

**PERFORMANCE TEST RESULTS AGAINST DEPARTMENT OF TRADE, INDUSTRY AND  
COMPETITION RECOMMENDED GUIDELINES FOR:**

## **FABRIC FACE MASKS FILTER**

**VERSION 24<sup>th</sup> APRIL 2020**

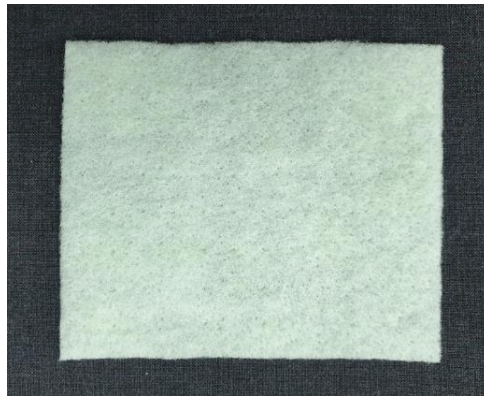


**DEFCONPROTEC**  
DEFENCE CONTRACTS AND PROTECTION TECHNOLOGIES

### **PRODUCT DESCRIPTION**

#### **FILTER ELEMENT**

**Part Number : D15™ CV19 135**



**CUSTOMER Brits Nonwoven (Pty) Ltd**

**DATE 07<sup>th</sup> May 2020**



## FABRIC FACE MASK AND FILTERS TEST INFORMATION

The recommended guidelines from the DTIC have been incorporated and interpreted to form the basis of the test requirements. Wherever possible, the vague statements of requirements in the guidelines, have been converted to minimum requirements to enable face masks or filters to be tested against recognised standards.

The guidelines have not specified a definite requirement in terms of a number of mask characteristics and as a result, various technical experts in the textile industry were consulted to obtain reasonable values that could be used as an interpretation of the DTIC requirements. Unless there is a minimum standard, it is difficult to develop a compliance standard for face masks and filters.

**Permeability** – Section 3 (d) refers to ease of breathing. The mask with a filter must not restrict breathing. In order to measure ease of breathing an airflow reading is required. Using the average area of a mask at 0,02m<sup>2</sup> and an average of 8 litres of air breathed by an adult per minute, it would be fair to assume that the mask test result should be a permeability of at least 75% of this at 125Pa. The assumption is that there will be at least 15 -25% leakage in most textile masks. A minimum permeability level of 300 liter/second/m<sup>2</sup> (60cfm) is therefore reasonable to assume. This test report only examines the influence of the filter, hence the airflow specification being adjusted upwards to a minimum of 700cfm.

**Breathability or Moisture vapour transmission rate** – Section 3 (e) refers to comfort while wearing. Mask breathability and heat load on the face can be measured by recording the moisture vapour transmission rate. Most laminated or coated breathable rainwear products for workwear applications need a minimum of 3000g/m<sup>2</sup>/24hrs. As this is not a workwear or military item, it is believed that a value of 2500 g/m<sup>2</sup>/24hrs would be sufficient to maintain a manageable heat load on the face. This test report is for the filter only, hence an increase in minimum requirement to 4500 g/m<sup>2</sup>/24hrs.

