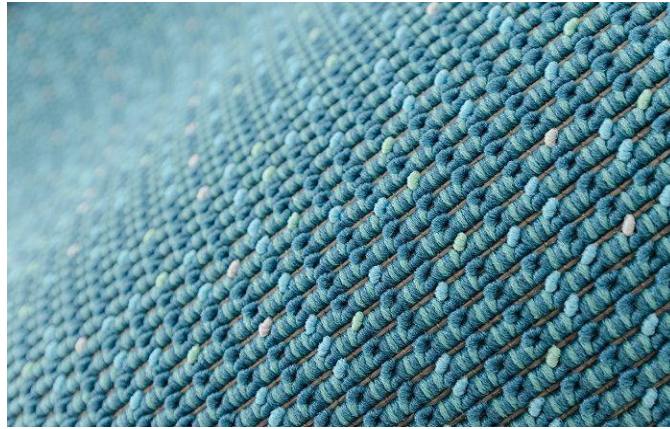


Effects of Econyl on Environment



ECONYL FABRIC



JAIN
DEEMED-TO-BE UNIVERSITY

CENTER FOR
MANAGEMENT
STUDIES

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ABSTRACT

Products that meet today's high technological and performance criteria, as well as being of excellent quality and durability, are in high demand. In the textile industry, synthetic material is the only way to get these. Yet, it has a drawback in terms of maintaining the environment. Since using a lot of synthetic materials could result in a lot of rubbish, which will accumulate on land and in the sea in various forms. Because it produces greenhouse gases, waste buildup poses a severe threat to the environment. But we cannot ignore how synthetic materials are used in our daily lives. The synthetic fibres that cause the most environmental contamination are nylon and polyethylene terephthalate. This section describes their development from their original, virgin form to the end usage of recycled material

Aspects of sustainable fashion and textile production by fashion corporations that will be explored in this chapter include the use of eco-friendly and biodegradable materials, environmentally friendly manufacturing techniques, green supply chains, distribution, and retailing, as well as ethical consumers. This chapter explores a variety of environmentally friendly, biodegradable materials that are employed by fashion companies. Also, the use of materials recycled from both natural and man-made wastes is discussed. Global fashion companies use sustainable technologies (such as enzyme processing, natural dyeing, laser technology, and plasma technology) to create sustainable clothes and textiles; these technologies are also described in this chapter. This chapter also offers the perspectives on materials and technologies for sustainability offered by three major global fashion businesses.

CHAPTER ONE INTRODUCTION

The name “econyl” refers to a sustainable alternative to nylon. The designers of Econyl intend to decrease the fabric’s frequently significant negative environmental effects by employing recycled foundation components.

➤ *Econyl History*

The trademark Econyl is owned by the Italian plastics firm Aquafil. Although it has also produced a variety of different textiles and industrial plastics, this company is most known for producing the Econyl fabric. The Econyl creators were inspired to create a nylon substitute that doesn’t destroy ecosystems by the environmental catastrophe caused by synthetic fibres.

Nylon is a fabric that is commonly utilised in a range of industrial applications, including nets and other naval equipment. Moreover, a significant amount of nylon garbage generated by customers finds its way to the ocean. The non-biodegradable nylon debris slowly accumulates until it forms islands of plastic that expand yearly, harming marine turtles, dolphins, and other aquatic animals.

Despite this, consumer demand for nylon remains unabated. At some point, Aquafil, an established manufacturer of synthetic textiles in Italy, realised the potential for profit that all the nylon waste in the oceans represented. Beginning in 2010 or 2011, Aquafil began investigating the possibility of creating a nylon substitute utilising aquatic nylon waste.

➤ *Econyl Attributes*

Econyl has all the characteristics of regular nylon fabric because it is chemically identical to nylon 6. This fibre can be easily woven into tightly knit clothing and commercial fabrics and is relatively strong and elastic when woven.

Customers are generally indifferent that Econyl is not a very heat-retentive or durable fabric because its main appealing feature is its elasticity. The fact that nylon and Econyl are not elastic when they are unprocessed—and must instead be woven into fabric—must be made clear.

