



STANDARDS OF SUSTAINABILITY IN THE FASHION INDUSTRY

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ABSTRACT: *The fashion industry represents an important segment of the world economy and employs over 75 million people worldwide. The fashion industry sector has seen spectacular growth over the past decades, and while the fashion sector is booming, increasing attention is being drawn to the impressive range of negative environmental impacts the industry is responsible for. The fashion industry accounts for 10% of total carbon emissions, drains water sources and pollutes rivers and streams. Over 85% of textiles end up in landfills each year (UNECE, 2018), and washing clothes sends a significant amount of microplastics into the oceans. Given the high impact of the fashion industry on the environment, fashion industry leaders have a great responsibility in developing their business models with integrated sustainable development goals, in order to reduce greenhouse gas emissions and water pollution. A transparent and sustainable fashion industry is a joint responsibility of producers and policy makers and can only be achieved through the cooperation of all stakeholders, including consumers. Harmonized standards and criteria are critical for a common understanding of sustainability globally and for increasing confidence in claims. In this regard, the global Kering Group manages the development of renowned fashion houses that produce clothing, leather goods and jewelry: Gucci, Saint Laurent, Bottega Veneta, Balenciaga, Alexander McQueen, Brioni, Boucheron, Pomellato, DoDo, Keelin, etc. promoting creativity in a sustainable and responsible way, coupled with economic performance. Through its very strict standards, the Kering Group shows its care about the impact of the fashion industry on the planet, on climate change and natural resources, and promotes pioneering ideas aimed at preserving natural resources and empowering future generations. This paper outlines the Kering Standard 2025 requirements for the raw material base for the fashion industry, which suppliers must meet in order to be compliant, as well as additional "best practices" that suppliers should work on in the coming years, all relating to Kering's sustainability principles.*

Keywords: *fashion industry, sustainability, Kering standards.*



STANDARDI ODRŽIVOSTI U MODNOJ INDUSTRIJI

APSTRAKT: Modna industrija predstavlja važan segment svetske ekonomije i zapošljava preko 75 miliona ljudi širom sveta. Sektor modne industrije je zabeležio spektakularan rast tokom proteklih decenija, i dok je modni sektor u procvatu, sve veća pažnja se skreće na impresivan spektar negativnih uticaja na životnu sredinu, za koje je industrija odgovorna. Modna industrija čini 10% ukupnih emisija ugljenika, isušuje izvore vode i zagađuje reke i potoke. Preko 85% tekstila svake godine završi na deponijama (UNECE, 2018), a pranje odeće šalje značajnu količinu mikroplastike u okeane. S obzirom na veliki uticaj modne industrije na životnu sredinu, lideri modne industrije imaju veliku odgovornost u razvoju svojih poslovnih modela sa integrisanim ciljevima održivog razvoja, kako bi smanjili emisiju gasova staklene bašte i zagađenje vode. Transparentna i održiva modna industrija je zajednička odgovornost proizvođača i kreatora politike i može se postići samo kroz saradnju svih zainteresovanih strana, uključujući i potrošače. Harmonizovani standardi i kriterijumi su kritični za zajedničko razumevanje održivosti na globalnom nivou i za povećanje poverenja u potraživanja. U vezi sa tim, globalna Kering Grupa upravlja razvojem renomiranih modnih kuća koje se bave proizvodnjom odeće, kožne galanterije i nakita: Gucci, Saint Laurent, Bottega Veneta, Balenciaga, Aleksender McKueen, Brioni, Boucheron, Pomellato, DoDo, Keelin i sl. tako da promoviše kreativnost na održiv i odgovoran način sa ekonomskim učinkom. Kering grupa preko svojih veoma strogih standarda brine o uticaju modne industrije na planetu, na klimatske promene i prirodne resurse i promoviše pionirske ideje usmerene na očuvanje prirodnih resursa i osnaživanje budućih generacija. U ovom radu prikazani su zahtevi Kering standarda za 2025. godinu za sirovinску bazu za modnu industriju, koje dobavljači moraju da ispune kako bi bili usaglašeni, kao i dodatne „najbolje prakse“ na kojima bi dobavljači trebalo da rade u narednim godinama a sve u vezi sa Keringovim principima održivosti.

Ključne reči: modna industrija, održivost, Kering standardi.