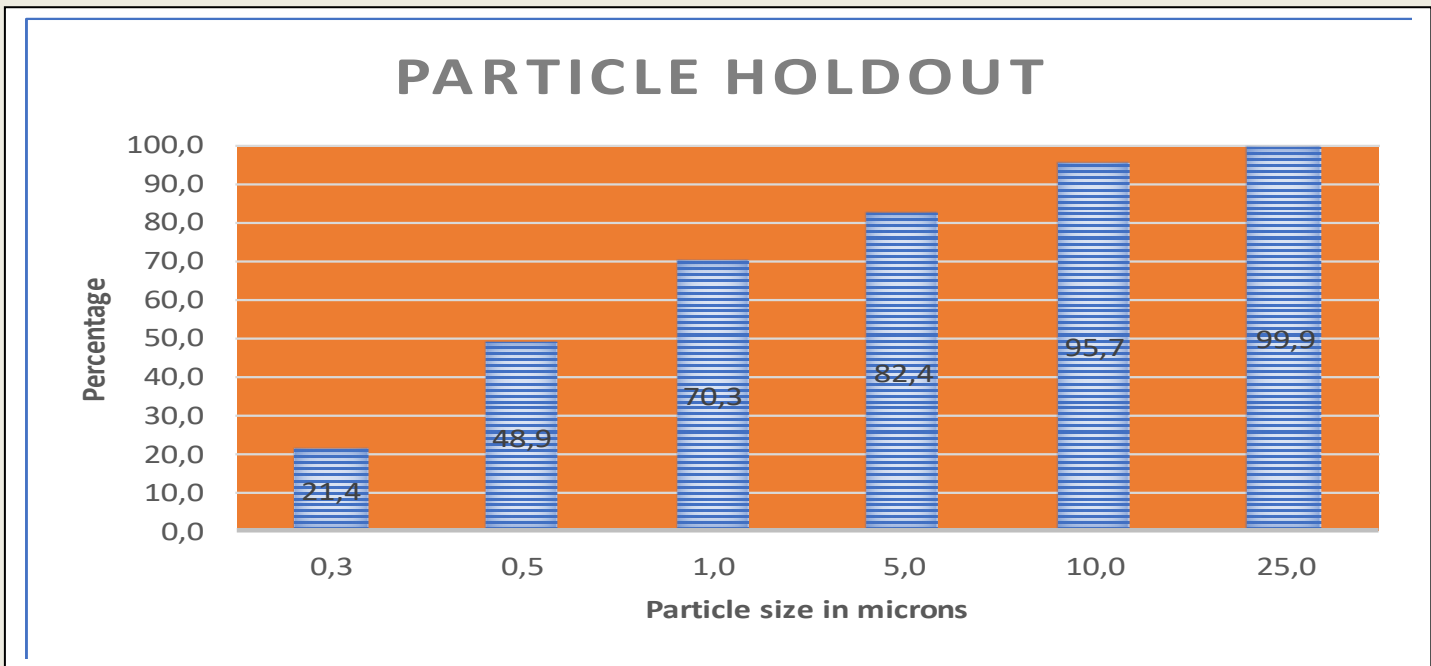
**Particle Holdout** – Section 3 (b and c) and Section 4.1.2 (a and b) and Section 4.1.4 (i) refer to a minimum requirement of 75% holdout of 5µm and upwards respiratory particle size. Section 3c refers to the higher the holdout capability of the filter and the mask, the better. Testing is done against the 5µm requirement, but there is also a graph that show filter holdout efficiency against 0,3µm particle size up to 25µm particle size.

### Disclaimer

These test results are only applicable to filters for Public Masks as indicated by the DTIC guidelines. Any masks or filters tested under this specification are not qualified to be used in or for Medical Masks. Medical mask requirements are aligned to FFP2 and FFP3 or N95 standards. The test facilities used for the particle holdout results are a modified ISO 14644 method. This method is not suitable for the evaluation of medical masks. Medical PPE have much higher performance requirements that what can be achieved by public mask test facilities and need to be evaluated against SANS 1866.




DESCRIPTION	METHOD	SPECIFICATION	TEST RESULT
1 Composition	Chemical Analysis	Polypropylene	Polypropylene
	Chemical Analysis	Polyester	Polyester
	Chemical Analysis	PAA	PAA
2 Construction	Physical Analysis	3 Layer sandwich	3 Layer Sandwich
3 Mass per unit area	SANS 79	100gr/m <sup>2</sup> ± 5%	104gr/m <sup>2</sup>
4 Breathability	SANS 6163	> 4500grms/m <sup>2</sup>	5954grms/m <sup>2</sup>
5 Airflow	ASTM D737	700 - 800cfm	755 cfm
6 Thickness	SANS 85	3,0 - 4,0mm	3,85mm
7 Respiratory Particle Entrapment	ISO 14644-1 Modified	5,0µm - 75% min	81,30%
	ISO 14644-1 Modified	10,0µm - 95% min	95,70%
	ISO 14644-1 Modified	25.0µm - 99.9% min	99.90%



**NOTES**

The D15 CV19 135 filter element comply with the filter requirements as stated in the DTIC Fabric Facemask Guidelines as published on 24<sup>th</sup> April 2020. The filter rating scores a 4 as per the industry requirements. Testing was performed against the Brits Nonwoven Private spec, the DTIC Guidelines and the newly introduced rating system for filters and fabrics to be used for Public Facemasks.

  
**SIGNED**