As a result, Econyl’s inherent stiffness makes it perfect for purposes other than garments. Nevertheless, because this fibre is so combustible and melts when ignited, there is a potential that workers could get hurt. Econyl cannot wick away moisture and will melt if laundered in a hot environment.

➤ *Process of Making Econyl*

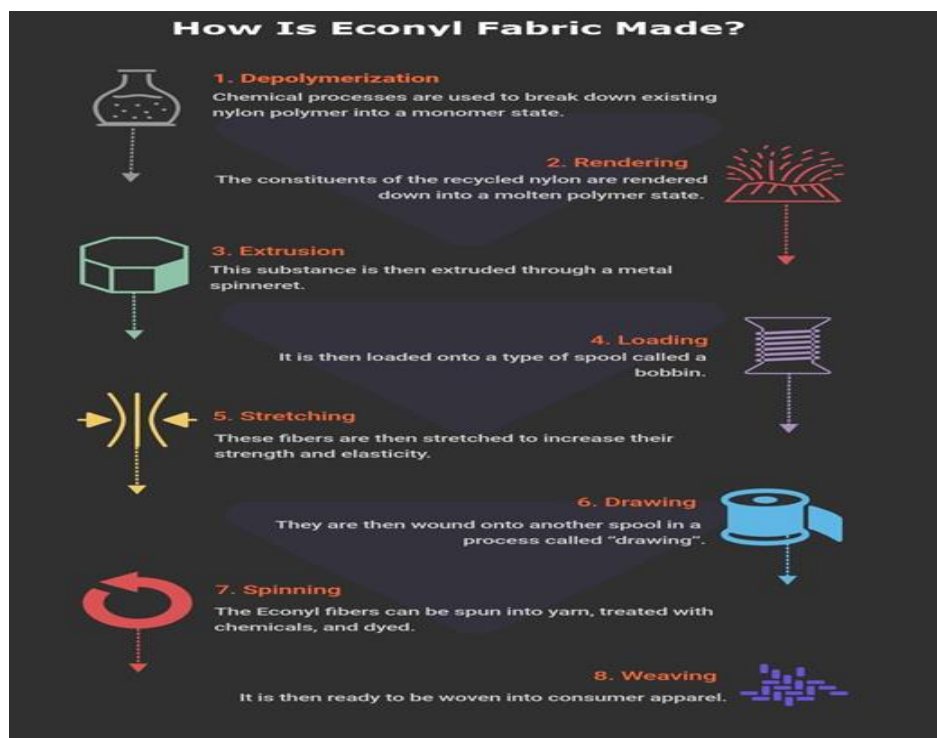


Fig 1 Process of Making Econyl

Econyl may be recycled indefinitely and is 100 percent recyclable.

CHAPTER TWO BACKGROUND OF THE STUDY

Econyl fabric makes use of garbage that might otherwise spend decades or even millennia languishing in landfills and the oceans. To put it in perspective, 640 thousand tonnes of fishing nets and equipment are among the 11 million tonnes of plastic that are dumped into the ocean annually.

Econyl fabric doesn't rely on fossil resources, even though virgin nylon is made from petroleum.

Recycled nylon manufacture is more environmentally beneficial than that of virgin nylon: 10,000 tonnes of Econyl reduce the environmental effect of production by 80%, saving 70,000 barrels of oil and 57,100 tonnes of CO₂. Moreover, renewable energy sources provide 70% of Aquafil's energy.

➤ Sustainability

Econyl is undoubtedly more environmentally friendly than virgin nylon, despite the challenges it still faces. It helps reduce plastic waste, doesn't use new fossil fuels, and has a less-polluting manufacturing process.

Would you like to dress even more environmentally responsible in your new Econyl sportswear and swimwear?

Think of your clothes as an investment rather than a disposable item, and only buy Econyl items that you can see yourself wearing for several more summers. By doing this, you'll extend their lives even further and contribute to waste reduction.

Reduce how often you wash synthetic clothing to reduce microplastic shedding, and think about buying a washing ball that captures them.