1. INTRODUCTION

The topic of sustainability in the textile industry is very complex. The textile industry is undergoing significant changes under the influence of technological advances, consumer demands, sustainability, the circular economy and global events such as the recent pandemic. Digitization, green production and circular economy are the most important trends in the evolution of the textile industry today. These improvements not only increase operational efficiency and productivity, but also drive sustainability, transparency and customer centricity.

Sustainability has become ingrained in all sectors of the creative industry today, including the fashion industry. Sustainability in fashion is a growing design philosophy and a prevailing trend, with a mission to reduce the carbon and water footprint of the world's second largest economy [1, 2].



Orientation towards ecologically conscious production of textiles and clothing is growing intensively and is encouraged by increasingly obvious signs of climate change. Environmentally conscious generations show an increasing interest in ecologically produced textiles and clothing. After almost three decades of dedicated efforts, the fashion industry has successfully moved closer to the goal of operating within a sustainable, ethical and transparent framework. The sustainable circular economy trend emphasizes efficiency, recycling and waste minimization in fashion supply chains. Transparency, supply chain traceability and ethical sourcing have led to increased scrutiny of supply chains and the introduction of certifications and standards to verify sustainable practices.

In the 21st century, sustainable fashion has gained momentum through various initiatives. The establishment of certification systems and standards have helped consumers identify and support sustainable products. Collaborations between fashion brands, NGOs and governments of many countries have further strengthened sustainable practices, promoting responsible sourcing, reducing carbon and water footprints and supporting the welfare of workers employed in the fashion industry [3, 4].

2. KERING STANDARDS AND REQUIREMENTS FOR THE YEAR 2025.

The global Kering Group manages the development of renowned fashion houses involved in the production of clothing, leather goods and jewelry, and sets very strict standards of sustainability in the fashion industry. Kering standards support innovative raw material sourcing approaches and advanced technological solutions for its supply chains, both for natural and synthesized materials. The Kering Group has a vision of high standards and best practices and encourages a collaborative approach in supply chains, in order to create frameworks for sustainable actions and achieve multiple benefits. Also, the Kering Group prioritizes natural raw materials produced in regenerative agricultural systems, which can bring various social and economic benefits, with clearly defined and evaluated outcomes [5]. Given the fact that renowned brands (Gucci, Saint Laurent, Bottega Veneta, Balenciaga, Alexander McQueen, Brioni, Boucheron, Pomellato, DoDo, Keelin, etc.) use luxurious textile materials made of precious fibers such as cashmere, silk, wool, cotton, as well as synthetic fiber materials, the Kering Group has defined sustainability and green economy requirements for this raw material base.

CASHMERE is the precious fiber of the cashmere goat and 75% of global cashmere production takes place in China. Cashmere production leads to pasture degradation and biodiversity loss. Kering's standards set strict requirements to protect biodiversity, society and animal welfare, while emphasizing transparency and traceability in the supply chain and encouraging the use of a certain level of recycled content. The recycled content can come from fibers that have or haven't been used, or a combination of both types. Where possible, Kering recommends the use of waste raw materials after use, thereby reducing the demand for primary raw materials, which is associated with environmental and social impacts. GRS certification (Global Recycled Standard) is required for recycled cashmere, and as an additional requirement, the recycled content should be at least 20%, with an aspiration to reach 50%.



The production of cashmere materials can have a significant impact on the environment due to the consumption of water, energy and chemicals, so it is necessary to ensure adequate monitoring of the impact on the environment and ensure processing conditions with reduced impacts. Also, it is necessary to ensure that processing conditions comply with the Kering Manufacturing Restricted Substances List (MRSL) and the Kering Luxury Product Restricted Substances List (PRSL) [5, 6].

WOOL is produced in agricultural systems in over 100 countries around the world, but the best quality and largest amount of wool fiber comes from Australia, New Zealand, South America and South Africa. Wool production can be considered more or less sustainable, depending on the impact of farming systems and animal welfare issues, which vary significantly from country to country.

Factors that contribute to the environmental impact of an agricultural system include the conversion of land from natural ecosystems to sheep pastures, pasture degradation, and chemical treatment of pastures and sheep. Sheep farming increasingly relies on chemical inputs (e.g. petroleum-based fertilizers) for pasture maintenance. In addition, in some areas, wool growers also rely heavily on the application of chemical substances to control sheep pests (lice). Most of the chemicals used to treat external parasites bind with the fat of the wool, not the fibers themselves, and are removed during the washing of the wool, resulting in a large amount of waste water pollution. Natural grasslands are degraded by overgrazing, so the issue of conversion of natural ecosystems is still a concern.

