

# Breaking down filters

The sight of cigarette butts littering city streets is both universal and universally hated. Although no solution for rapid, full degradability exists, filter-maker Essentra says it has developed a number of products which can help speed up the process.



Essentra's Ochre filter

Luckily, Jane Austen didn't begin *Pride and Prejudice* with the words, "it is a truth universally acknowledged that cigarette butts are the most littered item in the world." If she had, though, she would have been entirely correct – at least in 2016. An estimated 4.5 trillion are discarded yearly. The toxins released as these decompose can cause damage to ecosystems and pollute the environment.

Although the industry has long been concerned with this issue, an increased sense of environmental responsibility globally has meant it has now redoubled efforts in the search for degradable cigarette materials.

"Whilst no solution at present allows cigarette filters to fully degrade in the environment within an acceptable timeframe," Innovations Director at Essentra, Patrick Meredith told TJI, "Essentra has developed paper and filter products that decrease the timescale at which they begin to degrade."

The filter has long presented the biggest

obstacle. Although efficient and relatively cheap to produce, a cellulose acetate filter can take between many years to degrade under normal conditions.

One way of improving the sustainability of cigarettes is to use another material. Paper offers the best alternative. "Paper filters are generally more degradable and biodegradable than cellulose acetate filters, reducing the time taken for the cigarette butts to break down after being discarded in the environment," Meredith said. "This is beneficial as the shorter timescale helps to minimise pollution and can help lead to a reduction in secondary effects, such as marine life mistaking cigarette butts for food."

One of Essentra's range of paper filters, the "Ochre filter" is made of unbleached paper and uses no chemical adhesives to bond the fibres, the company told TJI. "This allows it to degrade three times faster than standard cellulose acetate filters," Meredith said. In addition to

being more degradable, Essentra's paper filters are also more biodegradable. "This means they can be broken down by the metabolism of micro-organisms more easily," he explained.

Paper filters are not to everyone's taste though. "If no additional treatment is made, paper filters can impart a harsher, drier taste to the cigarette," Meredith said. To address this problem, the company has also developed "the infused paper filter" which, it says, offers consumers "the higher tar retention and faster degradability speed associated with paper filters, but without the harsh taste".

Another option is the company's "Bi-Tech filter" which, as the name suggests, combines paper and cellulose acetate. This, Meredith explained, "provides both increased filtration efficiency and greater degradability than a standard mono-acetate."

The "Random Orientated Acetate (ROA) filter", is the company's only wholly cellulose acetate (CA) filter with increased degradability. This improvement is down to the structure. The ROA is manufactured using cellulose acetate cut into staple fibre and formed into a filter rod. "The more random fibre structure provides additional draw resistance compared to conventional CA filter construction, allowing a tow weight saving," Meredith said. "This reduction of tow and filter construction makes the filter more sustainable and increases the speed of dispersibility in the environment."

## Plug wrap

Although the filter is the component which degrades at the slowest rate, sustainable plug wrap is also essential if a product is going to degrade more

Photos: Essentra



delfortgroup

## delfortgroup drives innovation: A smoother and more natural tipping base paper

Driven by a deep understanding of both customer and market needs, delfortgroup develops a wide variety of innovative, tailor-made solutions with optimized runnability. delfortgroup has made significant contributions to its markets with new developments in tipping base paper, including high gloss and natural tipping base paper. Both products stand out on the market for their unique haptic effect and natural appearance.

Consistent with delfortgroup's high quality standard, both products satisfy customer needs with extremely good runnability and printability. Trouble-free converting acts as the foundation for delfortgroup's development and ongoing production. Value-driven innovation is always paired with technological leadership, state-of-the-art technology and a dedicated team.

### "Supersmooth" tipping base paper

delfortgroup has developed a number of new and innovative solutions in recent years, including a high gloss or "supersmooth" tipping base paper with a smoothness of 1,000 Bekk sec, which enables converters to improve fine line and logo printing. With this innovation, delfortgroup has perfected the fine line between color penetration or consumption and ink holdout. This white and bright paper with high opacity provides an exceptionally high-end look and feel, making it the choice paper for the premium segments of several international corporations.

### Natural tipping base paper

delfortgroup anticipated the natural tipping base paper trend and responded by developing tipping base paper with tobacco particles and papers with eco-friendly, unbleached pulp. The result is a special natural visual appearance and a unique and intense haptic experience as if feeling the tobacco on your lips. This unique feature has helped to distinguish and successfully launch these natural papers in the market.



