Understanding EN 14126 Infectious Agent Protection

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Protection against infectious agents is a vital issue - not only in medical applications such as in hospitals and accident attendance - but also in emergency response projects such as the Ebola relief effort during the major outbreak in 2014-15.

EN 14126

Garments for protection against bacteria, biological contaminants and infectious agents feature this pictogram on the label.

They will also be labelled using the appropriate chemical protection 'Type' with suffix letter 'B' as below:

Type 3-B | Type 4-B | Type 5-B | Type 6-B

Construction and Seam Requirements

EN 14126 makes no other seam or construction requirements beyond those standard in the different garment types - Type 3, Type 6 etc.

However, we would recommend that all garments for use in applications involving biological or infectious agents should be **at least** Type 4 and be constructed with sealed seams to ensure no penetration can occur through the stitch holes that are inevitable with any stitched seam garment. This might be critical in applications involving highly dangerous viruses such as Ebola.

The importance of donning and doffing

Donning and especially doffing of a suit is vital in all chemical protective applications - but especially so in infectious agent protection.

When operatives emerge from a critical area they cannot yet relax. The outside of the garment may be contaminated with infected liquids and great care must be taken not to touch any infected area; gloves must be the last to be removed and garments should ideally be removed by a suitably protected colleague, 'peeling' from the top down so any contamination on the outside ends up on the inside of the removed suit bundle.

We recommend a written donning and doffing procedure following a risk assessment with training for operatives. You can see a video of a donning and doffing procedure on the Lakeland website - www.lakeland.com.

Application Example	Critical Test within EN 14126
Emergency Relief effort for Ebola Outbreak - Front line medical staff	With a highly dangerous bacteria transmitted in blood and body fluids it is critical to select a garment that achieves a high class in ISO 16604 test.
Hospital Cleaning staff - involved in cleaning contaminated surfaces and equipment.	Subject to the biological hazard, a high class in the ISO 22610 test might be appropriate.

EN 14126 contains four relevant, classified tests *(and not five as some claim)*

Five tests are listed, but the first (ISO 16603) is purely used to indicate a starting point for conducting the 'real' test for protection against infected blood and body fluids, ISO 16604.

The classification table for this relates ONLY to the ISO 16604 test; there is NO CLASSIFICATION for EN 16603 and claiming such classification is meaningless; it is not a test that indicates any proof of protection.

Tests listed in EN 14126

Standard	Description	Classes	Comments
ISO/ FDIS 16603	Screening test for ISO 16604 test	None	Uses synthetic blood to indicate the pressure at which strike-through is likely to occur in preparation for The ISO/FDIS 16604 test. **This test does not indicate any level of protection.**
ISO/ FDIS 16604	Protection against blood and body fluids	1 to 6 (6 is highest)	Uses a bacteriophage to measure the pressure at which a body fluid such as blood will penetrate through the fabric. Class 6 is equivalent to passing the test under a pressure of 20kPa.
ISO/ DIS 22610	Protection against mechanical contact with contaminated surfaces	1 to 6 (6 is highest)	Measures the protection against mechanical contact with contaminated surfaces by a light mechanical rubbing of the fabric. Class 6 corresponds to no penetration after 75 minutes.
ISO/ DIS 22611	Protection against biologically contaminated aerosols	1 to 3 (3 is highest)	Measures protection against penetration by a contaminated aerosol spray. Level 3 corresponds with a penetration of less than 0.001%.
ISO/ DIS 22612	Protection against contaminated solid particles	1 to 3 (3 is highest)	Measures penetration of particles by dusting a fabric sample held on a vibrating plate with a small amount of contaminated powder. Class 3 is the equivalent of less than 10 particles penetrating.

The above four tests (excluding the first listed which is not an indicative test) indicate a garment fabric's effectiveness in resisting penetration of bacterial contaminants in various hazard types - contaminated blood, contaminated particles, aerosols etc - giving a classification for each of 1 to 6 or 1 to 3.

For users, it is important not just to confirm a garment is certified to EN 14126, but also to assess the classification of different tests according to the requirements of their specific application - such as in the examples shown:-