are inhaled and deposited deep in the lungs. Inhalation anthrax is seldom seen in nature. Inhalation exposure is enhanced when anthrax spores are artificially coated to reduce clumping. This facilitates the creation of a 1–10 micron particle inhalation hazard — small enough to be aerosolized and reach the lower respiratory tract but not so small that they do not deposit. Inhalation exposure can be successfully treated if antibiotic treatment is started 12–36 hours after exposure. Victims who do not know they have inhaled anthrax and who develop severe respiratory symptoms are anticipated to have a 90% fatality rate.

Respirators, protective clothing, face and eye protection, gloves and protective footwear are needed during incidents involving biologic materials to minimize inhalation, limit skin contact and avoid contamination of clothing worn under the protective garment. Personal protective equipment (PPE) must be the correct size, be worn properly, changed if damaged, and taken off in a way that does not contaminate the wearer or others. PPE must be discarded in a way that does not spread the potential contamination. The various PPE should work together — one item should not interfere with the fit and function of another.

Garments made of DuPont™ Tyvek® limit dry particle contamination of skin, hair and underclothing and should be considered for situations involving low levels of potential anthrax exposure, such as obtaining surface wipe samples and low risk evidence collection. Sewn seams and uncovered zippers of typical Tyvek® garments provide less barrier protection than the Tyvek® fabric. Sealed seam Tyvek® garments fitted with zipper covers provide the next level of barrier. For situations involving large amounts of dry material, or for wet operations, sealed seam garments made of a Tychem® fabric should be considered.

According to the CDC/NIOSH “Recommendations for the Selection and Use of Protective Clothing and Respirators Against Biological Agents” (www.cdc.gov/niosh/docs/2009-132/), these coveralls should be worn with full facepiece, fitted respirators with P100 filter or powered air-purifying respirators (PAPR) with high efficiency particle air (HEPA) filters or self-contained breathing apparatus for lower risk situations. According to the CDC, totally encapsulating, gas protective suits (Level A) should be utilized in high-risk situations. Such situations might include when the incident is not controlled, the type of airborne agent is unknown, the method of dissemination is unknown or not under control, the aerosol dissemination is ongoing, the airborne concentration is unknown or the duration of dissemination is unknown. NIOSH recommends against wearing standard firefighter turnout gear into potentially contaminated areas when responding to reports involving biologic agents.

DuPont does not recommend protective equipment for users who do not have the training to assess the hazards, correctly select and properly use the equipment. No one should attempt to respond to a bioterrorism incident without adequate training and without contacting local emergency response agencies. Local emergency responders are trained to deal with potential terrorism incidents.

Over several years and hundreds of anthrax attacks and hoaxes, a measured response to anthrax has evolved. Local fire and police have access to federal support in accessing and managing an anthrax incident. They can investigate and authenticate the threat with sufficient time to start antibiotic treatment. For more information on handling an anthrax incident, see www.bt.cdc.gov/agent/anthrax.

Please note, this information is pertinent to the United States. Regulations and procedures in other countries may vary.

CAUTION: DuPont™ Tyvek® and DuPont™ Tychem® fabrics have not been tested against anthrax. This information is based upon technical data that DuPont believes to be reliable. It is subject to revision as additional knowledge and experience are gained. DuPont makes no guarantee of completeness or of results and assumes no obligation or liability in connection with this information.

It is the user's responsibility to determine the level of toxicity and the proper personal protective equipment needed. It is intended for information use by persons having technical skill for evaluation under the specific end-use conditions, at their own discretion and risk.

Anyone intending to use this information should first verify that the garment selected is suitable for the intended use. In many cases, seams and closures may provide less barrier than the fabric. If the fabric becomes torn, abraded or punctured, end user should discontinue use of garment to avoid compromising the barrier protection. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, DUPONT MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE AND ASSUME NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. This information is not intended as a license to operate under or a recommendation to infringe any patent, trademark right.

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