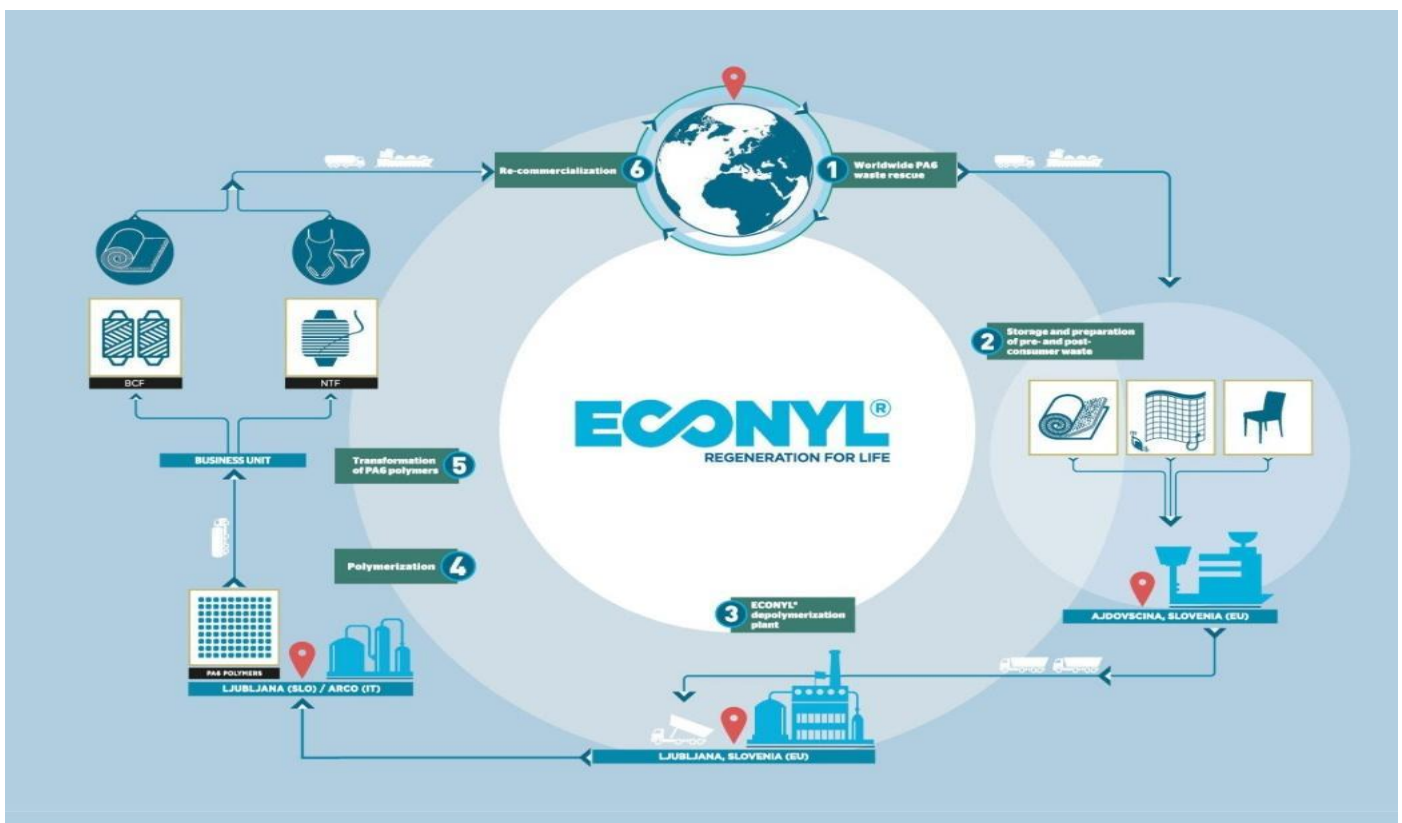


Fig 2 Econyl Regenerated Nylon

➤ Need for the Study

Products made by ECONYL contribute to LEED V4 credits, allowing us to work together to protect the environment. Fishnets, fabric remnants, carpet remnants, and industrial plastic are just a few of the waste materials that go into making ECONYL sustainable yarn. When compared to material made from oil, ECONYL regenerated nylon reduces the global warming impact of nylon by up to 90%. 70,000 barrels of crude oil and 57,100 tonnes of CO₂ equivalent emissions are saved for every 10,000 tonnes of ECONYL raw material.

