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The European Green Deal

How it is reshaping the future of flame-resistant (FR) textiles

White paper - September 2024

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Introduction

The European Green Deal is driving major changes in the design, manufacturing, traceability, recyclability, durability, use, re-use and end-of-life of products across multiple industries, including textiles, a sector that encompasses flame-resistant (FR) fabrics for manufacturing personal protective equipment (PPE).

As a supplier or specifier of FR solutions, it is important to not only understand what the European Green Deal is all about, but to stay informed of new innovations that will help you comply with the various directives at EU level (refer to Figure 1).

For your convenience, we have gathered in this article publicly-available information outlining how the European Green Deal is impacting the textiles sector; as well as information about the latest innovation in FR textiles—DuPont™ Nomex® Comfort with EcoForce™ Finish—that addresses some of the European Green Deal key expectations.

Product design

Ecodesign for Sustainable Products Regulation

Safe-and-Sustainable by Design

REACH Restriction

Microplastics Pollution Regulation

Waste

Waste Framework Directive

Packaging and Packaging Waste Directive

Extended Producer Responsibility (EPR) schemes

Others

Digital Product Passports

Green Public Procurement

Stewardship: Reference documents on Best Available Techniques

Labelling

EU Ecolabel criteria

Textile labelling regulation

Substantiation of Green Claims Proposal

Reporting & public disclosure

Corporate Sustainability Reporting Directive

Figure 1. European Green Deal regulations and directives that impact textiles at several points across the product lifecycle.

What is the European Green Deal?

Launched in December 2019, the European Green Deal is a package of policy initiatives that aims to set the European Union (EU) on the path to a green transition, with the goal of achieving climate neutrality by 2050.

The European Green Deal includes initiatives covering climate, environment, energy, transportation, industry, agriculture and sustainable finance—all of which are strongly linked. And it underscores the need for a holistic, cross-sectoral approach in which all relevant policy areas contribute to this goal.

Did you know?[14]

Textiles represent 4% to 6% of the EU's overall environmental footprint.

New EU strategy and vision for textiles

In March 2022, a new EU Strategy for Sustainable and Circular Textiles was published. This strategy is part of the 2020 Circular Economy Action Plan, which evolved from 2015 to 2020 and now includes textiles due to the high potential for circularity of the sector, as shown in Figure 2.

Figure 2. Evolution of the Circular Economy Action Plan.

The EU Strategy for Sustainable and Circular Textiles describes textiles as: "Textiles are in the fabrics of everyone's daily lives. They are used as apparel, household textiles and in furniture, and also in products such as medical and protective equipment, buildings and vehicles. Textiles enable products' functionalities and performance but are also chosen for aesthetics and comfort purposes."[1] According to this description, PPE—including FR apparel—is impacted by this strategy.

Did you know?[13]

Textiles received the worst environmental score when compared to 9 other product sectors.

Textiles—high impact on the environment

The European Commission Joint Research Centre (JRC) rated the environmental impact of different product sectors, assigning a score of 1 (best) to 5 (worst) for each category. The textiles sector obtained an overall environmental score of 43 points out of 50, which is 13 points higher than the second highest scoring product sector.[2] (Refer to Figure 3.)

JRC's textiles scores across environmental impact categories indicate a further tightening of regulations

	Textiles	Furniture	Ceramic products	Tyres	Detergents	Lubricants	Paints	Cosmetics	Toys	Hygiene products
Water	5	1	3	3	4	2	3	4	1	2
Air	2	3	3	4	2	2	3	2	1	1
Soil	4	3	3	3	1	2	2	1	1	1
Bio-diversity	4	3	3	3	4	2	3	4	1	2
Waste	5	4	3	3	3	2	3	3	3	4
Climate change	5	3	4	3	3	3	2	2	2	2
Energy use	5	3	4	3	3	3	2	1	2	2
Human toxicity	3	2	1	2	2	2	2	2	3	1
Material efficiency	5	3	3	3	3	3	3	3	3	1
Lifetime extension	5	5	3	3	3	3	1	1	5	1
Strategic autonomy*	1	1	1	5	1	2	3	1	1	1

Figure 3. JRC environmental impact scores ranging from 1 (best) to 5 (worst) and strategic autonomy ratings ranging from 1 (lowest) to 5 (highest) for 10 product sectors.[2]

*Open strategic autonomy emphasizes the EU's ability to make its own choices and shape the world around it through leadership and engagement, reflecting its strategic interests and values.

Source: JRC Science for Policy Report: Ecodesign for Sustainable Products Regulation — preliminary study on new product priorities (27 January 2023, Figure III - adapted).

Did you know?

Fibre-to-fibre recycling in the EU-27 and Switzerland could reach 18% to 26% of textile waste by 2030 with a total capital expenditure of €6 to €7 billion?

According to a 2021 JRC report, 4% to 6% of the EU's overall environmental footprint can be traced back to textiles.[3] The footprint for clothing, footwear and household textiles ranks fourth behind food, housing and mobility.[3]

And in 2023, the JRC issued a draft report that stated: "Textiles obtained the highest score in water effects, waste generation, climate change, energy consumption, material efficiency and lifetime extension, due to the large impacts caused by sourcing, producing, using and discarding materials, but also due to the large improvement potential in all these aspects, especially in terms of circularity, which is still largely untapped."[2]

From raw material usage and greenhouse gas (GHG) emissions during production to annual waste per person, the environmental impact of the textiles sector is significant. Here are a few examples:

Average of
11.3 kg
per person[4]

Every year in the EU, 5.8 million tonnes of textiles are discarded.

270 kg
CO_2-eq per person[5]

In 2020, textile production in the EU generated 121 million tonnes CO_2-eq.

