

## **The compatibility between materials and Techniques used in the production of packaging labels to increase their quality and improve packaging performance**

**Assoc. Prof. Dr. Magdy Azzet Abd Elkader**

Associate Professor, Department of Printing, Publishing and Packaging

[magdykader@yahoo.com](mailto:magdykader@yahoo.com)

**Dr. Tamer Ali Abd migid**

Lecturer, Department of Printing, Publishing and Packaging

[tamer.flexography@gmail.com](mailto:tamer.flexography@gmail.com)

**Eng. Mohamed elsaid elsaid**

Production engineer at Bayan for printing labels

[mohamedseyam93@gmail.com](mailto:mohamedseyam93@gmail.com)

### **Introduction**

Printing packaging labels is an important technology in the packaging industry, especially those that are glued to packaging and products, and are highly dependent on various industries such as pharmaceuticals, food industries, spare parts, agricultural products and other product. Packaging is a very important marketing tool for products. The outward appearance of the product, the design and the colors used are the first to attract the consumer to the product. The external appearance of the product may play an important role in raising overall sales. labels play an important role in informing the consumer about the product, the date of validity, the production company and what information to tell the consumer quickly during initial contact with the product.

There are many methods of producing labels depending on the quality and shape of the product, as there are some qualities that must be available in the production of labels expensive cosmetics products can be dispensed with the production of other products, as the aesthetic properties added to those packages that raise the value. Also, the nature of the card varies according to the type of product packaged, some products such as freezers are packaged in low temperature conditions, and other products are packaged at high temperatures such as ketchup and other products.

### **Research problem:**

Incompatibility between materials and added values and lack of optimal use of appropriate packaging techniques for production.

### **Search Goal:**

Determining the relationship between raw materials used in the production of packaging labels and the production techniques used to raise the quality of production and improve the performance of containers.

### **Research importance:**

Achieve the quality of label production by maximizing the utilization and optimization of the various techniques and added values through studying the raw materials and production techniques.

**Search limits:**

Time Limits: The period available for the researcher to complete the study.

Spatial boundaries: Printing facilities specialized in the production of packaging labels .

Objective Limits: Description and analysis of card production techniques and their relation to value added.

**Research Methodology:**

The study is based on the analytical descriptive method by describing and analyzing all factors affecting the production of packaging labels and the development of their techniques and the impact on the added values.

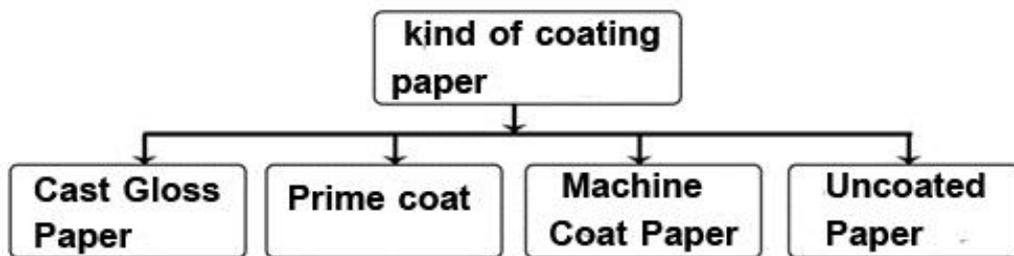
**Research hypotheses:**

Achieve added value added to the production of packaging labels

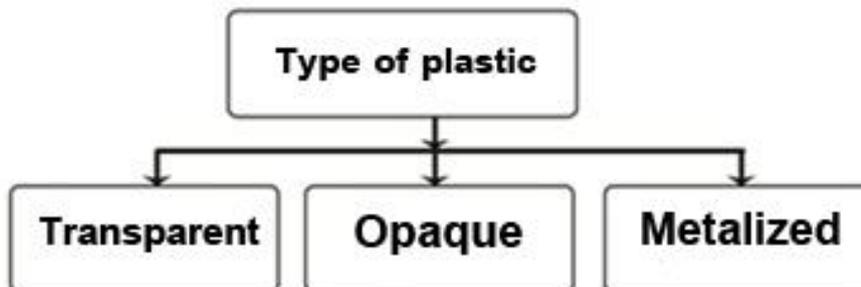
**Theoretical Study**

Labels materials are divided into paper and plastic raw materials depending on the type, shape and use of the label. Both paper and plastic materials are suitable for printing, but there are uses for paper labels that differ from the use of plastic raw materials. There are many types of labels. Both paper and plastic materials have characteristics that must be tested for using