The manufacturing process for textiles made from petroleum, such as nylon and polyester, requires an inordinate amount of water.

Very large amounts of water are needed during the production of textiles made from petroleum, such as nylon and polyester.

Contrarily, green clothing is often created from natural or recycled fabrics that require minimum chemical processing and consume less water and energy. The harmful chemicals that are used to make conventional clothing are then dumped into the ocean and build up in wildlife, making them unwell and dangerous to consume.

Heavy metals like lead and chemicals like formaldehyde used in dyeing cause these poisons to accumulate in our garments and come into contact with our skin. That is detrimental to our health.

Our carbon footprint grows as a result of the transnational movement of goods and raw materials. Sustainable manufacturers aim to source their suppliers locally to reduce transportation costs and boost regional economies.

Also, many multinational corporations acquire their materials from undeveloped countries with horrendous working conditions. In addition to working while underage, labourers are also paid less than the minimum wage and put in danger at work.

These employees often receive fair compensation, safe working conditions, and reasonable work hours from sustainable enterprises.

➤ *Problem Statement*

So, using Europe as an example, where tradition is as alive as the place itself, we can delve deeply into the problem and solutions that arise with the introduction of Econyl and other natural and artificial fabrics around the world. And the impact on the environment.

The environmental effects of EU textile and apparel consumption are difficult to quantify due to their complexity and global occurrence.

The environmental impact of textile use in the EU was estimated to be between 4 and 6% in a 2017 report by Global Fashion Agenda (GFA).

According to a 2015 ECAP assessment, cotton accounts for more than 43% of all textiles used to make clothing in the EU. Cotton production is particularly problematic because it consumes a significant amount of land, water, fertiliser, and pesticides. Bio cotton uses less water and emits less pollution than conventional cotton, which can significantly reduce its negative environmental effects. According to a Textile Exchange analysis, the percentage of sustainable cotton has increased from 6% in 2012-2013 to 19% in 2016-2017.

According to the 2017 Pulse of the Fashion Industry survey, natural fibres have the biggest negative effects on the environment, with cotton significantly increasing water pollution and silk having a particularly bad impact on resource depletion and global warming.

The recycled and regenerated nylon product "Econyl" from the Italian textile company Aquafil may provide a more practical and environmentally friendly alternative to common synthetic materials. But, what exactly is it? Stella McCartney and Adidas have both used it in their outerwear collections. How was it made? Most importantly, how sustainable is it produced?

One problem with nylon is that it is not biodegradable, but if it can be recycled at the end of its life, it could be on its way to a more sustainable future. But Econyl does not reduce the amount of nylon produced each year, it simply provides a solution to unfavorable waste. This prevents further pollution and the risk of microplastics contaminating waterways. Also note that Econyl itself is not biodegradable. Synthetic materials can take 1000 years or more to decompose. So how can Econyl be the "best" alternative to other materials like nylon etc.? How does this increase overall environmental benefits?

CHAPTER THREE

REVIEW OF LITERATURE

The econyl and its effects on the environment are discussed in the research paper. Econyl's makers want to reduce the fabric's impact on the environment, which is frequently very negative, by using recycled foundation materials. Because Econyl's main selling point is its elasticity, customers generally do not care that the fabric is not particularly heat-resistant or long-lasting. It talks about how, despite the difficulties it still faces, it is better for the environment than virgin nylon.

Design initiatives that enable customers to receive a wider range of customization options are also looked into as strategic responses to broaden market coverage are discussed.

Econyl is a fabric that is both qualitatively and physically comparable to conventional nylon. Designers and suppliers alike have adopted it. Econyl reduces CO₂-equivalent emissions significantly because it can be broken down and made again. Econyl's transparent approach is liked by customers and recycling facilities, but the material's effect on microplastic pollution is unknown.

It does market research to find out what Indian customers want and need in terms of econyl fabric. It evaluates the customer's experience with econyl fabric and determines whether they are interested in purchasing it. If they like the econyl-based products. Econyl is a very adaptable fabric. Applications for it are endless due to its abrasion resistance and relative strength: it tends to be utilized to make practical things like tents, camping cots, and ropes, as well as to create everyday embellishments like gear, gloves, and athletic shoes.

