



Is Microfibre Green?

> Scot Young Research



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ASSESSING MICROFIBRE AS A SUSTAINABLE CLEANING MATERIAL IN COMPARISON TO COTTON AND PAPER ALTERNATIVES.

Microfibre is a product that has risen in popularity exponentially over the years across a range of industries, used to create a wide variety of materials and products, from clothes to furniture, but no sector has been impacted by the material as much as the cleaning industry. Often viewed as an efficient and versatile solution to a multitude of cleaning tasks, microfibre has rapidly become an essential in the cleaning routines for many businesses, often replacing traditional cotton cleaning rags or cloths or disposable paper towels. Indeed, microfibre is often touted as a green alternative to these products, with businesses concerned about their sustainability making the switch to microfibre in daily cleaning routines.

Microfibre may have been labelled as eco-friendly, but it is important to make sure that cleaning products made from this material are truly green, and that the claims of their effectiveness are not unsubstantiated. In evaluating whether microfibre has an overall positive or negative impact on the environment, one must consider all stages of its lifecycle: both how it is made and how it is used. By assessing the material's sustainability at all stages, and comparing it to other materials used for similar purposes, one can truly determine whether it can be called a 'green' product or not.



> WHAT IS MICROFIBRE MADE OF?

Microfibre can be generally defined as a material composed of very fine and small synthetic yarn, typically created by fusing polyamide (nylon) and polyester, which is split under high pressure. Once woven, the result of this process is a fabric that is extremely soft and lightweight, as well as highly absorbent, making it ideal for a range of different purposes, including as furniture, upholstery or clothing.

Despite the desirability of microfibre products, at first glance their manufacture is not always a sustainable process. Unlike cotton, one of the other most common materials used for cleaning products like mops and cloths, microfibre is not organic in origin. Rather than being made of natural fibres, the polyester that microfibre is largely formed from is composed mostly from an ester, dihydric alcohol and terephthalic acid – petroleum based substances. As a result, microfibre is inorganic, and thus not biodegradable, unlike substances like cotton and paper, which will naturally degrade over time. The manufacturing of microfibre can also require significantly more energy than producing a natural fibre like cotton.

However, when viewed in comparison to the production of other materials used for similar purposes, microfibre is not significantly worse for the environment. Cotton, for instance, despite how widespread it is used, does not necessarily demonstrate sustainable manufacturing processes. One of the most produced materials worldwide for hundreds of years now, an average of 29 million tonnes of cotton is manufactured every year, produced using methods that often have a damaging effect on the environment.

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To facilitate cotton growth, large amounts of synthetic fertilisers and pesticides are used; a source of pollution, releasing potentially harmful substances in waterways, soil and air, these substances can also release greenhouse gas emissions and have a direct impact on human health. The production of cotton is also highly water and energy intensive, requiring more than 5000 gallons of water to produce the equivalent amount of cotton that is needed to produce a t-shirt. This same volume of cotton is equivalent to what is required to make about 17 cotton cleaning rags, meaning that, in total, around 300 gallons of water is used to make just one rag.

Similarly, paper towels, another common product used for daily multi surface cleaning, is also not wholly sustainable despite being a natural and biodegradable material. The manufacture of this product is also fraught with issues for the planet, namely the extent to which it contributes to deforestation. As well as obviously harming the environment through the loss of flora and fauna, this process is also a major factor in air pollution, through the emissions produced by the heavy diesel machinery used in logging and transportation, as well as in the manufacturing process at paper mills.



Thus, it appears that every manufacturing method is fraught with issues with the environment, even if the product being made is broadly labelled as eco-friendly. Even if microfibre is not biodegradable and requires significant energy to produce, because of the durability of the product, making it last much longer than other similar materials, less needs to be produced, resulting in less emissions, less resources used and less waste.

> HOW IS MICROFIBRE USED?

Although the manufacturing processes of microfibre are not always beneficial to the environment, even if it is in some regards preferable to both cotton and paper products, it is in the use of microfibre cleaning tools that the material's full sustainable capabilities are realised.

There is no other product on the market that is comparative to microfibre in its ability to clean effectively without the use of cleaning chemicals. The process of creating microfibre – fusing polyamide and polyester and splitting them under high pressure – creates myriads of tiny filaments, each with a diameter 100 times smaller than human hair, that, when woven into a cloth, give the product its soft and highly absorbent nature. The split microfibres contain microscopic spaces in the fabric, allowing dust, dirt, other debris and liquid to be absorbed and held within the cloth.

This is what makes microfibre cleaning products so effective, even without using cleaning chemicals. In many instances, cleaning products made from other materials, not just limited to paper and cotton cleaning cloths, but also towels, dusters and mops, rely on the chemical cleaners to do the bulk of the work in removing messes. At best, products will remove what chemicals have dislodged from the surface; at worst, if the product is not absorbent enough, they will just move the mess around, possibly creating a cross-contamination risk. Microfibre, however, with just the use of water can loosen, dust, dirt and debris from surfaces, trapping it in the spaces of the absorbent microfibres, allowing it be removed from the surface without the use of chemical cleaners.



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In addition, despite the fact that the inorganic nature of microfibre is a negative in terms of sustainability in that it requires energy-intensive processes to form and will not biodegrade after use, it becomes a positive when in use. A very common issue experienced when using many cleaning products made of organic materials such as cotton, particularly those that are used wet like mops, is the product rotting and deteriorating after repeated use. Not only will this look and smell unpleasant, potentially damaging brand reputations and trust in cleaning teams, but it causes the product to even become a health risk, capable of spreading harmful bacteria across different areas of the business.

