

BRITS D15 FILTER ELEMENTS

D15CV19135 - Article Code for Covid-19

D15 = Product code
CV19 = 3 Layer Product for COVID-19
135 = Product roll width



This mask is fitted with a Brits D15 Filter element.

Together with hand washing, good sanitation and social distancing, the wearing of a suitable mask is another weapon in the arsenal of the war against the virus. The mask should always be used in conjunction with all the other recommended protocols for COVID-19.

The current challenge

Many people do not know that they have COVID-19, and unknowingly spread the virus through direct and indirect contact. The infection is mostly spread through airborne droplets which contain the virus, produced through talking, coughing or sneezing. These micro droplets then deposit on nearby surfaces, items and other people.

Scientists have measured a pressure level of 6000 Pa in the windpipe of a person who sneezes or coughs. These droplets can travel up to 2 metres and land on the faces of people nearby, and can even be inhaled into their lungs.

In order to significantly reduce the ability of the virus to spread, it is important that we protect each other. **If I wear a mask, I protect you. You must please wear a mask too so you can protect me in return.**

The World Health Organisation confirms this in their published bulletins -

The following information is from the WHO website – updated 29th March 2020.

<https://www.who.int/news-room/commentaries/detail/modes-of-transmission-of-virus-causing-covid-19-implications-for-ipc-precaution-recommendations>

Modes of transmission of the COVID-19 virus

Respiratory infections can be transmitted through droplets of different sizes: when the droplet particles are >5-10 µm in diameter they are referred to as respiratory droplets, and when they are <5µm in diameter, they are referred to as droplet nuclei.¹ According to current evidence, COVID-19 virus is primarily transmitted between people through respiratory droplets and contact routes.²⁻⁷ In an analysis of 75,465 COVID-19 cases in China, airborne transmission was not reported.⁸

This information above is absolutely critical. What it tells us is that the primary mode of infection for the general population is via droplets. The size of these droplets are greater than 5micron and they are generated by talking, coughing and sneezing. The airborne state of the virus where it is smaller than 5µm, occurs mainly in hospitals and here they have specialised masks to take care of the virus in nuclei or aerosol form.

The risk that we all face, is respiratory micro droplets of 5µm or larger.

The key to reducing the rate of infection is therefore to disrupt the transport system for the virus. One of the most effective ways we can do this is to control and entrap these droplets.

The filter system that Brits designed for masks, is to do exactly that. It is designed to entrap any particle size of 5µm and above. The mask actually entraps many smaller particles as well, but the real holdout is 95% effective above 5µm.

As there are no standard specifications for facemasks for the general population, Brits Nonwoven cooperated with Stellenbosch University to develop an interim minimum requirement that would be suitable for COVID-19 masks to be worn by anyone other than medical personnel. This mask specification and test regime was therefore designed for the public. As the main threat is a respiratory particle which has a known size distribution, the method of testing agreed on was ISO 14644-1. The reasoning for this was that all hospital cleanrooms and theatres are currently tested for air quality using this method. This method determines the particles sizes that the filter element will entrap and particle sizes that will pass through.

| D15 Filter Element Specification | | | |
|----------------------------------|-------------------|---------------------------|-------------------------|
| DESCRIPTION | METHOD | SPECIFICATION | TEST RESULT |
| 1 Composition | Chemical Analysis | Polypropylene 38-42% | Polypropylene 39% |
| | Chemical Analysis | Polyester 48-52% | Polyester 50% |
| | Chemical Analysis | PAA 9-11% | PAA 11% |
| 2 Construction | Physical Analysis | 3 Layer sandwich | 3 Layer Sandwich |
| 3 Mass per unit area | SANS 79 | 100gr/m ² ± 5% | 103gr/m ² |
| 4 Breathability | SANS 6163 | > 4500grms/m ² | 5631grms/m ² |
| 5 Airflow | ASTM D737 | 700 -800cfm | 740 cfm |
| 6 Thickness | SANS 85 | 3,0 - 4,0mm | 3,8mm |
| 7 Moisture Particle Entrapment | ISO 14644-1 | 0,5µ - ISO 8 level | Complies |
| | ISO 14644-2 | 1,0µ - ISO 8 level | Complies |
| | ISO 14644-3 | 5,0µ - ISO 7 level | Complies |

Cleaning procedure

All new masks and filters must be sterilised before use !

Masks should be soaked in boiling water to sterilise them.

1. Remove mask from your face carefully – do not touch the mask, but remove by the straps only
2. Place complete unit in a bowl and pour boiling water from a kettle over it. Make sure it is fully covered with boiling water.
3. Wash hands using hand-washing protocols for COVID-19.
4. Wash your face using COVID -19 protocols.
5. Leave complete mask in the hot water for at least 5 minutes.
6. Rinse the mask under cold running water.
7. Remove the filter and pat it dry between 2 paper towels or dishcloths. Leave aside to air dry.
8. If the mask has dirty masks on it, you can hand or machine wash the mask. **Make sure the filter is removed before hand or machine washing.**
9. Do not squeeze, wring or hand-wash the filter. The delicate structure may be damaged.
10. Leave both filter and mask to air dry. Once both components are dry, insert filter back into mask and it is ready to wear again.
11. Once filter has been sterilised 5 times – discard it after sterilising and insert a new filter which must also be sterilised before use.



