



H1N1 Virus (Swine Flu)

TECHNICAL BULLETIN

This document provides general guidance for the use of DuPont Protective Apparel for response to the recent H1N1 virus (swine flu) outbreak in North America. DuPont is not aware of any protective clothing material that has been tested with flu virus, including Tyvek® or Tychem® materials. We have tested Tyvek® and Tychem® protective garment materials for resistance to viral penetration from virus-laden synthetic body fluids and against particles.

This information was last updated on April 30, 2009.

Please refer to your local health department or other recognized health agencies for further guidance regarding the H1N1 virus in your area.

Protective garments help prevent the contamination of workers' clothes and the migration of the infectious materials to uncontaminated locations. Protective garments and other personal protective equipment are only part of any comprehensive response to swine flu. Public health management of swine flu involves a combination of techniques: quarantines, avoidances, engineering controls, work practices, administrative controls, and personal protective equipment. Consult with local authorities before undertaking any control or response activities. Ensure that the guidance is appropriate for the conditions and activities in which you will engage.

The current outbreak of "swine" flu in North America is caused by the H1N1 strain of Type A influenza. The Type A, H1N1 influenza viruses commonly causes outbreaks in swine herds in North America. Swine flu viruses generally cause high levels of illness and low death rates in pigs.

The genetic combination that has been recently found in humans, and has been labeled "swine flu" has not been seen before, in humans or swine. The new strain is a hybrid of swine, human and avian flu viruses. The U.S. Centers for Disease Control and Prevention (CDC) report that this virus can spread from human to human but the level of virulence is not yet clear.

Based on traditional guidance from local health agencies there are a number of related activities that may require the use of protective clothing, including:

- veterinary surveillance of infected animals
- cleaning and disinfection of buildings and equipment
- laboratory handling of H1N1 infectious materials
- protection of health care workers and others exposed to the virus

Veterinary surveillance of infected animals

Even though this virus has yet to be found in swine herds, heightened farm biosecurity measures have been recommended. In farm settings, fecal matter is a significant potential route of transmission. Contaminated clothing and equipment should not be carried from farm-to-farm. During veterinary surveillance, clean disposable DuPont™ Tyvek® coveralls may be used in conjunction with separate disposable footwear that has reinforced soles. Protective clothing and footwear should be removed and safely contained before workers leave the contaminated area. DuPont Animal Health Solutions has specific guidance and products to address farm infection control. (<http://www.antecint.co.uk/go.html>)

Cleaning and disinfection of buildings and equipment

When selecting protective clothing for cleaning and disinfection of buildings and equipment, choose clothing that minimizes skin contact with the disinfectant. Fabric, seam and garment design should be considered. Taped seam DuPont™ Tychem® garments along with appropriate hand, face and foot protection may be considered for activities involving high liquid volumes or pressures.

Laboratory handling of H1N1 infectious materials

For laboratory activities involving swine flu specimens, long-sleeve, disposable garments such as coveralls, laboratory coats or frocks, gowns or long-sleeve, full coverage aprons are recommended. Impervious sleeves and bib aprons can be combined with breathable, long sleeve garments to reduce heat related discomfort or stress. Protective clothing should be removed before leaving the lab.

Disposable footwear is also useful in minimizing the spread of infectious material. Disposable footwear fitted with non-slip soles should be considered in lieu of reusable footwear. Disposable footwear for outdoor activities should have reinforced soles. DuPont offers shoe and boot covers with and without reinforced soles

Protection of health care workers and others exposed to the virus

In healthcare facilities, the CDC and WHO recommend clean or sterile isolation gowns for healthcare providers, visitors and non-healthcare staff. The material from which the gown is manufactured, and whether or not it should be sterile, depends on the task and the anticipated exposure. Attention to hand hygiene is also highly recommended.

In the United States, isolation gowns must be registered as medical devices with the Food and Drug Administration (FDA). FDA compliant gowns made from DuPont™ Softesse® and DuPont™ Suprel® Medical Fabrics are available. For more information on these products, visit www.medicalfabrics.dupont.com. Other countries have their own rules and regulations regarding medical clothing. Healthcare professionals should consult local authorities for specific guidance on applicable requirements. For example, DuPont offers a Tyvek® garment that meets the infection control garment guidelines issued by the State Food and Drug Administration of China.

Personal and Hand Hygiene

Additional personal hygiene, especially hand hygiene, is recommended after the protective clothing is removed. CDC recommends that all people who have been in close contact with infected animals clean their hands frequently. DuPont™ RelyOn™ products may be used as part of a “hand hygiene” program. For more information on DuPont™ RelyOn™ antiseptic and disinfectant hand products, visit www.diseasepreparedness.dupont.com.

Management of pandemic flu involves a combination of techniques, including the use of personal protective apparel and other personal protective equipment. Consult with local health authorities before undertaking any response measures to receive guidance that is appropriate for the conditions and activities you are undertaking.

DuPont will continue to work with medical experts and public health officials to help identify and develop garments and materials to meet these critical needs and will continue to update our technical guidance as more information becomes available.

These suggestions are based on recommendations of recognized United States and United Nations health agencies such as the CDC and others. Protective apparel is only one component of a comprehensive Personal Protective Equipment program recommended for pandemic flu response. This document will be revised as new information becomes available.

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 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. The information set forth herein reflects laboratory performance of fabrics, not complete garments, under controlled conditions. It is intended for information use by persons having technical skill for evaluation under their 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 have shorter breakthrough times and higher permeation rates than the fabric. Please contact the garment manufacturer for specific data. If fabric becomes torn, abraded or punctured, end user should discontinue use of garment to avoid potential exposure to chemical. SINCE CONDITIONS OF USE ARE OUTSIDE OUR CONTROL, WE MAKE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE AND ASSUME NO LIABILITY WHATSOEVER 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 or technical information of DuPont or others covering any material or its use.

WARNINGS: 1) Tyvek® and Tychem® garments, except for Tychem® ThermoPro, are not flame-resistant and should not be used around heat, flame, sparks or in potentially flammable or explosive environments. 2) Footwear worn with garments made of Tyvek® or Tychem® fabrics should have slip-resistant or anti-slip materials on the outer surface of boots, shoe covers or other garment surfaces in conditions where slipping could occur.



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