104 m³
of water per person[6]

Producing & handling all clothing, footwear & textiles bought in the EU in 2017 used 1.3 tonnes of raw materials.

Textiles—economically important

The textiles sector is of great economic importance for the EU, and the recent COVID-19 pandemic shed light on the strategic importance of PPE. Consider these facts:

- In 2019, the textiles sector had a total turnover of €162 billion and employed more than 1.5 million people in more than 160,000 companies.[7,8]
- "Without textile materials, no cars, airplanes or buildings can be built, nor can agri-food workers, defence and security forces or craftsmen, do their work in full."[7]
- The strategic and security dimension of PPE, including medical and defence textiles, became evident during the COVID-19 pandemic. In particular, the textiles sector has proven its significance by shifting production lines to supply masks and protective equipment greatly needed but not available in sufficient quantities.[1,7]

Textiles—a key improvement area for circularity

Due to its high impact on the environment, economic importance and low strategic autonomy, the textiles sector has become a focal point for improvement as the EU moves toward a circular economy.

The Circular Economy Action Plan[1] therefore outlines the 2030 vision for textiles as follows:

All textile products placed on the EU market are

Long-lived and recyclable

To a great extent, made out of recycled fibres

Free of hazardous substances

Produced in respect of social rights and the environment

- In a competitive, resilient and innovative textiles sector, producers take responsibility for their products along the value chain, including when they become waste.
- The circular textiles ecosystem is thriving, driven by sufficient capacities for innovative fibre-to-fibre recycling, while the incineration and landfilling of textiles is reduced to the minimum.

For this discussion, we will look at product longevity, recycling and hazardous substances.

Did you know?

Extending a textile's product life by 9 months is estimated to reduce carbon, water and waste footprints by 20% to 30%.

Improving product longevity and durability can significantly reduce the environmental footprint of the textiles sector.

For example:

- Taking measures that ensure and increase the durability of textile items and the resistance to shrinkage/weather could double the average product life, reducing GHG emissions by an estimated 44%.[9]
- Extending a textile's product life by nine additional months is estimated to reduce carbon, water and waste footprints by 20% to 30%.[10]

Fibre-to-fibre recycling can reduce CO_2 emissions and have a positive financial impact. Unfortunately, almost one-third of today's textile waste is unsuitable for fibre-to-fibre recycling because recyclability is rarely considered in the product design process.[3]

According to the McKinsey & Company report titled "Scaling textile recycling in Europe—turning waste into value," with a total capital expenditure of €6 to €7 billion, fibre-to-fibre recycling in the EU-27 and Switzerland could reach 18% of textile waste by 2030 in the base-case scenario and a recycling rate of 26% in the upside-case scenario.[11]

Did you know?

Reaching an 18% fibre-to-fibre recycling rate could result in the addition of 15,000 new green jobs and a reduction of CO_2 emissions by up to 4.0 million to 4.3 million tonnes.

The report[11] also states that in the base-case scenario, this could result in:

- €1.5 billion to €2.2 billion annual profit pool
- Approximately 15,000 new green jobs
- Significantly reduced usage of land, water and chemicals
- Reduction of CO_2 emissions by up to 4.0 million to 4.3 million tonnes

Innovation to advance sustainability of FR textiles

DuPont's approach to circular economy and sustainability includes collaboration with our customers on circular design opportunities, innovation in process efficiency and waste reduction in the use of our products, and a focus on durability and longer product lifetime.

Through our commitment to innovation and by working with you to address the industry's toughest challenges comes Nomex® Comfort with EcoForce™ Finish—**a chemical repellent fabric solution that delivers proven FR protection and maximum comfort.**

Designed specifically for workers in the oil & gas and chemical manufacturing industries, Nomex® Comfort with EcoForce™ Finish is made with a chemical repellent finish that's comprised of more than 50% bio-based materials and not based on fluorine chemistry. It is certified to the OEKO-TEX® STANDARD 100.

Nomex® Comfort with EcoForce™ Finish advances protection and sustainability through innovation as well as some of the European Green Deal expectations for textiles in numerous ways, including:

- It is made with a chemical repellent finish that's comprised of >50% bio-based materials and not based on fluorine chemistry. It is also OEKO-TEX® standard 100 certified.
- Delivers outstanding durability while maintaining performance levels:
  - Certified after 50X domestic cleaning cycles (ISO 6330)* without reapplying the repellent treatment
  - Certified after 100X industrial cleaning cycles (ISO 15797)** without reapplying the repellent treatment.
- Local ecosystem: It is produced and manufactured in EMEA, resulting in a short production-to-supply chain.
- Helps minimize waste generation, thanks to its extended wear life and light weight.

*According to ISO 6330 domestic laundering requirements, the fabric continues to maintain its performance in accordance with the initial requirements of EN 13034, EN ISO 11612, EN 1149-5 and EN/IEC 61482-2.

**According to ISO 15797 industrial laundering requirements, the fabric continues to maintain its performance in accordance with the initial requirements of EN 13034, EN ISO 11612 and EN 1149-5.

Conclusion

The European Green Deal is having a profound impact all along the value chain in many sectors, including textiles. From putting fast fashion out of fashion in the consumer world to reshaping the future of FR textiles, the European Green Deal is putting the EU on the path to a green transition.

Achieving the goal of climate neutrality by 2050 will require everyone in the value chain to work together. From product design to end of useful life, it can no longer be business as usual. Sustainability must be considered every step of the way.

It is important to stay informed about new regulations and directives related to the European Green Deal and to work with innovation leaders to find sustainable FR solutions that do not sacrifice safety.

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