

BRANDMAKERS

ANTICOUNTERFEITING SPECIALISTS



www.brandmakers.com.pk

Brandmakers Anticounterfeiting Specialists:



Brandmakers has already a strong reputation as a trusted global supplier for the printing industry backed by fifteen years of experience. It is always our mission to introduce innovative new printing technologies, machines, allied products and processes which are launching in the international market. We are in fact a team of professionals strongly relying in robust in-house R&D.

It is only due to our customers trust around the globe and our urge to innovate allow us to further diversify our business by launching state of the Art Anticounterfeiting techniques. These techniques are on one hand very appealing in presentation and on other hand very difficult to copy. We are proudly the first Company in Pakistan who took Brand protection techniques seriously and launched a variety of methods to secure them. According to a reliable source counterfeiting in Pakistan is around 50%-60% on various popular Multinational and local brands. That's why we took it as a national cause to stop counterfeiting practices.

We are proud partners in innovations by offering these techniques to printing giants in Pakistan like **Vantage Printers, Topical Printers, Nisar Art Press** and many others. Whether it is Anticounterfeiting through Metallized Substrates or inclusion of Nano technology customers rely and trust us.

Our approach to keeping your brand secure and ahead of the criminal element means working with you to create a unique, multi-faceted security strategy. Our custom designed programs consist of reliable product authentication labels and industry-leading digital technologies and services to effectively counteract the threats affecting your brand. With our globally-secure supply chain, unwavering commitment to integrity and in-house research and development capabilities, our solutions deliver maximum value and exceed your expectations.

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What is Counterfeiting:

To counterfeit means to imitate something. Counterfeit products are fake replicas of the real product. Counterfeit products are often produced with the intent to take advantage of the superior value of the imitated product. Counterfeit products tend to have fake company logos and brands. The word counterfeit frequently describes both the forgeries of currency and documents, Packaging as well as the imitations of clothing, handbags, shoes, pharmaceuticals, aviation, cosmetic brands and automobile parts, watches, electronics (both parts and finished products), software, works of art, toys, movies etc.

1. Introduction

There are a great many anti-counterfeit technologies available to manufacturers and brand owners, ranging from the very simple but effective, through to the highly sophisticated and extremely secure. The majority can be implemented on one or more of the packaging components, but some features can even be applied at the product level, either by direct marking or by using physical or chemical markers within the formulation.

The purpose of an anti-counterfeit feature is primarily to enable the authentication of an item, by government, industry investigators, or ideally, by the wider public. The second function may be to act as a deterrent to anyone considering counterfeiting a product based on the difficulty or cost involved set against the likelihood of detection, and therefore prosecution. It must be stressed that security devices on packaging components provide no assurance as to the authenticity of the contents, which may have been substituted or adulterated. Security devices alone do not reduce counterfeits, but are designed to make them easier to detect.

Anti-counterfeit technologies can be broadly classified as follows:

- Overt, or visible features
- Covert, or hidden markers
- Forensic techniques
- Serialisation/Track and Trace



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2. Anti-counterfeit Technologies

2.1 OVERT (Visible) Features

Overt features are intended to enable end users to verify the authenticity of a pack. Such features will normally be prominently visible, and difficult or expensive to reproduce. It should be noted that overt features can add significant cost, may restrict supply availability, and require education of end users to be effective. Where overt features are used, experience is often that counterfeiters will apply a simple copy which mimics the genuine device. They also require utmost security in supply, handling and disposal procedures to avoid unauthorised diversion. They should be applied in such a way that they cannot be reused or removed without being defaced or causing damage to the pack – otherwise genuine used components may be recycled with fake contents, giving a false impression of authenticity. For this reason an overt device might be incorporated within a Tamper Evident feature for added security.

2.1.1 Security Holograms

Holography is three-dimensional laser photography. The hologram is a true, three-dimensional record of the original object. It contains depth and parallax, which is the ability to see around the object to objects placed behind. The word, hologram is composed of the Greek terms, "holos" for "whole view"; and gram, meaning "written". A hologram is a three-dimensional record of the positive interference of laser light waves. Worldwide, counterfeiters rob almost US\$ 300 Billion of legitimate business turnover! This is a seriously threatening issue - while the counterfeit product absorbs your goodwill, it passes on its own shortcomings to your products. The results can be disastrous. Several deaths (of people and brands) have been reported due to a counterfeit product.