Microfibre, as a synthetic material, will not degrade in the same way, making it a much safer product to use repeatedly. It also is exponentially more durable than natural fibres like cotton: for example, a standard reusable cotton cleaning cloth can be washed 20-30 times before it loses its effectiveness, but a microfibre cloth, if cared for correctly, can last for 200-300 washes. As a whole, cotton and paper products are much less durable than microfibre, for a variety of reasons, and products made from these materials need to be replaced much more frequently. As was mentioned previously, the manufacturing of cotton and paper can result in air pollution, deforestation, high chemical consumption and high water usage. Thus, the durability of a microfibre product helps it overcome its not totally green production, as its longevity means less product needs to be manufactured.



> SYR'S MICROFIBRE:

PREVENTING PLASTIC POLLUTION WITH HIGH QUALITY MICROFIBRE

As was mentioned previously, if a microfibre product is cared for correctly – used as directed, sufficiently washed, dried and stored properly – then it can last for a significant amount of time, withstanding as much as 300 machine washes. Although the reusability of the product allows it to be hygienic, long-lasting and generate far less waste than disposable products, it is in the laundering that microfibre can pose its biggest concern for the environment.

A well-documented issue of recent years that is plaguing the environment, the oceans in particular, is microplastic pollution. Defined as tiny particles of plastic measuring less than 5mm across, microplastics are created when they are shed or eroded from a range of different plastic products, from food packaging waste to clothes. Because they are so small, most of these fragments are not visible to the naked eye, but they are capable of being transported easily through the air or water, with studies finding them present in environments and habitats all over the world, even frozen into Antarctic ice.

It can be difficult to quantify the risk of microplastic pollution, as not only are the specks so small that measuring them can be challenging (as is the case for nanoplastics, fragments measuring less than 1mm), but microplastics can come in the form of many different shapes, sizes and chemical compositions, making specific findings to interpret. Microplastics may cause irritation or even permanent damage to organs if they are present in high enough concentrations and, when ingested, can expose people to the harmful chemicals and compounds used in the manufacturing of plastic products. Although it is a topic of great interest to scientists, experiments on the effects of microplastics on the human body is at this stage limited, but similar research done on a variety of animals, fish and mammals alike, has indicated that exposure to plastic particles within the body can cause inflammation of the digestive organs and even impaired growth and fertility.

Microplastics are not just limited to hard plastic shards; many synthetic plastic-based fabrics and products, including microfibre cloths, shed tiny plastic fibres as they are worn and washed which can easily end up in soils, air and waterways. In fact, these microfibres seem to be even more of an issue; at present, microfibres are estimated to make up 35% of microplastics currently found in oceans, and research has indicated the harmful effects they can have on marine animals, shortening lifespans and impairing growth. It seems unlikely that this problem will improve any time soon; approximately two thirds of all textiles manufactured currently are synthetic in origin, comprised mostly of polymers like polyester, polyamide and acrylic.

It is an unfortunate truth that what makes microfibre cleaning products so effective at picking up dirt, dust and bacteria is what makes it potentially harmful to the environment, the super fine fibres at risk of contaminating waterways whenever it is used or laundered. However, the majority of microfibre pollution comes from synthetic clothing and furniture rather than cleaning products, and effective waste water treatment facilities will generally be able to remove 95-99% of microfibres from waterways.

Businesses can invest in a number of simple solutions that will help to prevent microplastic pollution caused by their cleaning equipment. Laundering products with a front-load washer will result in 7 times fewer microfibres being shed, as will washing microfibre cloths on a delicate setting and with colder water. Installing a lint filter will also help to collect any microfibres that are shed before they are able to contaminate water.



Undoubtedly, however, the most effective method of minimising the volume of microfibres polluting the environment is to only use a high quality microfibre product when cleaning. Poorer quality microfibre cleaning tools tend to contain a lower volume of fibres, with a lower density product performing far less effectively in removing and absorbing both liquids and solids. Not only will this mean that operators may not get the cleaning results they hope for, often expending a lot more effort whilst doing so, but the product itself will shed significant amounts of fibre when laundering, hastening the deterioration of the tool, impairing its quality and releasing pollutants in the environment in the process.

Thus, a better quality microfibre is essential for both providing a more reliable cleaning performance and minimising one's impact on the environment when cleaning. SYR manufactures a wide variety of microfibre products, from cleaning cloths to effective flat mop pads, all of which are made with a high quality construction, ensuring durability and powerful absorbency.

What also makes microfibre so valuable for use in cleaning is its versatility, with the material being useful for cleaning a wide variety of products. A perfect example of this is SYR's MST – a multi-surface tool comprised of a tough handheld frame and high quality microfibre cleaning pad. Designed to be compatible for use on a range of different surfaces, the MST can be used on even delicate surfaces like windows, mirrors, digital displays, stainless steel and laminate wood, cleaning all without the risk of smears or scratches and with the use of only minimal chemical cleaning products.

It is the microfibre that gives the MST its exceptional cleaning ability. Just like SYR's other microfibre products, the MST cleaning pads boast a high quality construction, fully launderable and reusable again and again. With a choice of three different pads ideal for use in different areas and for different cleaning tasks, including the Multi Performance Pad complete with tough scrubbing strips for removing stubborn stains, this hardwearing product is evidence of microfibre's green capabilities: combining durability, sustainability and efficiency when cleaning.



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<https://www.microfiberwholesale.com/blogs/blog/is-microfiber-green-comparing-microfibers-environmental-impact-with-cotton-and-paper>

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