

UV Protection Of Disposable Protective Clothing

Recent decades have seen an increasing understanding of the possible consequences of skin absorption of ultra-violet radiation from over-exposure to direct sunlight.

Understanding has coincided with a growth in associated melanomas and other related cancers and the public are increasingly warned of the dangers of exposure to the sun.

So how well does your disposable protective clothing also protect against the hazard of ultra-violet radiation?



There are many factors that may need to be considered in selecting suitable protective clothing for a specific task.

Have you considered that ultra-violet protection might be one of them?

Type 5 & 6 protective clothing - used primarily for protection against hazardous dusts and liquids - is commonly used in a wide range of applications around the world - many of which take place outdoors in direct exposure to sunlight.

Furthermore in warmer climates users will often wear such disposable coveralls with minimal clothing beneath, so the only UV protection is provided by the disposable clothing itself.

There are no minimum UV protection performance requirements for CE certified protective clothing. But clearly understanding how well different types of fabrics protect against sunburn and the serious health hazards that can result might be important.

There are three essential types of fabric used for Type 5 and 6 coveralls:-

Fabric Type	Description
SMS & variants	Fibrous structure of bonded polypropylene fibres
Microporous Film Laminate (MPFL)	Two layers with spunbonded polypropylene inside and a microporous polyethylene film outside
Flashspun Polyethylene	Proprietary high density single layer structure of flashspun polyethylene fibre

The first two are known by a variety of brands according to the manufacturer. For Lakeland SMS is SafeGard™ and the MPFL is MicroMax® NS. FSPE is commonly known as the brand 'Tyvek' and is available from a single manufacturer.

Lakeland has conducted independent testing with the BTTG (British Textile & Technology Group) to assess the UV protection factor of each of these fabrics. According to the EN 13758-1:2002 test.

In each case four samples are measured and the mean UPF (Ultra-Violet Protection Factor) calculated. This is then converted to a 'rated UPF' according to an agreed mathematical formula. Essentially, the higher the rated UPF, the higher the UV protection.

The results are shown below, including two variations of the SafeGard™ and MicroMax® products:

Ultra-violet Protection Factor (UPF) tested according to EN 13758-1:2002		
Fabric Type/brand	Mean UPF	Rated UPF
SMS SafeGard™	2.3	2
(SMMS) SafeGard™ 76	3.0	3
(MPFL) MicroMax® NS	18.8	16
(MPFL) MicroMax®	18.1	16
FSPE	2.8	2

The results are conclusive. The variable fibrous structure of both the SMS (SafeGard™) and the FSPE allows much more of the harmful radiation to pass through.

On the other hand the greater consistency of the film structure of MicroMax® fabrics filter out far more of the harmful ultra-violet rays.

According to the ASTM Standard a rated UPF of over 15 is categorised as 'good', filtering out 93-96% of UV radiation. Anything below 15 is unrated. The alternative fabrics are well below this threshold.

Whilst this does not guarantee that MicroMax® coveralls are providing sufficient protection against sunlight in any specific situation, it does confirm that where UV protection is important, MicroMax® and MicroMax® NS coveralls are providing the highest protection of the three standard types.

For more information on the differences between the three main types of fabrics used for Type 5 & 6 coveralls, and for guidance on selecting the best coverall for the job, request our 'Guide to Selection of Type 5 & 6 Coveralls'. Use the QR code to download or order a hard copy.