The paper materials used to print the label can be classified into

**Chart:1**

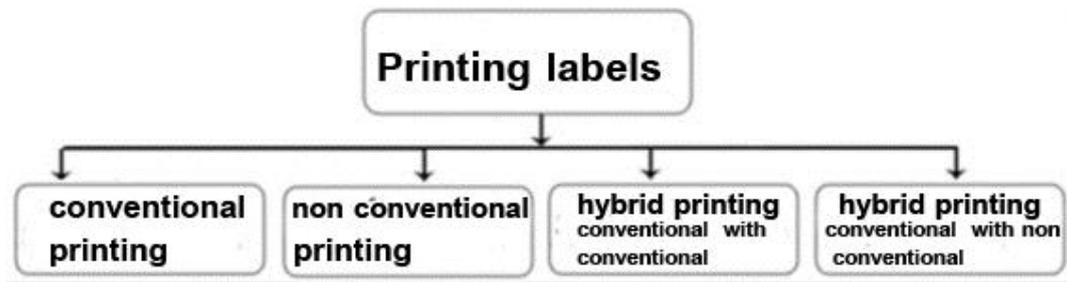
The plastic materials used in the production of labels can also be classified into

**Chart:2**

label Printing Systems

The labels are printed in traditional ways. They use a single printing method to produce labels, but because of the advantages of different types of printing, this leads to the use of more than one method to print the labels to add the features and also as a kind of insurance cards for the difficulty of imitating them is considered the identity of the manufacturer of the product.

Machines that combine two printing methods or more according to the customer's request and according to the needs of cards with different drying systems to work on all kinds of inks and different materials.



### Chart:3

#### Traditional label Printing Systems

##### Flatbed printing:

Is the printing in which the feeding of the sheets in which the final form is a single label where the labels are repeated in the appropriate form that does not lead to a high loss in the paper is used to feed in the labels in the labels of small quantities, whether the previous coverage with adhesive or cards without adhesive is Add adhesive during installation and this technique is not suitable with plastic materials?

##### Semi -rotary printing:

labels printing requires the continued distance between labels due to the use of machines based on the distance to install the labels on the packaging so as not to occur the transfer of place labels on the packages of irregular shape, as the rotary printing requires the change of cylinders printing according to the repetition of the print that achieves less waste in paper It takes longer because the printing is continuous. The proper repetition is used on the machine cylinders without changing the cylinders. The machine makes a repetitive movement so that the repetition is compatible with the paper so that the printing is continuous and used in the labels with Few quantities that sometimes take print processing more than the print time.

##### Advantages:

- 1- Reduce processing time.
- 2- The printing speed ranges from 50-75 m / min.

Where the semi rotary is repeated for printing and then the material is retracted as it corresponds to the surface again and then the printing is completed as the areas that do not contain the surface of the printing on the cylinders do not affect the material and does not print

##### Rotary printing

It is considered the fastest printing systems used as the continuation of printing non-stop where the continuous feeding of all elements used in printing, but the processing takes longer than other printing methods as the printing is continuous so the availability of the cylinders until the compatibility of the repetition of the design and the continuation of printing to be less waste where the cost of the cylinders is high cost