Probably the most familiar overt feature is the "dove" hologram which has been used to protect credit cards for many years. A hologram normally incorporates an image with some illusion of 3-dimensional construction, or of apparent depth and special separation. Holograms and similar optically variable devices (OVD) can be made more effective when incorporated in a tamper evident feature, or as an integral part of the primary pack (e.g. blister foil). They can be incorporated into tear bands in overwrap films, or as threads embedded into paper substrates. However, some hologram labels have been easily and expertly copied or simulated, and may often rely on hidden covert elements for authentication.

Products Range:

- 2D/3D Hologram Sticker.
- Dot-matrix Hologram Sticker.
- Deep 3D Hologram Sticker.
- Scratch-off Hologram Sticker.
- Common Type Pattern Release Hologram Sticker.
(For eg. Honey-comb Pattern, VOID, ORIGINAL, SECURITY, CONTROL and etc.)
- Customized Pattern Release Hologram Sticker.
- Multi-Channel [Flip-Flop] Hologram Sticker.
- OCRE Hologram Sticker.
- Laser Covert Image Hologram Sticker.
- Tamper Evident Hologram Sticker.
- Encoded Image Hologram Sticker.
- Demetallized Hologram Sticker.
- Serial Number Hologram Sticker (Black or Transparent Laser Numbering).
- Micro-Text Embedded Hologram Sticker.
- Nano-Text Embedded Hologram Sticker.
- Fragile Hologram Sticker.
- General Pattern Hologram Sticker.
- UV Protected (Invisible Ink) Hologram Sticker.
- Temperature sensitive Sticker.
- Etc.

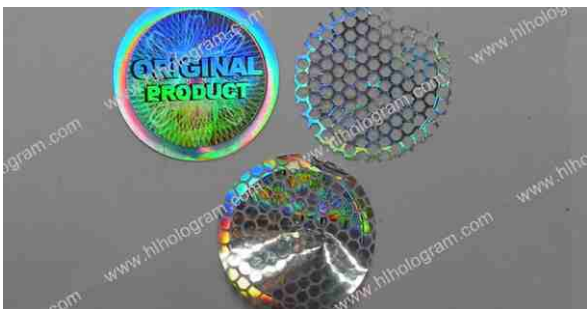
Features:

- 2D/3D, Dot-matrix and Deep 3D Technology..
- Holographic effect with security and anti-counterfeiting characteristic.
- Self-adhesive.
- Good vivid and sparkling visual, easy to captivate consumer eyeball and increase market share.
- Distinguish and protect your brand.
- Upgrade your package, make your products high class.
- Additional security function on the hologram sticker will shut the door upon counterfeiter.
(For example invisible ink, hidden image/text, laser numbering and etc.)
- Customization according to customers need.



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Pictures of different security Holograms:



2.1.2 Optically Variable Devices(ovd):

Building up a brand costs millions - protecting it costs only a fraction of this. Optical security features from protect your image and offer an effective defence against counterfeiting. These economical and widely-used features ensure that genuine products stay genuine.

To prevent loss of sales and damage to your image, effective product protection is becoming more and more important - for example, through optically variable security features from us. OVDs also includes a wide range of alternatives devices,similar to holograms,but often without any 3D component.Generally they involve images,flips or transitions,often including colour transformations or monochromatic contrasts.

Like holograms they are generally make up of transparent film which serve as image barriers plus a reflective backing layer which is normally a very thin layer of aluminium.Other metals like copper may be used to give a characteristics hue for specialists security applications.

Extra security may be added by the process of partial demetallization,whereby some of the plastic layer is chemically removed to give an intricate outline to the image as can be seen on many bank notes.

2.1.3 Colour Shifting Security Inks and Effect Varnishes:

This is also one of the most Popular and effective way for Brand protection.It not only enhance the printing effects but also secure them.It has two fold benefits.

a-Value addition which ads beauty and esthetics in finishing.

b-Expensive & difficult to reproduce.

There are many popular types of inks andUV varnishes some are offset and some are screen.

- 1-Infra Red extinction Inks
- 2-Ultraviolet Flourescent inks
- 3-Temperature Sensitine Inks
- 4-Opticale Variable Inks
- 5-Water Mark Inks
- 6-Solar Discoloration Ink
- 7-Soaking Discoloration Ink
- 8-Magnetic Ink
- 9-Texture UV Varnishes

- 10-Embossed UV Varnish
- 11-Luminous Ink
- 12-Snow UV Varnish
- 13-Pearl Ink & UV Varnish
- 14-Refractive UV Varnish
- 15-Franfrant Inks & Varnishes
- 16-Metallized UV Inks.
- 17-Hybrid Coatings & Inks(Drip Off)

2.1.4 Security Graphics

Fine line colour printing similar to bank note printing incorporating a wide range of overt and covert design elements such as guilloches, line modulation and line emboss. They may be used as background in discrete zone such as an over print area, or as a complete pack graphics and can be printed by normal offset lithography, or for increased security by intaglio printing. Subtle use of pastel spot colours makes the design more difficult to scan and reproduce and security is further enhanced by the incorporation of covert design elements, such as microtext and latent images.