Kering's standards for wool are based on compliance with national and international laws and regulations that specifically relate to human rights, fundamental freedoms, health and safety at work and the environment, on the production of wool materials with maximum environmental sustainability, i.e. supporting the production of wool that does not degrade natural ecosystems, but restores and protects soil, plants and wildlife, on wool production with limited use of toxic chemicals, on ensuring high standards of animal welfare and on efficient and responsible water use at farm and wool processing levels. All this can be achieved by applying the Responsible Wool Standard (RWS).

The Kering Group supports the use of materials with recycled wool content, with a regenerative source. Both options (regenerative and recycled wool) are aligned with Kering standards. Recycled content can be pre- or post-consumer or a combination of both, reducing the demand for virgin wool and the associated environmental and social impacts. When using recycled content in a product, the content of recycled material should be at least 20%, with a recommendation that this amount preferably reaches 50%; GRS certification is required for the recycled wool as well.

SILK is a luxurious fiber and thanks to its properties related to softness, comfort and tensile strength, it is widely used all over the world. It is produced in over 30 countries of the world, and the largest producers are China, India and Japan. However, in silk production there are important sustainability issues to consider, including, above all, water consumption, chemical use, energy use, the way land is treated and the impact on natural ecosystems and, importantly, the living conditions of silk farmers. These are all issues in the silk supply chain that Kering is focused on and committed to ensuring best practices through the Kering Silk Standard. Kering supports the use of materials with recycled



content for silk, in addition to organic silk sources. Both options (organic and recycled silk) comply with Kering standards. Recycled content can be pre- or post-consumer silk or a combination of both. Where possible, Kering recommends the use of post-consumer waste materials, thereby reducing the demand for virgin silk and the associated environmental and social impacts. Where recycled content is used, the recycled content should be at least 20%, with a tendency for this content to be 50%; GRS certification is also required for recycled silk. Also, compliance with all national and local recycled silk laws is insisted upon.

COTTON is an important raw material for Kering brand products. Cotton represents about 22% of global fiber demand. Most of the cotton grown in the world is grown with the use of huge amounts of pesticides and fertilizers. These chemicals have a major impact on the environment and human health, and huge amounts of water are used to grow cotton. In addition, cotton supply chains present significant ethical challenges with examples of forced labor and child labor in cotton cultivation. Very little of cotton production is truly sustainable. For example, it is estimated that only 1.4% of the world's cotton production is organic cotton, and an even smaller percentage is regenerated cotton. Examples of sustainably produced cotton include regenerative or organic production, where cultivation is done without synthetic chemicals, where water use is reduced, soil health is restored, and social/working conditions are well managed. Kering also places the highest level of importance on supporting the wider adoption of regenerative practices in cotton production, primarily to protect and restore biodiversity, to build measurable improvements in soil health, measured through the soil's capacity to retain water and soil carbon content, which can be improved by maintaining the vegetative cover throughout the year on all cultivated lands. Social and environmental aspects drive Kering's strong commitment to use only traceable and sustainably grown cotton in its supply chains and drive the transition to regenerative cotton production.

Kering supports the use of materials with recycled content for cotton, along with organic and renewable sources. All three options (organic, regenerative and recycled) are aligned with Kering standards. Recycled content can be pre-consumer or post-consumer cotton, or a combination of both. Where possible, Kering recommends the use of post-consumer waste materials. This enables the reduction of demand for primary cotton and thus the reduction of accompanying environmental and social impacts. When using recycled content in a product, the content of recycled material should be at least 20%, with the aim of reaching 50%, and GRS certification is required for the recycled cotton. Cotton recycling should comply with all national and local recycled cotton laws.

SYNTHETIC FIBERS are expanding and currently account for about 64% of all fiber consumption in the world, of which 54% are polyester fibers.

There are several sustainability issues associated with conventional synthetic fibers, including the use of fossil fuels as the primary raw material for their production (a non-renewable resource), the amount of carbon emissions released during production, as well as the use of chemicals, energy and water. Synthesized fibers are not degradable and contribute to the creation of large amounts of microplastics, which represent a serious environmental pollutant [7, 8].



Recognizing these issues, Kering's Standard for Synthetic Materials supports the use of recycled synthetic fibers as well as bio-derived raw materials to avoid dependence on fossil fuel sourced raw materials. Recycled materials include pre- and post-consumer waste, and synthetic fibers derived from biological sources include those derived from sugars, starches and lipids, which are becoming increasingly available and are indistinguishable from conventional synthetic fibers from a performance perspective.

