

Enhanced air filtration performance with
a unique patented Triboelectric Blend

TriboTM *From fibers to filters
for a better world*

Air Filtration

Electrostatic filtration is well known to be highly effective in filtering very fine particles, while at the same time maintaining a low pressure drop. Ever more demanding are the performance requirements for the removal of fine particles in air filtration. To meet these tighter requirements, a triboelectric couple (TriboTM), has been developed by the research and development team at Texel.

Texel
FILTRATION

Tribo technology can be used in a variety of applications

PAPR • Respiratory masks
HVAC filters • Air purifier filters
Clean room filters
Various industrial applications
APNEA • Etc.



Air Filtration Application

About electrostatic filtration

The use of electrostatic filters in air filtration has become very popular and they are now commonly used in air filtration applications such as furnace filters and respirators. Electrostatic filtration media are said to offer the following benefits:

- **more efficient filtration**
- **lower pressure drops**
- **increased capacity to filter out fine particles (< 1 µm)**

Mechanical filtration is less effective at stopping particles less than one micron in size because the fibers, whether natural or synthetic, have a diameter in the order of 20 µm (coarse fibers).

Electrostatic filtration captures particles using Coulombic attraction or repulsion and dielectrophoretic forces. These two mechanisms are effective against particles varying in size from 0.05 µm to 5 µm and are described as follows:

Coulombic attraction or repulsion: This mechanism is the result of electric charges that are on the filter and on the particle to be filtered. A particle that is therefore charged negatively will be attracted to the positively charged area of the filter media.

Dielectrophoretic forces: A dipole is led to a neutral particle when it enters the electrical field of an electrostatic filter. This dipole will then attract the particle towards the surface of the filtering media that will capture it.

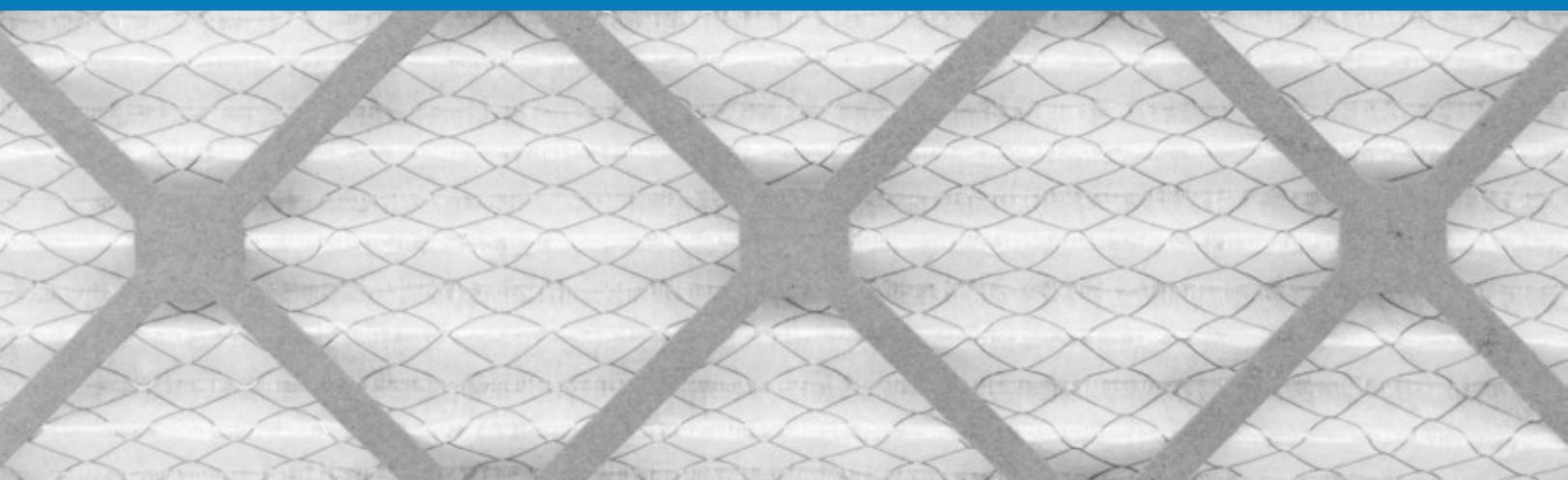
The Tribo™ concept

An electrostatic filter must have two crucial characteristics. Firstly, it must comprise a large number of charges that produce strong electrostatic fields, and secondly be made of fibers with good electrical insulating properties in order to retain the charges.

The life-time of the filter's charges will be proportional to the electrical resistance of the fibers in the triboelectric couple and should be equal to or greater than the filter's service life. However, finding a triboelectric couple that would exhibit

when rubbed together these two important characteristics for electrostatic filtration was key to the success of the project.

