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# UTILIZATION OF SELF-ADHESIVE DIGITAL LABELS FOR IDENTITY PROMOTING OF SPECIAL PRODUCTS PACKAGING

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## *ABSTRACT*

Digital printing is a convenient technique for the production of self-adhesive labels with a personal design. With no doubt, using a unique design for special products packaging in the Arabic area helps to support the product Arabic identity through digital personalized labels. Packaging of special products likes; handicrafts products, souvenirs, Khan El-Khalili Products... etc. lack to special designs that assert product Arabic identity. Using digital labels can give a memorable image to these special products through digital personal design. The importance of self-adhesive digital labels is due to the flexibility of material and layouts that, enables its usage in a different position on the packaging or directly on product. This paper aims to provide an overview of digital self-adhesive labels and it benefits in promoting the Egyptian special products packaging identity through the attached labels. Analyzing the most important attracting items in labels design. Giving a new approach of digital Arabic calligraphy utilization by suggested label design layouts.

**Contribution/ Originality:** The paper's primary contribution is finding that Digital self-adhesive labels could be the most convenient technique that promotes identity for handicraft products and add value for its packaging. In addition to the unique Arabic calligraphic design that could be personalized for each individual product furthermore, give more function discussed by the paper.

## 1. INTRODUCTION

Special products like handicrafts products in El-Fayoum city, Siwa, Khan-Elkahllili and many other special products even oriental species are sold in Egypt in different cities within poor package without graphics and informative design. Kraft bags, corrugated – and folded carton boxes with special standard sizes can be adapted to many products with the same dimension range (Noha, 2018). Identity of such unique products are expressed by both structural package design and informative graphics. With the wide differentiation in each unique product; in material, design, size there is a need for personalized graphic design with different information about the packed product.

Digital labels with a different graphic can adhere to folded carton- corrugated carton packages, Kraft bags, wrapping gift paper or even on the product itself.

Pressure –sensitive self-adhesive labels became more commonly due to its flexibility; adhesive on the back layer of the label, which is ready and active, enables immediate application on package surfaces. It is not surprising that they have rapidly gained popularity for a wide range of labelling requirements (Mark, 2013).

### *1.1. Labels Digital Printing*

As labels are one of the fastest growing and most rapidly changing sectors in the entire printing industry, much of this growth has come from pressure-sensitive labels – perhaps more commonly known as self-adhesive labels (Sheena, 2013).

Digital printing systems optimized specifically for labels and packaging that came to market from 1996 (Jacobs, 2003). The digital packaging applications are less progressing up until now, compared to digital label printing, but the opportunities are with no doubt hopeful (Jacobs, 2003).

The digital press is just a means of producing a print in an inherent flexible way, directly from file to print on paper (or other substrate).

Similarly producing labels digitally implies much more than just putting an image on a substrate from a file. Digital workflow, die cutting, coating and other finishing aspects, cannot be underestimated (Jacobs, 2003).

The two printing processes commonly used today for printing labels are flexographic and digital. There are many factors to examine when determining which of these printing methods is most convenient. While some printing jobs are best suited for a flexographic printer, there are variables that can cause digital to be the most proper option (Sheena, 2013).

### *1.2. How Does Digital Printing Work?*

Unlike the flexographic printing presses that require plates, digital printers deposit toner onto the material. The toner does not really penetrate the material or the substrate, but it forms a thin layer on the surface that is adhered using a heat process (Sheena, 2013).

In the toner-based digital printing process, a latent image of one of the color separation is created on a drum. That image is then developed for printing with the dry powder or liquid toner before being transferred to the label substrate (Mark, 2013).

#### *1.2.1. Advantages of Digital Printing:*

- Reduce time; it is fast, as less time is needed for printed materials. The key advantage of digital printing comes from the elimination of conventional printing stages. The digital printing process takes place in a matter of minutes, with accurate registration. Any needed color adjustment can take place quickly, too.
- Provide flexibility; it allows data personalization, to make changes fast and to be innovative.
- Reduce inventory; it allows printing from file and therefore removing the need to prepare plates and reduce waste: Digital printing is truly on-demand printing, it matches smaller product volumes and market demand (Digital Printing, 2016).
- Reduced cost per unit for short-to-medium-size runs.

### *1.3. Digital Labels Materials*

Digital Label Materials are pressure sensitive label stocks designed for use in desktop laser, high-speed laser, and laser markable digital printers. These labels are a type of pressure-sensitive label made using cutting-edge by digital printing technology. Digital labels can be produced on a range of materials, including paper, film, foil and many others.

The most commonly used digital label material include: [2]

- Uncoated paper and paperboard.

- Polypropylene (PP), Oriented polypropylene (OPP) and Bi-axially oriented polypropylene.
- Polyethylene (PE) and high-desity polyethylene (HDPE)
- Metalized paper
- Metalized film
- Synthetic paper
- Acetate.

#### *1.3.1. Self-Adhesive Labels*

Self-adhesive labels are consisted of a sandwich construction in which there is a face material (the label), a sticky pressure sensitive adhesive and a silicon back layer or liner. The face material is printed usually on a narrow web in width up to 300-400 mm wide (Mark, 2013).

Label thickness may vary around 40-50 um up to 90-100 um.

Innovations that are more recent are going towards developing and using this self-adhesive label films thickness less to 30 or even 20 um, grammage can be as low as 50 g/m$^2$

Self-adhesive labels with liner are developed to a new generation liner-less; which mean that the back layer will be eliminated.