2.1.5 Metallized Packaging Substrates:

Using metallized substrates in packaging specially in Cosmetic, Auto Parts and Pharmaceutical Industry is very popular these days. It adds gloss, luster to the package very complicated and expensive to copy. It also adds the shelf life and shelf beauty which attracts the customers. These packaging boxes are produced using different Transfer and Laminated films, foils and boards. It needs special and costly equipment, inks and materials to produce the job.



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2.1.6 Hot Metallized Foils & Seals:

The new features provide an increased level of product protection and a wider choice of optical effects for brand owners looking for a flexible brand protection program closely tailored to individual brand and market requirements. There are variety of metallized hot foils available in different colours and finishes and LOYALTY SEALS which can be used to protect your brand.

LOYALTY SEALS® meets the three main criteria of an effective security feature:

- easy to describe
- easy to identify
- difficult to copy / imitate

The level of security can be adapted to the needs and particular set of requirements of the manufacturer by means of numerous extra elements. some of the types are ,Image Flip, Grayscale Image, Nano text, Various Colour Flips, etc.

2.1.7 Sequential product Numbering:

Unique sequential numbering of each pack and label in a batch can make counterfeits easier to detect in the supply chain. If printed visibly, it provides a semi overt means of authentication by reference a secure database because duplicates and invalid numbers will be rejected. The main disadvantage of sequential numbering is that sequence is predictable and easily replicated and end users requires some means of access to database. The more secure option in serialization by means of a pseudo-random non repeating sequence.

2.1.8 On Product Marking:

On product marking technologies allow for special images or codes to be placed on the products packed inside the package. These overt technologies can be difficult to replicate and offer a security technology at the product bottle or other carrier level. This added layer of security is effective even products are separated from the original package.

2.1.9 Nanotechnology:

In the recent years, the printing industry has begun experimenting with nanotechnology, from printing inks to the printing process.



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Nano-Based Printing Application

The following are the key areas in printing where nanotechnology is applied:

- Traditional printed coatings such as varnishes have been provided with scratch resistance properties.
- Holographic films which are Nano embossed ideal for security printing. It requires special equipment and technique (Cast and Cure Application).
- Inks with nano-particles and structures can be used in most printing processes including printed electronics
- Inkjet inks require small particles in their formulation especially for dyes and pigments, and thus benefit greatly from nanotechnology. Researchers state that the inkjet printing technology is growing side by side with the development of nanomaterials.
- Nano and micro materials that have been inkjet printed are also used for photochromic and electrochromic visual effects and markers, flame retardants, conductive graphites and metals, antimicrobials, magnetic materials, enzymes and other biomaterials and liquid crystals.
- Nanomaterials are printed on a range of substrates for making RFID labels and tags, luminescent displays using organic light emitting diodes (OLEDs), flexible batteries, sensors and solar energy cells.
- Nanomaterials in both traditional and inkjet inks are being used for anti-counterfeiting, security, and brand protection purposes. This area is gaining in popularity and has wider scope.
- Exfoliated nanocomposite of silicates in a polymer solution can be printed as a barrier coating for products such as foodstuffs. Sun Chemical, a company in the UK, states that it helps to reduce oxygen transmissions levels than other traditional packaging barrier materials, and provides excellent barrier properties. This coating can be easily applied using traditional methods.

Challenges

Although the prospect of using nanotechnology in printing seem very promising, there are several challenges that the industry need to overcome for this concept to be recognized and accepted globally. Nanotechnology is still viewed with a lot of apprehension by many nations. The biggest area of concern is its effect on health and safety. European legislators and regulators especially are very stringent about the use of nanomaterials. Due to the stringent regulations, many European companies want their suppliers to inform them about the use of nanomaterials in products including packaging materials. Those involved in current and new printable nanotechnologies need to pay attention to the laws and regulations prevalent in this regard in various countries.

Another challenge facing the industry is the costs associated with the research and development of nanomaterials in real world applications.

For future progress in nanoprinting, researchers, printing industry players and government legislators will need to work together to find feasible and safe solutions for nano-based printing to have a global impact.

