

Innovative Application of New PVC Fabric in Modern Men's Wear Design

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Abstract: *The new PVC fabric has become a new type of fabric that combines fashion and technology, and is a product of the rapid promotion of social, economic, cultural, and intelligent era in the new era. By comparing and analyzing the characteristics of early PVC fabrics and new PVC fabrics, the emergence and application development of fabrics are summarized; Secondly, by studying the process, performance, and application of new PVC fabrics in clothing design, a series of modern men's clothing will be designed to further explore and explore the advantages of new materials. In the future, by combining new PVC fabrics with high-tech technology, we will design new clothing that better meets people's needs.*

Keywords: *New PVC fabric; Clothing Design; Modern men's clothing; Innovative Application*

1. Introduction

PVC material, also known as polychlorinated hexene, is one of the largest plastic products in the world in terms of production. It is cheap and loved by people. PVC materials are widely used in people's daily lives, such as umbrellas, raincoats, sandals, toys, etc. With the development of science and the changes of the times, new PVC fabrics are widely used in the field of textile and clothing. They are a new type of clothing material that combines functionality and aesthetics, and are widely loved by fashion designers. They are widely used in fashion weeks and are one of the current trends in fashion^[1].

At present, research on PVC fabrics at home and abroad mainly focuses on the performance testing and process innovation of early PVC, while there are relatively few literature records on the updates of new PVC fabrics and their application in modern men's clothing. Therefore, this article summarizes the characteristics of new PVC fabrics through an overview of early PVC fabrics, reorganizes the types of new PVC fabrics, studies the wearability of new PVC fabrics, compares and analyzes the design elements, language, and technological processes of new PVC fabrics through case studies in major fashion weeks, and finally designs a series of men's clothing to develop more fashionable PVC fabrics, Bringing more possibilities to the innovation of clothing design.

2. Early PVC fabrics and new PVC fabrics

2.1. Early PVC fabrics

PVC fabric is a synthetic technology fabric. Composed of a base fabric, a PVC polymer layer on the surface layer, or a layer of PVC polymer, this type of fabric is favored in practical applications due to its strength, durability, and flexibility. The flexibility of soft PVC is obtained through the conversion of rigid PVC through chemical additives. The base fabrics of PVC fabrics include woven fabrics, non-woven fabrics, knitted fabrics, etc. This chemical generation method gives PVC material more unique characteristics when used as clothing fabrics^[2].

Early PVC fabrics were divided into two categories: soft model and coated type. Soft models have a strong sense of sag and are widely used in fields such as raincoats, bags, shoes, and table mats; The coating type mainly consists of two parts: coating polymer and substrate. The combination of these two raw material characteristics will make the visual effect and tactile performance of the fabric more diverse. In short, the early application of PVC fabrics in clothing mainly focused on performance, with less emphasis on fashionable designs combined with clothing.

2.2. New PVC fabrics

The term "new" PVC fabric in this article has three meanings. The first definition is based on the development of time, referring to the new PVC fabrics developed in recent years. Since the rise of PVC fabric in the clothing industry in 2015, it has reached its peak in 2018 and still maintains its popularity. Therefore, this article defines PVC fabrics developed after 2018 as "new" PVC fabrics. The second "new" type of PVC fabric is mainly reflected in technological innovation. In the early days, PVC fabrics were mainly modified by adding various materials to change their properties. In the middle period, with the support of technology, composite environmentally friendly coatings were introduced for PVC fabrics. Nowadays, new technological processes such as hot pressing and 3D have emerged for PVC fabrics. Thirdly, as PVC fabrics reach new heights, designers constantly innovate and integrate various design techniques and processes. This new design technique on PVC fabrics is the "new" PVC fabric studied in this article.

3. Types of new PVC fabrics

3.1. Hot pressed type

Hot pressing type is the process of laminating with the substrate on the basis of rolling type. PVC hot pressed fabrics are manufactured using laminated composite technology, and the base fabrics are mostly knitted fabrics, nylon fabrics, Oxford fabrics, etc. Add a layer of adhesive to the base fabric, cover the surface with a layer of PVC film, heat and pressure, and form a multifunctional composite fabric under the pressure of the heat roller[3]. PVC is printed and designed on the underlying fabric in the current popular hot pressing type (shown in Figure 1).