## Experiments

### Print the same design on different materials

Print the same design on plastic coated paper and on plastic



Plastic

Plastic coated paper

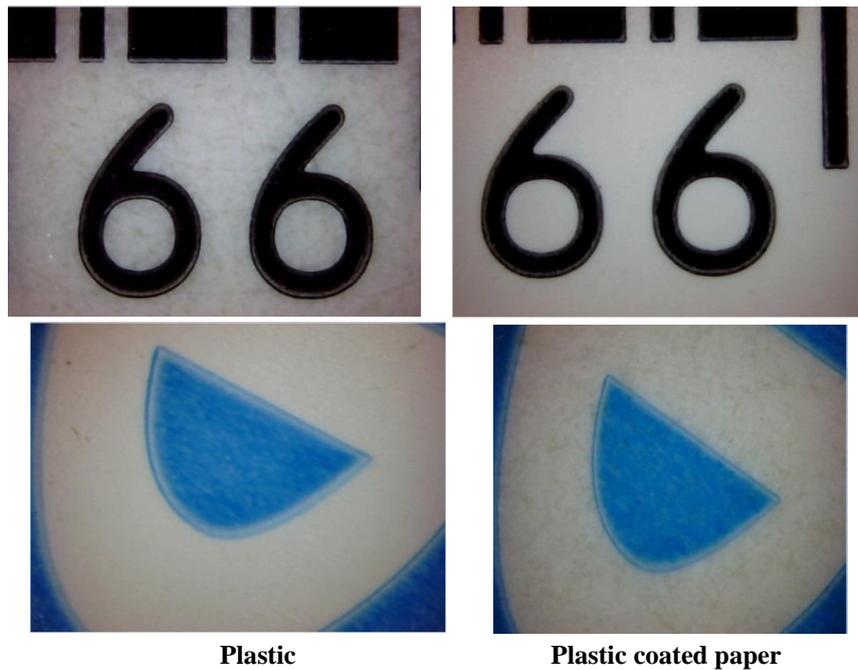
Fig: 1

Condition of printing on plastic coated paper

Color	Anliox (Lpi)	Gram/m2
Orange	200	6.9
Pantone 256	120	10
032	500	2.1
Pantone 3252	400	4.5
Black	500	2.7
Adhesive u.v	120	10

Condition of printing on plastic

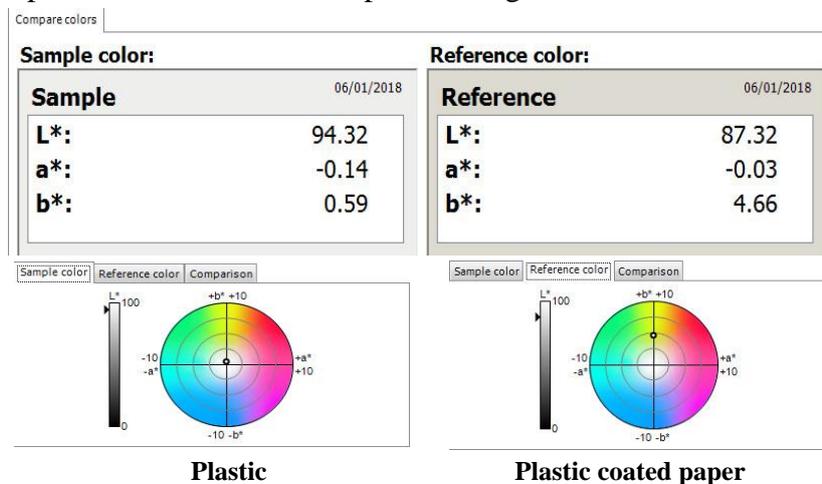
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**Fig: 2**

**Through optical measurements**

The plastic materials are characterized by a higher reflection of plastic coated paper that contain the cellophane, which works to disperse the light.



**Fig: 3**

The plastic materials are characterized that don't contain pores in the paper materials that affect the colors as well as the quality of the printed in general

**Conclusion**

1. Using good material give high quality of production
2. -the type of adhesive deviation of the type of using
3. using traditional printing or digital printing or merge them in one product
4. using rotary printing or semi rotary printing for mass production label and using flatbed printing or digital printing for less quantity
5. using hybrid printing to secure labels and products  
variable data of labels can be printed by digital printing

## المراجع

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