*All in one: delfortgroup is full-service provider for cigarette, plug wrap, and tipping base papers as well as roll-your-own and make-your-own papers*



*Paper machine 3 at Dr. Franz Feurstein GmbH in Austria, one of five paper machines producing tipping base papers at delfortgroup*

### Broadest solutions portfolio

With five paper mills and over 1,500 employees dedicated to the cigarette industry delfortgroup has more than sufficient tipping base paper capacity available. delfortgroup provides its converting partners with their optimal printing widths using machines with widths between 2,450 mm and 5,000 mm. The Austrian manufacturer is the only supplier of tipping base papers with a well-functioning and continuously tested contingency concept in place. Its papers can be quickly and expertly switched between machines within the group while maintaining identical quality parameters and standards.

### Certified processes and products

Compliance with environmental laws and regulations in all regions of operations is the first step to ensuring sustainable timber sourcing. As wood pulp represents the single most significant raw material input into paper-making, delfortgroup is committed to delivering tipping base paper according to FSC® or PEFC™ chain of custody and was one of the first paper manufacturers to commit to sustainable wood and pulp procurement. All paper machines are HACCP certified to further guarantee a high standard of cleanliness for both converters and the cigarette industry. Upon request, delfortgroup also delivers paper in accordance with KOSHER and HALAL certifications.

For more information please go to [www.delfortgroup.com](http://www.delfortgroup.com)

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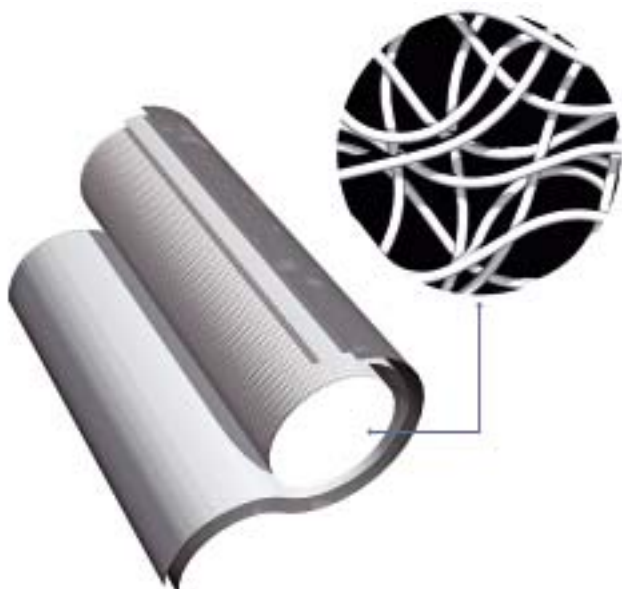
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The Randomly Orientated Acetate (ROA) filter

quickly. “Plug wrap plays an important role in the degradability of filters, as it is only really when it is removed that the filtration material is exposed to the mechanisms that can begin to break it down,” said Meredith. “There are many methods by which materials break down, such as either exposure to ultra violet light or water or wastewater.” With this in mind, Essentra created its own dispersible plug wrap which, the company says, dissolves in water three times faster than standard plug wrap material.

Another option for increased degradability is to use super slim filters. “Slimmer filters are more environmentally friendly due to the reduction in materials and with fewer materials to disperse it is likely that they will disperse faster in the environment,” Meredith said.

## Outlook

According to the company, its new range of sustainable filters has been well received by manufacturers. “The Ochre filter has been of particular interest, particularly in the RYO market.” Meredith told TJI. “We also continue to work with a number of joint development partners within this area, demonstrating the industry’s commitment to developing more sustainable solutions.

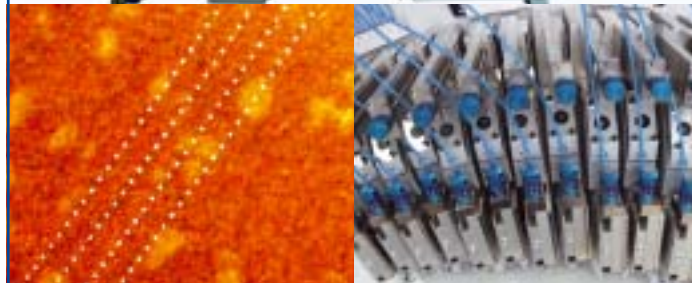
“The production of more sustainable products also helps cigarette manufacturers to widen their portfolio and cater for those consumers who are more environmentally conscious,” he added.

Despite these benefits, Meredith does not see cigarettes with sustainable filters storming the market quite yet. “There certainly is a rise in producing filters with more sustainable materials, but they may not become standard just yet,” he said. “Although there has been an increased consumer interest in more environmentally-friendly products, many are not willing to pay the extra cost or compromise on the taste of paper filters. Legislation has been discussed in a number of territories and this may well become an increased driver in the not too distant future.”

TJI Staff



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