Figure 1: Image from 2018 Milan Spring/Summer Fashion Show

3.2. 3D Visual type

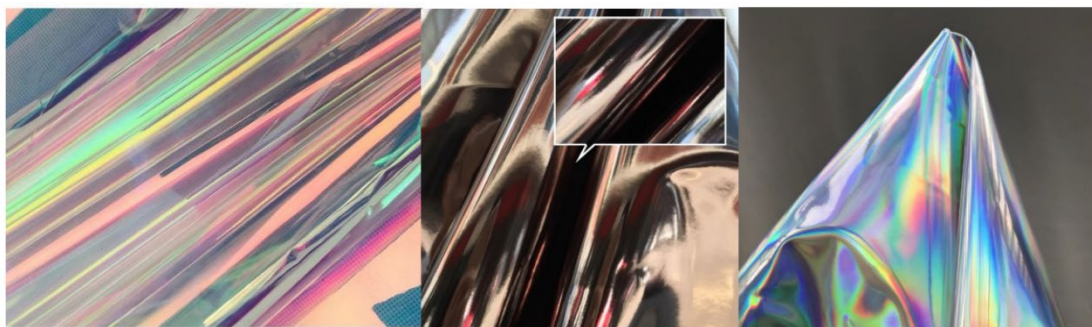


Figure 2: Image sourced from the internet.

PVC 3D soft film fabrics are mainly divided into two types: without substrate and with substrate, with different performance effects. Unbased fabrics generally present an illusion of spatial shadows, representing a visual spatial effect of true depth. A PVC 3D soft film with a substrate will use fiberglass fabric as the substrate and spray patterns on the surface of the PVC resin. After overall drying, heat treatment is required to complete the first stage of color coating, in order to repeat the steps to achieve a

three-dimensional depth of field effect. The PVC 3D visual design of cash is based on a base fabric with a rainbow effect. The fabric can emit different rainbow reflections under the illumination of light, forming various texture changes and bringing different visual enjoyment to people (shown in Figure 2).

3.3. Light transparent type

Light and transparent texture is the key pursuit of men's clothing fabrics for spring/summer 2023. You can choose a combination or overlay effect of transparency and opacity to achieve a lightweight feeling without transparency. The semi-transparent sheer texture has a refreshing and breathable visual effect in summer. Glossy yarns can be woven through narrow gaps to create a textured effect with undulations. It is recommended to choose a blend of renewable polyester, viscose, nylon, silk and other materials for material selection. Transparent PVC fabric will continue to be popular in color during the spring and summer of 2024 (shown in Figure 3).



Figure 3: The image is sourced from www.pop-fashion.com

In addition, according to the definition of new PVC fabrics, there are also types such as rolled, foamed, and suede.

4. Process and Performance Analysis of New PVC Fabric

4.1. The Process of New PVC Fabric



Figure 4: Louis Vuitton 2020 Spring/Summer Show

With the development of the times, the process of new PVC fabrics has become more diversified in terms of technology. Versace and Louis Vuitton printed patterns on PVC soft film through digital printing in the 2020 spring/summer collection, giving clothing a visual experience of vibrant, bright and transparent colors (shown in Figure 4); In the fashion design trend of PVC plastic from 2021 to 2022, the interlayer technique is a new type of process design. In the transparent interlayer, plants and all visible items are placed, which is a new breakthrough for designers (shown in Figure 5); In addition, in recent fashion designs, pearls, sequins, embroidery, and other decorations are used to decorate PVC fabrics, creating a modern and girlish feeling. There are also weaving techniques, laser cutting techniques, embossing techniques, etc.



Figure 5: The image is sourced from www.pop-fashion.com

4.2. Performance of New PVC Fabric

The new PVC fabric, as a futuristic technology visual effect fabric, is deeply loved by people and widely used in daily clothing. It has functionality, comfort, plasticity, and environmental friendliness. The new PVC fabric is widely used in clothing design because of its inherent plasticity. It is mainly reflected as follows: First, the fabric is soft and can be cut at will; Second, the fabric is easy to color, can be combined with a variety of chemical materials to create a variety of different clothing fabrics; Third, the base cloth can be printed, and the film can be laminated on the base cloth through the hot pressing process to make the fabric more layered; Fourth, because the new PVC fabric is soft and plastic, the fabric can be processed and designed through embroidery, weaving, splicing and other processes. Environmental friendliness is inherent in PVC fabric, which conforms to the concept of environmentally friendly and sustainable design, enhances the wearability of the fabric, and becomes an innovative and fashionable new type of fabric. Functionality mainly reflects the many types of PVC, which have different functions, such as waterproofing, heat resistance, toughness, and elongation. The comfort of the new PVC fabric is mainly reflected in its flexibility, and the new soft film PVC can bring people a strong visual sense without lacking comfort.