In its nature and its construction this triboelectric blend offers the following advantages i.e. high filtration efficiency against fine particles, while retaining the advantages of filters made from coarse fibers, low resistance to air flow and high dust-loading capacity.





Exceptional Performance. Minimal Resistance.

Texel continues to provide added value with its patented high-performance air filtration technology. A unique solution that allows us to choose the performance/weight ratio that best meets your needs.

Your benefits:

- **Consistent**, long-lasting electrostatic charge for maximum surface efficiency.
- **Choice of design:** flat, pleatable, supported, unsupported.
- **Microbial protection:** helps stop the spread of bacteria, viruses and mold.
- **Capable of meeting the toughest standard:** P100 from NIOSH.
- **Highest** efficiency at a given weight.

Texel's Tribo-filter line covers a full range of media aimed at a diverse range of markets such as respirators, cleanrooms, furnace filters, vacuum cleaners and cabin air filters. We will also superimpose layers to meet your performance requirement.

The high ratio of filtration efficiency to air flow resistance makes Texel's Tribo-filters extremely useful in furnace filtration, cabin air filtration and vacuum cleaner filtration, by helping reduce fan motor size, power consumption, and noise levels. For the same reason it is also ideal for respirators. In practice, breathing gets easier for users and the design provides mask makers with more flexibility. Texel's Triboelectric media will help you meet any standard including the most restrictive.

Knowing that the triboelectric blend made of PP(polypropylene)/PI(polymethaphenylene isophthalamide) has flexibility in terms of blend, great efficiency level despite the low proportion of PI and that the potential of the product has not been fully exploited yet, Texel's team really think that the product could help improve air filtration in a large number of applications.



WHO WE ARE

Founded in 1967 and a subsidiary of Lydall (NYSE: LDL) since July 2016, Texel Technical Materials, Inc. is recognized as one of the major manufacturers of nonwoven materials for technical use in North America.

Over the years, Texel has become a master in the needle punch technology and the transformation and finishing of nonwoven materials according to various sophisticated processes, to the point today of developing and manufacturing innovative technical materials for numerous applications.

Texel operates three manufacturing operations and one distribution center located within the province of Quebec, Canada including dedicated pilot lines and R&D professionals to develop engineered nonwoven products and composites covering a wide range of applications.

Texel products are marketed internationally via six market segments and two affiliated companies.

Quality policy

At Texel, our reputation is built on more than our superior quality products, it includes our entire customer experience from the initial contact with our customer service and sales staff, to logistics and after sales, including our accounting department.

This quality policy defines all our objectives. Texel employees from every department are striving to facilitate the client's experience in all circumstances.

Mission

To create sustainable value for our customers, shareholders, and associates exceeding their expectations by focusing on growth opportunities, developing associates, and increasing their engagement, and achieving operational excellence through continuous improvement.

Vision

To be the supplier of first choice in our selected markets, achieve double digit revenue growth while increasing operating margins at a greater rate, known for generating profitable growth through organic development and acquisitions, recognized as valuing and rewarding employees, and never satisfied with yesterday's results.

Our values

- Customers are the reason we exist
- Continuous improvement is a way of life
- Highest quality products and services
- Employees are fully engaged in the business
- Honesty, Trust and Integrity
- Open Communication
- Safe and healthy work environments





Air Filtration Application

About electrostatic filtration

Our Manufacturing Method

The triboelectric effect involves placing two polymers with different dielectric constants in contact so that they exchange ions and create, once separated, a charge imbalance between them. This ionic disequilibrium creates a strong electric field at the microscopic level of the filter media.

In normal conditions, an atom has the right number of electrons to balance the positive charges of the atomic nucleus's protons. The atom is therefore electrically neutral, without electrostatic charge. However, when two atoms with different electrostatic properties are put in intimate contact, this neutrality can be disrupted. The electrons that gravitate around the atom that develops the less attractive force will be able to join the one that creates more, thereby generating an electron deficit on one (positively charged) and an excess of electrons on the other (negatively charged)¹.

1. Frederick Edward R., "Electrical Effect In Fabric Filtration", *Filtration News*, Novembre/Décembre 1995, P. 30-47.

About Texel

Since 1967, Texel has been developing and manufacturing filtration solutions that exceed even the highest industry standards. Rigorous quality control, reliable production and the uniform permeability of our media provide you with total peace of mind. Because your clients rely on uniform performance every single moment of the day. So count on our internationally-recognized experience in the development and production of filtration media. We enable performance one micron at a time, roll after roll.

Texel is more than Tribo. We are in liquid filtration, biofiltration and so much more. If you want to know more about Texel, visit our website at www.texel.ca

Your product development partner

Through our Edge Program, we can support your product development process. Contact our platform manager to learn more about Tribo technology and see how it can help you differentiate yourself.



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