2.1.10 Cold Foil Stamping:

This is one more expensive technique for brand protection. It needs special equipment, material and technical know how. Contrary to traditional hot foil process. It applies brand new stamping technology to transfer foil. The paper sheet is either passing through rollers or delivered and peeled by grippers to achieve metallic decoration effect.

Overt Features:

Advantages:

- Users Verifiable
- Newer Technologies more secure
- Can add decorative appeal
- Can be deterrent to counterfeiters

Disadvantages:

- Require users education-not always widely understood
- May be easily mimicked
- May add significant cost
- May rely on covert features for authentication
- May be reused or refilled
- May give false assurance.

General Conclusion:

Overt features represents an attempt to put an authentication in to the hands of the general public. However to be effective they demand public education and awareness which is difficult in most challenged developing markets. It should also be noted that the most widely used one overt security technology becomes, the more attractive it is for counterfeiters to defeat it.

2.2 Covert(Hidden) Features:

The purpose of covert feature is to enable the brand owner to identify the counterfeited product. The general public will not be aware of its presence nor have the means to verify it. A Covert feature is not easy to detect or copy without specialist knowledge and their details must be controlled on a need to know basis. If compromised or publicized most covert features will lose some if not all of their security value. For this reason it can not be disclosed in detail in our website. It is strictly customized and confidential.

Examples includes:

- Invisible printing
- Embedded Image
- Digital Watermarks
- Hidden Marks and printing
- Anti-copy or anti-scan design
- Laser 3d coding
- Adour

Covert Features:

Advantages:

- Can be simple and low cost to implement
- Needs to regularly approval
- Can be easily added to and modified
- Can be applied in house

Disadvantages:

- Need strict secrecy
- If widely known or used than easy to copy
- More costly and complex

General Conclusion:

Covert features are most effective in the hands of industry specialists. They are very effective investigative tool, but a counterfeiter will be able to copy many of the simpler features unless they are skillfully applied and their details are kept secret. However there is unlimited scope to the possibilities, given imagination and ingenuity on the part of technologist and designer, and the cost can be minimized or even eliminated if applied in-house. In-house application also has advantages of limiting involvement of third party suppliers, who may not be trust worthy in some environment. Only the most secure covert features can be safely used in an overt context, and these generally come under the next heading of forensic markers.

2.3 Forensic Markers:

There is wide –range of high technology solutions which require laboratory testing or dedicated field staff kits to scientifically prove authenticity. These are strictly sub-set of Covert technologies but the difference lies in the methodology required for authentication.

Examples include:

- Chemicals Taggants
- Biological Taggants
- DNA Taggants
- Isotope Ratios
- Micro-taggants

Forensic Technology:

Advantages:

- High tech and secure against copying
- Provide positive authentication
- May be disclosed for Overt purposes.

Disadvantages:

- Licensed technology usually limited to one source
- Significant cost
- May be difficult to implement and control across many markets
- wider use increases risk of compromise
- Unlikely may be available to authorities and public

2.4 Serialisation/Track and Trace Technologies:

A number of Track and Trace applications are under development specially for pharma industry, although the principles have been established for many years in other contexts. These involve assigning a unique identity to each stock unit during manufacture which then remain with it during supply chain until its consumption.



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2.4.1 Serailisation:

In itself the Track and Trace label may not be immune to copying or falsecification, but its security is greatly enhanced by inclusion of unique and apparently random serialization or non sequential numbering ideally at individual item level. If the serailisation was sequential than the level of security will be very low as the sequence is predictable whereas random serialization using a highly secure algorithm or method of encryption overcomes this. Where secure serialization is applied visibly to a pack, then it may be authenticated by customers via a telephone or internet link to the database.

There are two main vehicles for the incorporation of unique pack data in order to facilitate automatic data capture.

2.4.2 Barcodes:

These are high-density linear or 2 dimensional barcodes incorporating product identity dpwn to unit pack level, which are scanned and referenced to the central database. One popular implementation is the 2D data matrix code .A 2 d code can be a typically a 1cm square or smaller and yet contains up to 1kb of data with some Redundancy or error correction. There are some barcodes which are first scanned by anaroid mobiles with specific apps to reveal the secret coding after scanning.

Covert (Hidden) Features

The rationale of a covert feature is to aid the brand owner to recognize a counterfeited product. The general public will not be aware of its presence nor will have the resources to confirm it. A covert feature should be difficult to sense or copy without the specialist knowledge.[4] Covert features include microscopic particles of specific colors and labels printed with color combinations.[34]

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