5. The Application and Development of New PVC Fabric in Clothing Design

5.1. The Application of New PVC Fabric in Fashion Week

In the 1960s, futuristic design styles emerged and PVC materials began to be used on fashion

shows. Starting from the spring and summer of 2018, futuristic design has made a comeback, and elements such as plastic, PVC, and laser have begun to spread in the fashion industry. Chanel 2018 Spring/Summer Fashion Show can be said to be a pioneer in advocating PVC elements, especially bags that run through the entire show (shown in Figure 6). At 2021 London Spring/Summer Fashion Week, Simone Rocha applied PVC fabric to sandals, not only maintaining the brand's consistent British classical and romantic style, but also using PVC fabric to make the clothing more inclusive (shown in Figure 7). Anrealge Spring 2024 Collection, Anrealge has developed a unique environmentally friendly photochromic PVC this quarter, made from the next generation of phthalate free plasticizers. Models wear new environmentally friendly materials with various transparent shapes and photochromic properties (shown in Figure 8).



Figure 6: Chanel 2018 Spring/Summer Show



Figure 7: 2021 London Spring/Summer Fashion Week



Figure 8: ANREALAGE Spring 2024

5.2. The Development of New PVC Fabric in Clothing Design

Green and sustainable are topics of close concern to the whole society. Low carbon, health, and environmental protection have become popular living concepts. Environmental sustainability is not only a civilization, but also people's aspiration for a better future life. In the field of textile and clothing, industry scholars are also constantly exploring the path of sustainable development, innovating design in a more environmentally friendly way, reusing green and environmentally friendly materials, achieving not only no impact on design results, but also an attitude of expressing environmental protection concepts, in order to achieve rational use of resources and transmit sustainable development design concepts^[3].

The new PVC fabric itself has environmental performance, and with the continuous development of technology, the plasticity of PVC fabric is also becoming stronger, which will give designers more possibilities for implementation. Firstly, PVC fabric can be combined with various conventional fiber elements to innovate new fabric elements; Secondly, PVC fabrics can be combined with special materials to create unique, avant-garde, and beloved new fabrics through composite processes, fabric reconstruction, 3D technology, deconstruction, splicing, and other techniques^[4]. The plasticity of PVC fabric can express millions of different clothing emotions through designers. Therefore, adhering to the concept of innovation, development, and sustainability in clothing design, the application and development of new PVC fabrics in clothing design will be an endless topic.

5.3. The Series Clothing Design of New PVC Fabric in Modern Men's Wear

This series of designs focuses on sports men's clothing as the main design element. By extracting sports elements such as hats, large pockets, and straps from sports men's clothing, combined with the use of new PVC fabrics, men's clothing is made more technological and sporty. The theme of this clothing series is "Colorful Life" (shown in Figure 9). Symbolizing the creation of a dimension that can replace reality in a world of technological stagnation and illusion, people can break free from limitations and constraints, boldly breaking through themselves, as if embarking on a redemption revolution seeking self-awareness in a deeper universe. The work combines new PVC fabrics with leather, laser and other fabrics, which can break through limitations in expressing a sense of future technology and express the romantic and positive colors of men. In terms of expression techniques, deconstruction, splicing and other methods are used to create a sense of future space. The color is based on the new PVC fabric thermoplastic method to create a fantasy color, with an overall blue purple color, creating a surreal and technologically rich life that is more in line with the theme.



Figure 9: Effect of "Colorful Life"

6. Conclusion

The new PVC fabric, as a high-tech material that combines fashion, technology, and futurism, is not only loved by fashion designers, but also applied in various products. With the increasing awareness of environmental protection among people, new PVC fabrics have gradually become a research hotspot in the future society due to their increased aesthetics, improved physical properties, multiple wearable properties, and the support of technology. PVC fabric itself has thermoplastic properties and is more

diversified in innovation. It has a great auxiliary role in design, and the combination with other fabrics will create new elements. Therefore, in design, designers need to use unique perspectives and more creative ideas to push new ideas, break traditional consciousness, and explore more possibilities of PVC fabric. With the continuous development of the times, constant innovation in clothing design is the driving force for designers to move forward, explore new directions, and enable clothing to better meet people's personalized needs, bringing broader development space to the clothing market.

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