On the one hand, the increased complexity and cost of the product variations However, on the other hand, it also expands the market.

➤ *Population*

Your target customers could be individuals who are often on the go, such as students, commuters, travelers, and outdoor enthusiasts. Some potential target markets could include:

- **Students:** Students often have a lot of electronic devices they need to keep charged, such as laptops, tablets, and smartphones. A backpack with a built-in charger could be very appealing to them, especially if they have long commutes or spend a lot of time on campus.
- **Commuters:** Commuters who travel to work by public transportation or bike could also benefit from a backpack with a charger. They can keep their devices charged while they commute and not worry about running out of battery during the day.
- **Travelers:** People who travel frequently, whether for work or leisure, could also be interested in a backpack with a charger. It would allow them to stay connected and keep their devices charged while on the go.
- **Outdoor enthusiasts:** Hikers, campers, and other outdoor enthusiasts may also appreciate a backpack with a charger. They can use their devices to navigate, take photos, and communicate while enjoying the great outdoors.
- **When marketing our backpack,** we will consider highlighting the features and benefits that would appeal to these target markets. For example, you could emphasize the durability and comfort of the backpack for students, the convenience and portability for commuters, the versatility for travelers, and the ruggedness and weather resistance for outdoor enthusiasts.

➤ *Sampling Method*

Sampling is a process of selecting a subset of individuals or items from a larger population for the purpose of making inferences or generalisations about the population. These are a few typical sampling techniques:

- **Simple random sampling:** This technique chooses a sample at random from the population, giving each person an equal chance of being chosen. Both a random number generator and a collection of random numbers can be used for this.
- **Stratified sampling:** A random sample is drawn from each stratum in proportion to its size after the population has been divided into smaller groups, or strata. When the population is heterogeneous and the traits of the various subgroups vary, this strategy is helpful.
- **Cluster sampling:** Cluster sampling involves selecting groups or clusters of individuals or items from the population and then randomly selecting a sample from within each cluster. This method is useful when the population is geographically dispersed or when it is difficult to obtain a complete list of the population.
- **Systematic sampling:** In systematic sampling, a starting point is selected at random, and then every *n*th member of the population is selected until the desired sample size is reached. This method is useful when the population is large and it is not feasible to select a random sample.

➤ *Hypothesis*

Econyl fabric is a form of recycled nylon fabric created from recycled waste products like carpet, industrial plastic waste, and fishing nets. Regarding econyl fabric, there are a number of possible theories, including:

Econyl fabric is more environmentally friendly than standard nylon fabric. The creation of econyl fabric uses recycled materials to cut down on waste that ends up in landfills and the ocean. Moreover, econyl fabric production uses less energy and resources than conventional nylon fabric production.

Fabric made with econyl shares characteristics with conventional nylon fabric. Econyl fabric is stated to possess qualities that are comparable to those of conventional nylon fabric despite being created from recycled materials. It is strong, light, and water and abrasion resistant.

The fashion industry's environmental effect is being lessened thanks to the introduction of econyl fabric: The usage of econyl fabric is assisting in lessening the environmental Impact of the fashion sector, which is among the biggest worldwide polluters. Fashion companies can lessen their environmental impact and contribute to the preservation of natural resources by using recycled materials. The general Idea behind econyl fabric is that it is a high-quality, environmentally friendly fabric that provides a strong substitute for conventional nylon.

CHAPTER FOUR DATA COLLECTION METHOD

Surveys: You can run surveys to gather information on baggage. This could entail enquiring about people's preferences for bags, the qualities they seek in a bag, how frequently they buy bags, and their spending limits. Online, in-person, and postal surveys are all options.

Observations: By seeing how people use bags in various contexts, researchers can learn more about how people use bags, the most popular bag styles, and the most desired qualities. Retailers can give sales data.

Reports and data : Reports and data collected from ecomyl websites to know more about its usage under various industries and its advantages over the world .

Google scholar : articles were used to refer more about econyl regenerated nylon and to get deep knowledge of the product .

➤ *Data Analysis Techniques*

The most popular data analysis methods for bags include the following:

Using measurements like mean, median, mode, standard deviation, and range, descriptive statistics summarizes the data gathered about bags. This can give a fundamental knowledge of the data's central tendencies and dispersion.