MANUFACTURERS AND SUPPLIERS
OF CLEAN AIR EQUIPMENT

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**PARTICLE COUNT CERTIFICATE
ISO 8
TO ISO 14644-1**

| | | | | |
|-------------------------------|--|--------------------------|--------------------------|-----------------|
| DATE: | 25 March 2020 | TEST EQUIPMENT | | |
| NEXT SERVICE DUE: | TBA | PARTICLE COUNTER: | LASAIR III 310C | |
| CLIENT: | Brits Nonwoven | ANEMOMETER: | TESTO 425 | |
| VA Serv. Rep. REF. No: | 49 477 | | CALIBRATION DATE: | see certificate |
| UNIT / AREA: | Vivid Air Factory D15 Filter Element & Finiam Outer | | SERIAL No: | see certificate |
| ORDER No: | COD | | CALIBRATION DATE: | see certificate |
| TEST STANDARD: | ISO 14644-1 | | SERIAL No: | see certificate |
| SERVICE TECHNICIAN: | S. Duma | | | |

| FILTER / AREA | 0,5 MICRON SIZE PARTICLES | 1,0 MICRON SIZE PARTICLES | 5,0 MICRON SIZE PARTICLES |
|----------------------|---|---|--|
| Filter/Area 1 | | | |
| Count 1 | 2390590 | 191386 | 777 |
| Count 2 | 2679042 | 318960 | 1412 |
| Count 3 | 2525934 | 276642 | 1200 |
| Count 4 | 2199304 | 184653 | 848 |
| | SINCE THE AVERAGE COUNTS FOR 0,5 MICRON SIZE PARTICLE IS LOWER THAN 3,520,000 (TAKING 95% UCL INTO ACCOUNT) THE CONDITIONS FOR THE ABOVE UNIT COMPLIES WITH ISO STANDARDS & CONDITIONS AS PER ISO 14644-1 | SINCE THE AVERAGE COUNTS FOR 1,0 MICRON SIZE PARTICLE IS LOWER THAN 832,000 (TAKING 95% UCL INTO ACCOUNT) THE CONDITIONS FOR THE ABOVE UNIT COMPLIES WITH ISO STANDARDS & CONDITIONS AS PER ISO 14644-1 | SINCE THE AVERAGE COUNTS FOR 5,0 MICRON SIZE PARTICLE IS LOWER THAN 29,300 (TAKING 95% UCL INTO ACCOUNT) THE CONDITIONS FOR THE ABOVE UNIT COMPLIES WITH ISO STANDARDS & CONDITIONS AS PER ISO 14644-1 |

| | | | | | | | |
|--------------------------|---|--------------|----------------------------|---|-----------|---------------------------|--------|
| AVERAGE VELOCITY: | - | M/Sec | MAGNAHELIC READING: | - | Pa | UNIT / AREA STATUS | Passed |
|--------------------------|---|--------------|----------------------------|---|-----------|---------------------------|--------|

| | |
|----------------------------|--|
| ADDITIONAL REMARKS: | 0.5 and 1.0 micron passes under ISO 8 conditions. 5.0 micron passes under ISO 7 conditions. |
|----------------------------|--|

Yours faithfully

Sibusiso Duma

Approved by _____
(Client Signature)



5475 Airport Boulevard, Boulder, Colorado 80301-2339
 303.443.7100 1.800.238.1801 Fax: 303.546.7380
 Customer Service Center 1.877.475.3317
 Instrument Service and Support 1.800.557.6363

Certificate of Calibration

Date: Oct-11-2019 11:19:54

Customer Name: Vividair Work Order: SA0184
 Service Notes: None

Unit Under Test

Instrument: LasairIII_310C Serial Number: 109108
 Firmware Version: PCE: B2B53624 1.9 Calibration Due: Oct-11-2020

Environmental

Temperature: 23 Deg C Relative Humidity: 37%

Certification

Particle Measuring Systems certifies that the instrument listed above meets or exceeds manufacturing specifications and meets the requirements of ISO 21501-4:2007. It has been calibrated using equipment and/or standards whose accuracies are traceable to the National Institute of Standards and Technology (NIST), or have been derived from acceptable values of natural physical constants, or by the ratio type of self-calibration. This instrument was calibrated in accordance with the Particle Measuring Systems quality system documentation which meets ISO9001:2008 requirements. This certificate may not be reproduced, except in full, without written consent from Particle Measuring Systems.

Calibration Standards

Procedure Used: Program Used: 1000013097 Rev K

Instrument Condition Received

In-Tolerance Out-of-Tolerance Operational Failure

Particles Used

| <u>Particle Size</u> | <u>Std Deviation</u> | <u>Lot Number</u> | <u>Expiration Date</u> | <u>Uncertainty</u> |
|----------------------|----------------------|-------------------|------------------------|--------------------|
| 0.303 micron | 1.900 | 205483 | Jan-31-2021 | 0.001 |
| 0.508 micron | 1.700 | 205491 | Jun-30-2020 | 0.008 |
| 0.994 micron | 1.000 | 186953 | Jul-31-2020 | 0.010 |
| 5.027 micron | 1.000 | 194633 | Feb-28-2021 | 0.010 |

References Used

| <u>Type</u> | <u>Serial Number</u> | <u>Calibration Due</u> |
|--------------|----------------------|------------------------|
| LasairII-110 | 65588 | Dec-26-2019 |
| Flow Meter | 40461201001 | Jun-24-2020 |

Performed by

Technician Name: Albrecht Truter

Albrecht Truter