Study on Printing Factors of Drug Packaging Design

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Abstract: With the rapid development of China's pharmaceutical industry and the continuous updating of printing processes and equipment, the printing industry, as a supporting industry for pharmaceutical packaging, plays an important role in the process of pharmaceutical packaging productization. However, there are still problems in the design of pharmaceutical packaging in China, such as poor design, uneven printing quality, and low safety of pharmaceutical packaging. This will largely affect the safety of consumers and the interests of pharmaceutical companies. Through the research on the pre-press, in-print and post-press related factors of pharmaceutical packaging, this paper aims to provide reference materials for pharmaceutical packaging and printing designers, which can improve the quality of pharmaceutical packaging printing and improve the packaging function of pharmaceuticals.

1. Introduction

With the development of OTC drugs, the traditional way of purchasing drugs has changed, and patients have the right to choose drugs. The emergence of this phenomenon has prompted the pharmaceutical packaging to be free from the unchanging appearance of the past years. At the same time, the fierce competition in the pharmaceutical market has also promoted the development of pharmaceutical packaging, and pharmaceutical packaging has become an important means of enterprise competition. One of the important factors in the success of a product in the sales process is whether the packaging can quickly attract the eye of the buyer, or whether the packaging can be highlighted in a wide variety of drug displays, thereby prompting the patient to purchase. According to a survey conducted by DuPont in the United States, 63% of consumers' desire to purchase products comes from commodity packaging when purchasing products. Therefore, pharmaceutical companies should pay attention to the design of pharmaceutical packaging. In addition, pharmaceutical packaging should also be developed in a diversified function in addition to maintaining its basic protection and information guidance functions. As the famous designer Takahashi Masaru said: “When a designer designs a package that does not exceed the functionality of the package itself, then the package is just a box. To design a good package, it must not only satisfy Its own function must also be able to display the image of the company and have a positive impact on the users. Since the packaging must be printed and reproduced to achieve its productization, the pharmaceutical packaging has the dual attributes of material and spirit. The materialization of pharmaceutical packaging, how to make the packaging design manuscript perfectly reproduced through the printing process, is a problem that designers should think about, and it is also the ability to have it. With the development of the times, the printing technology continues to innovate, packaging materials, structural and print design have become an integral part of pharmaceutical packaging design.

2. The importance of printing in the design of pharmaceutical packaging

Pharmaceutical packaging is composed of materials, text, graphics, color, production process and many other elements, and the way to combine these elements into a whole is achieved through the printing process. Most successful packaging will have a common feature, the overall beauty. Just as the ancient Greek philosopher Aristotle once said: “Whether it is a work of art or a real thing, the difference between beauty and not beauty lies in the fact that the beauty of things in the works of art

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combines the original scattered factors into a unified body. The overall beauty of pharmaceutical packaging lies in the rational grasp of design content such as color, graphics, layout, and the design and planning of packaging materials and printing processes. The rational grasp of the contents of the package is mainly to convey the key information to the patient by rational use of words, colors, graphics, etc. When designers choose among visual elements such as graphics, text, and color, they will best reflect the drug information and the content to be conveyed, standardize, organize, strengthen the effective dissemination of information, and choose the most appropriate printing method. After the overall design, the elements to be expressed in the packaging design form the perfect unity of art and technology, and the visual expression conveyed by it is the fundamental value of printing technology.

Innovation in art design often cannot be separated from the development of technology. Therefore, the continuous development of printing technology has become an important means to enhance the creativity of pharmaceutical packaging. For example, the development of three-dimensional printing provides technical support for packaging creative design. Stereoscopic printing can produce a stereoscopic visual effect, which can be one or more scene changes, or it can be a different aspect of the same product. This form not only enhances the visual perception of the package, but also displays the stereoscopic effect in a flat manner. This change in the form of information conveys the needs of more and more people for novelty and personalization. Improve the grade and brand value of the packaging. Modern printing technology is very fast, and any shape and any material can be used as a carrier for printing. This also provides more channels for the creativity of pharmaceutical packaging. The diversification of such channels provides technical support for the implementation of the design scheme, and builds a platform that can truly and accurately express the various elements of the design scheme, thereby realizing the creative design. Packaging design and printing technology are in their respective fields, and they are also closely related and inseparable. The design relies on printing, printing and inheritance design. Packaging design is an artistic means for printing services, and printing is also an idea for design. Provides a technology platform.

3. Printing factors affecting the prepress design of pharmaceutical packaging

Any work of art is constructed on the basis of materials. Material is the material basis of all links in the whole process of packaging design. Nowadays, the materials for carton medicine packaging in China mainly include white cardboard, white paper, whiteboard paper and so on. Each type of material has its own quality. The quality of the material not only affects the stiffness of the package, the quality of the packaging and printing, but also affects the die cutting and indentation effects, thus reducing the grade of the package. The medicine packaging box is the primary factor for consumers to understand the products they package. The quality of the printing of the medicine packaging box also determines the degree of consumer trust in the medicine. Therefore, in order to obtain high-quality pharmaceutical packaging printing effects, it is also crucial to understand the influence of material properties on the design of pre-printed originals while selecting suiTable packaging materials. The following is mainly to analyze the relationship between the paper and the pre-press design from the two aspects of the smoothness and whiteness of the paper material.

