



Cleaning Guidelines for DuPont™ Tychem® garments for COVID-19

According to the European Centre for Disease Prevention and Control (ECDC), disinfection of Personal Protective Equipment (PPE) before taking it off, significantly reduces the risk of secondary contamination, when dealing with infectious diseases like COVID-19. <https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/safe-use-of-ppe.pdf>

Centers for Disease Control and Prevention (CDC) define cleaning and disinfecting as follow:

Cleaning refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.

Disinfecting refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection.

DuPont™ Tychem® garments are designed as Multiple Use, Single Exposure Disposable garments based on chemical contamination exposure and permeation from the resultant chemical contact. Tychem® 2000 C and other Tychem® fabrics with taped seams meet the EN 14126 requirements in the highest performance class (Protective clothing - Performance requirements and test methods for protective clothing against infective agents). They also provide protection against chemicals which are frequently used for disinfection.



Tychem® 2000 C



Tychem® 6000 F



Tychem® 6000 F Plus

COVID-19 is a biological viral contaminate, therefore, causing surface contamination; consequently, the exterior of Tychem® garments are able to be cleaned, disinfected and reused a limited number of times for COVID-19 applications. (*)

- For cleaning use warm water, mild dishwashing liquid and a soft brush to remove any dirt from exterior surfaces.
- As per ECDC guidelines for disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and biocidal products having virucidal activity and authorized under the Biocidal Products Regulation (BPR) should be effective to disinfect exterior surfaces.
- Authorized disinfectant products are expected to be effective against COVID-19 based on data for harder to kill viruses. Follow the manufacturer's instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, etc.). From this list, diluted hydrogen peroxide or sodium hypochlorite (house-hold bleach) can be used to disinfect Tychem® garments.
- Thoroughly rinse the garments with clean, fresh water and allow to air-dry.

If the interior of the garment is suspected of being contaminated, DO NOT attempt to clean, disinfect and reuse the garment; handle and dispose of the garment according to all applicable regulations.

(*) NOTE: In the absence of data, DuPont is unable to provide guidance on the number of times a garment can be safely reused. It is the responsibility of the safety professional in charge to determine that a garment can be safely reused. Any additional processing that the garment undergoes (i.e. cleaning, disinfecting) by an end-user invalidates the CE marking and DuPont can provide no guarantees on the performance after cleaning and disinfecting. Self-adhesive tapes on the zipper flap and chin flap may lose their original adhesiveness and they may also degradate the fabrics while doffing the garments after a first use. Retire Tychem® garment if it fails to pass inspection or the garment is altered, abraded, cut, torn, punctured or otherwise breached. Follow manufacturers instruction for storage and inspection.

Garment Inspection Steps:

1. Lay the garment on a clean, smooth surface.
2. The inspection should include all areas of the suit: body, visor (if present), and gloves (if present).
3. Use a flashlight inside the suit to examine for holes, cuts, or tears. Confirm that any suspected visual imperfection is actually a void by using a small amount of water to confirm penetration. NOTE: For taped seam garments, visible stitch holes which are covered by seam sealing tape do not constitute a defect.
4. Examine garment seams. For taped seam garments, look for areas where seam tape has lifted away from the suit or where seam tape does not fully cover stitch holes. For bound seam garments, look for areas where the binding (top) fabric piece is missing or not fully attached. For serged seam garments, look for areas where the sewing thread is missing or not fully attached.
5. Examine the entire garment for signs of damage. A breach, rupture, or hole of any component of the suit is cause for rejection. Note that for taped seam garments, the fabric, visor (if present), gloves (if present), and seam areas may have visual blemishes that do not affect barrier performance. Such blemishes can include areas adjacent to the seam tape that appear to be dull, white, or frosted.
6. Examine the garment visor (if present) to ensure it offers a clear visual field.
7. Examine the garment gloves (if present) to ensure that they are in good condition and properly attached to the suit. Gently pull on the gloves to ensure that they are firmly attached to the suit. NOTE: You can potentially damage the gloves by pulling with excessive force.
8. Examine the garment zipper and zipper cover (if present) to make sure they are in good working order. Operate the zipper. Lubricate the zipper using paraffin wax, if needed. Engage the hook and loop tape (if present) on the zipper storm flap(s) to ensure appropriate adhesion. If the garment has double sided adhesive tape on the storm flap(s), ensure that there is tape along the length of each flap; do not remove protective tape covering until the suit is donned for use.
9. Examine any garment snaps, etc. to ensure they are in good working order.
10. Examine elastic (if present) to ensure it is not damaged.
11. Examine garment labels to ensure they are attached and are legible.

References

European Centre for Disease Prevention and Control (ECDC)

<https://www.ecdc.europa.eu/en>

Indicative list of authorised disinfectant products by the European Chemicals Agency (ECHA)

<https://echa.europa.eu/covid-19>

DuPont™ SafeSPEC™

www.safespec.dupont.co.uk

EN 14126 specifies requirements for clothing materials providing protection against infective agents. The test methods specified in this standard focus on the medium containing the micro-organism, such as liquid, aerosol or solid dust particles.

EN 14126 comprises the following material tests:

ISO 16603 - Resistance to penetration by blood and body fluids using synthetic blood:

The synthetic blood used for this test is a mixture of cellulose, colouring, buffer solution and stabilising agents. This is referred to as a "screening-test" and is used to predict the pressure at which the subsequent test, using bacteriophage contaminated media, can be expected to penetrate through the material.

ISO 16604 - Resistance penetration by blood-borne pathogens using a bacteriophage ("virus" penetration simulation):

The "virus" test runs along the same lines as ISO 16603, the only difference being that contaminant used is a bacteriophage (Phi-X-174) instead of synthetic blood. A bacteriophage is a virus that infects and replicates within a bacterium. The bacteriophage (Phi-X-174) serves as a surrogate to simulate viruses that are pathogenic to humans. Inference for protection from other pathogens must however be assessed by experts on a case-by-case basis.

ISO 22610 - Resistance to penetration by biologically contaminated liquids (wet bacterial penetration):

This standard sets out the procedure for testing a material's resistance to wet bacterial penetration. The test method involves superimposing the bacterial-contaminated donor material onto the test material and subjecting it to mechanical rubbing.

ISO/DIS 22611 - Resistance to penetration by biologically contaminated liquid aerosols:

When testing the barrier effect against biologically contaminated aerosols, a bacterium solution (Staphylococcus Aureus) suspended in an aerosol is sprayed onto both an unprotected cellulosenitrate membrane and one covered with the test material (the pore size of the membrane is approx. 0.45 µm). Both membranes are subsequently analyzed to establish their bacterial load.

ISO 22612 - Resistance to penetration by biologically contaminated solid particles (dry microbial penetration):

For the barrier test against biologically contaminated solid particles, a pre-sterilised material specimen is fixed in the test apparatus and administered with contaminated (Bacillus Subtilis) talcum powder. An agar plate is placed underneath. During the test, this test assembly is shaken. The particles which penetrate the material are analyzed after incubation of the agar plate, whereby a non-contaminated test specimen is run as a control.



DuPont Personal Protection

DuPont de Nemours (Luxembourg) S.à r.l.

L-2984 Luxembourg

Customer Service

Tel.: +352 3666 5111

mycustomerservice.emea@dupont.com

dpp.dupont.com

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 obligations 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. If 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, WE MAKE 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 or technical information of DuPont or others covering any material or its use. DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted. © 2020 DuPont. 04/2020. L-7600-EN.