Based on their traits or qualities, bags are sorted into several clusters using the cluster analysis technique. This can be used to distinguish between various bag kinds and the characteristics that set them apart.

Regression analysis: This method involves analyzing the connections between elements such bag characteristics, cost, and sales volume. This can assist in locating elements that affect consumer behaviour and purchasing choices.

➤ *Data Analysis*

Make sure your data is correct, full, and in a manner that can be easily evaluated by following these steps to organise and clean it. It could be necessary to eliminate redundant entries, fix mistakes, and format the data correctly.

Establish your study goals and questions: Your choice of data analysis methods will be influenced by this. For instance, you might be interested in knowing the most prevalent pricing points, the most desired features, or the most popular bag kinds.

Choose the best data analysis methods: You can analyse your data using descriptive statistics, regression analysis, text analysis, or other methods, depending on your research goals. Tools for data visualization are another option.

➤ *Findings*

The most common forms of bags, such as backpacks, totes, or duffel bags, may be revealed through a questionnaire. It might also highlight the key characteristics that customers value most in a bag, such organization, size, and toughness.

Brand preferences: A survey could indicate which bag brands are the most well-liked by customers and why. Because of the quality, style, or cost of a certain brand, consumers may favour it over others.

Price range: A survey may reveal information about the ranges of prices consumers are willing to pay for various types of bags. When determining prices for their products, manufacturers and retailers may find this information valuable.

Consumer purchasing patterns: A survey could reveal how frequently consumers buy bags, where they typically buy them from, and other information.

➤ *Implications of Research*

Product development: The survey results might give useful information about the qualities and features that customers find most important in bags. Manufacturers can utilise this information to build goods that fit the demands and tastes of their target audience.

Marketing tactics: Based on the survey's findings, businesses can better understand their target market's preferences and purchasing patterns. Using this data, businesses may create tailored marketing plans that appeal to customers and boost sales.

Price strategies: Information on the price ranges that consumers are willing to pay for various types of bags can be gleaned from the survey results. With this data, businesses may develop pricing strategies that are both competitive and appealing to their target market.

CHAPTER FIVE SUGGESTIONS AND RECOMMENDATIONS

Identify user needs and preferences: Conduct market research to identify the needs and preferences of Indian consumers when it comes to econyl fabric. This can help you develop features and functionality that meet the demands of your target audience.

Focus on safety and compliance: Ensure that the startup complies with safety and regulatory standards for Econyl modification in India.

Provide information and Include a community aspect: Consider including a community aspect in the startup, where users can share their own modification projects and connect with other enthusiasts. This can help foster a sense of community and engagement among users.

Offer a wide range of modification options: Provide a variety of modification options to startupeal to different user preferences and budgets. This can include options for both exterior and interior modifications, as well as modifications for different types of products from econyl.

Offer educational resources: Provide educational resources and tutorials to help users learn about different types of modifications and how to perform them safely and effectively. This can help increase user confidence and encourage responsible modification practices.

CHAPTER SIX CONCLUSION

Markets are constantly introducing new products, and current scientific research affects how buildings are designed. This category honours buildings with cutting-edge design elements and environmentally friendly construction methods.

➤ *Econyl's Contributions*

- Nylon regeneration advances the circular economy by going beyond recycling
- Eco-design

Products made from recycled swimwear and activewear increasingly use econyl fabric. In fact, there are so many companies producing swimwear and activewear from recycled materials, in our opinion, there should be no justification for patronising companies who continue to use virgin materials. We anticipate that in the future, Econyl-like products will be more prevalent than nylon derived from virgin resources.

Some of the waste materials like industrial plastic, fishnets, carpet flooring, fabric scraps etc go into the production of ECONYL sustainable yarn.

ECONYL regenerated nylon has a 90 percent lower impact on climate change as opposed to Nylon which is made from oil. There are savings of 70,000 barrels of crude oil and 57,100 tons of CO₂ equivalent emissions for every 10,000 tons of ECONYL raw material.

We are aware of our actual overall impact thanks to the Life Cycle Assessment and the Environmental Product Declaration. Our EcoNYL has a 90% lower impact on global warming than virgin nylon.

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