Kering prioritizes the use of materials with recycled content. Suppliers should provide recycled versus conventional fossil fuel-based synthesized materials with the highest possible recycled content, aiming for 100%. Also, synthesized materials with recycled content are preferred over synthesized materials with bio-based content. It is necessary to choose synthesized materials that can be recycled and Kering standards recommend fiber to fiber recycling. As another option, the use of materials with bio-based content is preferred. Suppliers should procure synthesized materials with the highest possible bio-based content (at least 30%) instead of that coming from conventional fossil materials.

Synthesized biomaterials on the market today often consist of a mixture of fossil fuels and biomaterials [9]. When procuring such materials, suppliers should request maximum non-fossil fuel content in textile materials and inquire about the origin of the raw material that goes into the production of the biological component of the synthesized material (crops, organic waste, proteins, etc.). The second or third generation of synthesized materials is recommended, for which the raw material is not a food source, but inedible plant parts – resources from forestry, proteins from discarded sources, biomass obtained from algae, fungi and bacteria, etc. and it is necessary to collect all information from the supplier about the bio-content used. Kering standards do not support resources that come from genetically modified organisms (GMO). An official method should be used to determine the biocontent, e.g. ASTM D8666 or EN 16785-1.

Regarding recycled and bio-based materials, all suppliers are required to source synthesized materials only from sources with appropriate certifications (Biobased, OK Biobased). Also, Kering does not accept synthesized materials produced from fossil sources from conflict-affected regions. It is necessary to ensure that no procurement activity is linked to deforestation or conversion of natural ecosystems, as Kering has committed not to procure raw materials in its supply chains that are linked to deforestation or land conversion. When it comes to biosynthesized fibers, this applies to all natural raw materials used and compliance for these raw materials can be ensured through appropriate certifications (Roundtable on Sustainable Biomaterials, International Sustainability and Carbon Certification (ISCC+), Forest Stewardship Council (FSC) for raw materials obtained from forests).

The use of modacrylic fibers is prohibited in Kering products. Modacrylic polymers are copolymers obtained by the reaction of acrylonitrile (at least 50%) and halogen comonomers (polyvinyl chloride or polyvinylidene chloride). Due to the use of these comonomers, modacrylic poses a potential environmental and health hazard, mainly at the end of its life. In addition to the carcinogenic risk to workers, if comonomers are not handled carefully during the manufacturing process, modacryl poses a threat for pyrolytic behavior during disposal through incineration, when dioxins are emitted. Thermal



processes (such as pyrolysis) or chemical recycling of these materials do not allow extraction of the basic chemical components like other polymers. Consequently, modacrylic cannot be mechanically recycled. Kering aims to phase out modacrylic from its collections and products by 2025.

In the production process of synthesized materials, Kering advocates a closed chemical management system, which implies the use of chemicals in accordance with the MRSL, especially when it comes to aromatic and aliphatic volatile organic substances (VOCs), azo dyes, ortho-phthalates, polycyclic aromatic hydrocarbon (PAH), heavy metals, flame retardants, alkylphenols [10]. It is recommended to prevent and reduce chemical emissions into the air, reduce water consumption, minimize chemical impacts and gradually abolish and eliminate hazardous waste. Kering standards do not recommend the use of materials from recycled PET bottles [6, 11].

3. CONCLUSION

The world of sustainable fashion innovation is new and rapidly evolving. Sustainability, by its very nature, is a process of continuous improvement. Consumers around the world are increasingly looking for products and services with less impact on the environment and society. This interest has led to an increased demand for "green" products and services.

In response to this demand, companies have increased their offerings of "green" products and services; however, misleading environmental claims have also increased, which can affect corporate and brand reputation.

The Kering Group encourages its brands to transparently and appropriately communicate their sustainability efforts and results, with statements supported by data when possible. Applying these principles and definitions as a benchmark, Kering's sustainability claims are designed to support its brands and avoid any risk of potential green product claims that cannot be backed up by facts. The Kering Sustainability Claims Guidelines are aimed at brands, suppliers, retailers and consumers and apply to claims made about products sold in-store or via e-commerce. Kering standards support new technologies and solutions for material processing and production, as well as new materials that can supplement or replace the existing, traditional materials [3, 5, 6].

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