## 2. WHAT CAN DIGITAL PRINTING ADD TO SPECIAL PRODUCTS PACKAGES?

Digital pressure-sensitive label can add value to the plain package used for special products. Self- adhesive label can have a major impact on the sale of products. It also can add unique value and helps to distinguish the product from other, similar, products. As a whole, the packaging and its labels plays an important role in branding and should, therefore, be considered to be one of the most important factors (Sheena, 2013).

### *2.1. Advantages of Pressure-Sensitive Labels*

Because attaching labels on packages do not require heat, solvent or water to adhere to packages surfaces, pressure-sensitive labels are an easy and straightforward label solution. They are easily applied to containers, bottles and packaging, highly versatile and can work with many types of products and finishes.

### *2.2. Digital Packaging Label Design Analysis*

There are seven important elements that should be evaluated when making decisions about packaging labels: color, image, material, font, wrapper design, printed information, and innovation.(Sheena, 2013).

Table 1 shows analysis of digital label design elements applied on packaging and its importance in adding value for packaging.

**Table-1.** Graphic and technical influenced elements in packaging labels.

| Graphic & technical elements | The effect | Representative image |
|---|---|---|
| *Color* | The color of the label or packaging can help to attract the customer's attention.<br>In addition to the color meaning and its psychology.<br>Digital labels provides high quality color production. |  |
| *Background Image* | An eye-catching background image is designed to catch the customer's attention and attract him to get closer looking at the product.<br>Personalized image can be changed and fast printed |  |
| *Font* | Unique, attractive font styles promote the appearance of the product and drive sales.<br>Digital labels allows variable data printing VDP |  |
| *Printed Information* | The printed information is very important for many purposes, such as establishing brand identity, enhancing name recognition, and provides detailed information, which, is important for customer.<br>Digital self-adhesive labels can be attached on any package easily. |  |
| *Material* | Customers are attracted to quality products, which are reflected in the packaging and label materials used.<br>Various self-adhesive labels materials are available. |  |
| *Wrapper Design* | Like the other design features, there is a relationship between wrapper design and buying behavior. Tags and labels can be attached on the wrapping material. |  |
| *Die cut* | The die cut of label is important for giving package its uniqueness. |  |
| *Innovation* | Not only is there a correlation between innovation and buyer behavior, innovative packaging can actually add value to the product, allow for tamper evident, tight sealing. |  |

**Source:** Analytical study.

## 3. SUGGESTED DIGITAL GRAPHIC DESIGN LAYOUT ON PACKAGING

Digital software provided a great help in bringing art in paper into digital graphic design (Mohamed and Youssef, 2014).

Enhancing design, emphasizing identity can be achieved through usage of Arabic letters in packaging of the Egyptian products. These designs can be digitally printed on labels with different layouts to enhance packaging design and to emphasize the Arabic identity.

Depending on Arabic letter itself, one word or more; different techniques can be used for creating many designs through packaging design elements (Noha, 2018).

For each special occasion, handicrafts and souvenirs products with the various type and different specification, there are indefinite products sizes that need unlimited numbers of packages, one package for one item is not a practical solution (Noha, 2018). For these unique products that comes in different sizes, standard packages might be used to adapt all (rather than producing all separate packages) by being economical with the dimensions, and smart with its design. This will not only save time and as a result, money, it will ensure consistency throughout products. For this reasons digital labels will be the perfect solution for giving information and identity to packaged product.

**Table-2.** Digital self-adhesive labels design layouts applications on packages.

| Suggested digital label layout design | Application |
|---|---|
| *Front label with special die cut;*<br><br>The design layout shows special label die cut with personalized color used to differentiate different kinds of products that can be applied on bottle- jar- container for oriental species for example. |  |
| *Spot digital self-adhesive-pressure sensitive label;*<br><br>Special design can easily be applied to add identity to Kraft bags with digital Arabic calligraphy on spot label layout. It can be attached in different packages layouts.<br>This label can be printed on both paper and film. |  |
| *"No label look" transparent label;*<br><br>Same digital label design can be applied with little difference; inverted colors. This label can be printed on a clear transparent film that gives a great advantage, which is described as "No label look". It can also be adhered on different package type. |  |
| *Tight Sealing labels;*<br><br>Digital self-adhesive label can be used as a gift band. It also can help to tight package and confirm closing. Islamic pattern with digital Arabic calligraphy also used to promote packaging identity. |  |

**Source:** application study.

In Table 2 the researcher represent different applications of digital labels design layouts to emphasize the role of digital label with digital Arabic calligraphy design.

## 4. RESULTS AND RECOMMENDATIONS

- Digital label might be considered the convenient solution for attaching graphics and information that promotes identity for special products that sold on the unknown and inconvenient package.
- Self-adhesive pressure-sensitive digital labels give the flexibility needed for personalized unique packaged products.
- Not only graphics; color, image, text… gives the label its attracted impact on consumers but also technical elements material, Die cut, and wrapping design can emphasize the identity.
- Self-adhesive labels come with different substrate paper, films in addition to varied width and thickness that can match different requirements.
- Personalized graphics on self-adhesive packaging labels helps to give special products with unknown package its identity.
- Transparent self-adhesive label film can promote package graphics by giving "no label look" on the package.
- Spot labels can be attached on different sides of paperboard, corrugated board boxes, bottles, bags and wrappers on different places; furthermore it can be used to close the package.
- Long band self-adhesive label can adhere to paperboard- corrugated board boxes as a gift ribbon with the additional function of sealing.
- Digital Arabic calligraphy design promotes the Arabic identity on Arabic packaged products.
- Further development is made to develop the structure of the self-adhesive label by eliminating the back layer or the liner for a linerless self- adhesive label.
- Development is promising for less thickness self-adhesive labels by the near future.

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