Water-based offset printing, as its name implies, requires water in the printing process, so there is a problem of ink-and-wash balance in offset printing, which in turn leads to difficulty in controlling the color tone of the printed matter. At the same time, offset printing has the characteristics of fast printing speed and low pressure. The printed products often have shortcomings such as insufficient printing color saturation and inaccurate printing when printing large-area color blocks. Therefore, offset printing is mainly applied to packaging printed matter mainly based on color continuous tone originals. Therefore, the following content is mainly for color continuous tone originals, and analyzes the requirements of its prepress design. Color continuous tone originals can be roughly classified into three types: painting originals, secondary originals, and photographic originals. Color continuous-adjusted originals in pharmaceutical packaging and printing are mainly embodied in painting originals. The following mainly analyzes the pre-press design requirements for such

originals. Painting manuscripts are mainly found in children's medicine packaging, and are often used to express cartoon images of children or cartoon images of organs or parts of drugs. Since this type of original has a rich color and a large change in brightness, the quality of the original is high during plate making, so the color of the original should be designed to be as close as possible to the actual effect, and the modification should not be excessive. Otherwise it will bring difficulties to the plate making.

4. The effect of post-press processing on the physicalization of pharmaceutical packaging

The post-press processing technology can greatly enhance the visual effect of the pharmaceutical packaging. The post-press technology of the packaging can be said to have everything, and the visual image with visual impact is shaped for different packaging. The commonly used paper medicine post-printing process has a paper surface finishing process, including die cutting, windowing, embossing, embossing, laser engraving, etc.; glazing process, including full glazing, laminating, local Polishing, local UV, light glue, over-light oil, etc.; hot stamping process, mainly including bronzing, hot silver, printing gold, special silver, hot aluminum, etc.. Any post-press process can improve the visual effect of the package to different degrees, so that the printed product has a richer and more printed texture, and the color is brighter and brighter, which can improve the surface gloss of the package and create a special artistic effect. For example, the packaging design of a health care product, the packaging uses a combination of hot stamping and partial UV, and the part of the packaging pattern uses partial UV printing. The use of this post-pressing process not only forms the pattern and the underlying color in the texture. The contrast enhances the three-dimensionality of the pattern itself, making it vivid and vivid, just like jumping on paper. The name of the product is stamped with gold. The noble and heavy gold makes the name of the product have a strong visual impact. It can attract the attention of consumers, enhance the visual effect of packaging, and play a role in brand promotion.

The post-press process not only enhances the visual effect of the package, but also improves its practical functions. For example, the glazing process not only enhances the visual effect of the packaging decoration, but also prevents the packaging color from fading due to long-term friction and light during circulation. The glazing process is to form a bright protective film on the surface of the printed product. The formation of the protective film can enhance the wear resistance of the package, and also impart some other functions such as water resistance and light resistance. Oil resistance, pollution prevention, etc. In the design of pharmaceutical packaging, the post-press process of laminating is also often used. This process is often applied to pharmaceutical packaging that is sensitive to moisture, because the plastic film is bonded to the paper to enhance the water resistance of the paper and prevent moisture in the air from contaminating the drug.

The most basic function of pharmaceutical packaging is to protect the drug from the external environment, thus protecting the life of the drug user. Therefore, the safety of packaging is the primary issue to be considered when designing pharmaceutical packaging. As a carrier of the protection of drug safety, pharmaceutical packaging cannot be ignored. Its anti-counterfeiting technology for pharmaceutical packaging has also emerged as an indispensable part of pharmaceutical packaging, and it has become a scientific tool for the safety of pharmaceutical packaging. The role of verification. There are three main types of anti-counterfeiting technologies today. Among them, printing-based anti-counterfeiting technology is a commonly used anti-counterfeiting method in pharmaceutical packaging, and a large part of anti-counterfeiting technology is realized by post-press processing. For example, laser holographic hot stamping technology is well applied in packaging anti-counterfeiting, which can be divided into laser holographic hot stamping technology and laser holographic non-locating hot stamping technology. Both technologies are widely used in pharmaceutical packaging anti-counterfeiting. In the design, for example, “Sanjing” lacidipine Tablets and “Changwei Kang” Fengqi Changweikang granules produced by Haikou Pharmaceutical Factory use laser holographic non-positioning hot stamping technology. The shiny enamel soothing eye liquid, Fuhe brand Xiaoyin Tablets and Lijunsha brand “Lijunsha” succinyl erythromycin Tablets, etc., use laser holographic positioning hot stamping

technology. Laser holographic anti-counterfeiting technology has a wide range of applications in anti-counterfeiting of pharmaceutical packaging due to its special visual effects and complex printing process.

5. Conclusion

This paper mainly analyzes and summarizes the printing factors in the packaging design of pharmaceuticals, which are carried out in three aspects: pre-press, in-print and post-press. Firstly, the printing factors affecting the pre-press design of pharmaceutical packaging were analyzed, and the problems that should be paid attention to when designing the pre-printing of pharmaceutical packaging were summarized. Secondly, from the perspective of printing, the factors affecting the color reproduction of pharmaceutical packaging are analyzed, mainly from the aspects of printing ink, paper and printing equipment, and the influence of packaging color reproduction is sorted out. Finally, the effects of post-press processing on the physical and chemical properties of the packaging were analyzed from the visual effects, function and safety performance.

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