DETECTING FAKE MEDICINES (and other fake products)

The

Counter-fight

system

CryptoCodex Ltd.

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MEDICINES PROTECTION

In medicines and food supplements,

a double health hazard exists:

- **Either an imitation contains non-active ingredients,**

OR:

- **Harmful materials may be ingested by the patient**

Healthcare – cont.

- In both cases, the patient is subject to health risks
- In addition to the manufacturer, experiencing profit loss and the patient, who risks his health:

The Health Authorities are keen to identify and isolate the danger and its cause.

The Solution

- Mark each product by a unique, non-reproducible, method
- Have a thorough stream of product I.Ds flow back to the original manufacturer
- Encourage the public to authenticate the products they have purchased
- Track fake products and identify their distributors and source

An example, how can 'Counter-fight' fit on the medicine package, along with the standard commercial barcode

CRYPTOCODEX

THE TOOLS...

PDF417

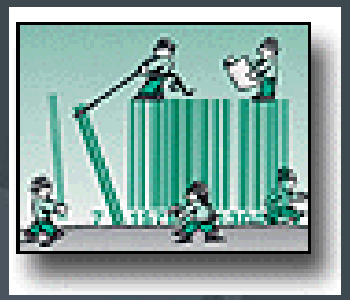
The Encryption Technique

- The group has developed a unique encryption algorithm
  - Counter-Fight is 'CHAOTIC', non-mathematical
  - The KEY is a PHR (Pure Human Random) type
- The resulting encryption is of extreme strength
- Experts attempts to 'break' it - failed
- The technique was registered as an international patent, presently at its pending stage

The Encryption - explanation

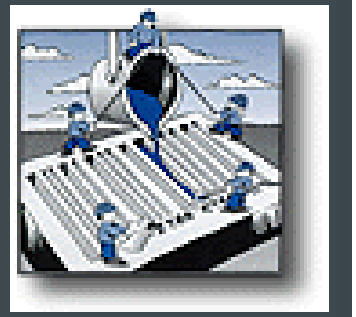
- Originally, the data in the left bottle is meaningful
- Shaking the bottle will cause data encryption
- The only way to decrypt the data is to reverse each and every sand particular path
- No Algorythm was involved – thus, no way to break the system
- Any success in decrypting part of the data is meaningless for the rest of the information, as no mathematical methods are involved
- Encrypted data volume did not change
- Any attempt to further move the sand particulars, will ‘deepen’ the encryption – away from a solution…

The BARCODE Technology



- The Barcode Technique is widely used in industrial and commercial applications
- Label printing costs are negligible
- Scanning and reading hardware is reasonably priced
- A 2-D barcode can maintain hundreds of characters. Size may be reduced to several millimeters
- Counter-Fight low-size data encryption is the **only** method to fit on a barcode

Utilization of Barcodes



- **Unlike standard barcoded products for cash register sales,**

  each package of the product to be protected, will bear a UNIQUE barcode label
- **Result: Each package will become UNIQUE**

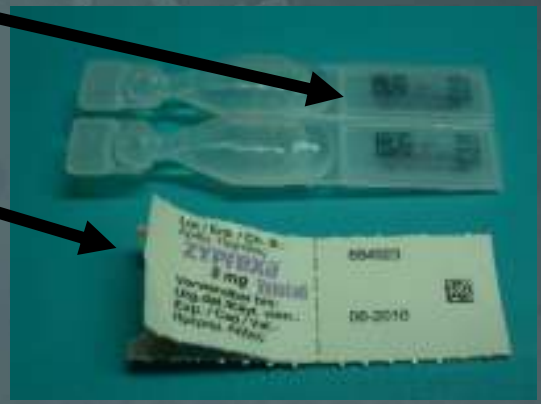
  and no two labels will ever co-exist

Labels may also be set
on the blisters

Utilization of 2-D Barcodes

Reputable manufacturers already started to mark their prod

- Colgate
- Eye drops
- Eli-Lilly
- Pfizer



Example

The following, meaningful, data:
07010682222501080331067071736 6
The string holds the following data:

Date	6 digits
Plant ID	2 digits
Batch	4 digits
Country Code	2 digits
Expiration	6 digits
Serial	10 digits

Turns into an output string:

070A07030301060E0E020A07000D0D060A06070F020A020808000A0E0F08

Inspection

- Have the manufacturer inspectors, and/or the authorities representatives, collect products I.D. data and transmit it

  (via encrypted Internet messages)

  to an authentication center(s)
- Make the public become your ‘million eyes’

Specialized Inspectors

- Inspectors in the field, equipped with hand-held terminals and barcode scanners, accumulate data at product point-of-sale
- Inspection can take place anywhere along the distribution chain
- Data is collected on a ‘Blind’ basis
- On a daily basis, data is sent to the manufacturer’s center, via the Internet
- Data is validated and frauds are detected
- A fraud is associated with the site where data was collected

‘Million Eyes’

- **A simpler code may be printed on the product packaging (not necessarily identical to the barcode content)**
- **The simple code resembles software activation process (easy to be typed)**

  e.g. XVZ132 - 564AWR – 947208 - AWB689 - BBS412

  Customers are encouraged to enter a WebSite and type-in the simple code

  Customers are offered benefits, should they lead to a counterfeit source

Imitators options

- Imitators cannot reproduce authentic barcode I.D.s

Therefore:

1. They can print a meaningless barcode:

Fraud detection is immediate, by the first read package

Or:

2. They can copy and print one authentic label a million times

They increase by million fold the chances of fraud detection, as the second identical label will disclose the fake

Imitators life will become very difficult,

as country information is contained in the encrypted data and cross checked with data received from the field.

Not mentioning the 'GREY MARKET'… yet.

The Authentication Center

- To protect the encryption mechanism and key, the authentication system should be kept in a well protected site
- Setting multiple authentication centers is feasible
- The process resembles drawing money from ATMs (Automatic Teller Machines)

Some added values…

- Should medicines robbery occur (warehouse burglary, stolen truck, etc.)

  the **unique product marking**

  serves as an identification tool, by assigning all stolen I.D.s to a worldwide black list

- When the stolen goods return to the market, Inspectors' or Customers' data entry will disclose the stolen product and assist in tracing its sources

‘Grey Market’ Prevention

As destination country is encoded in the encrypted barcode:

‘Under the counter’ goods shifting (between countries)

is easily detected by the manufacturer,

thus exposing any breaching of manufacturer’s policies

Expiration date is retrieved during the authentication process.

Customer’s attention is drawn…

ePEDIGREE readiness (1)

Most vendors are susceptible to security issues, by utilizing weak anti-counterfeit techniques

'Counter-Fight' provides a strong authentication tool and a perfect ePEDIGREE plug-in.

Both reside in the same product

ePEDIGREE readiness (2)

The 2-dimensional barcode serves two missions:

- It holds the authentication data (extremely strong encryption)
- It provides the identification means to track the product along its way from the manufacturer to the end-user, as required by the ePEDIGREE model

At each desired point, along the distribution chain, authentication and/or product location stamp can be recorded

‘Counter-Fight’ is the only one to offer ePEDIGREE tracking down to the patient home

Budgets

- Negligible costs are involved in printing a 2-D Barcode label
- Adding more than one label to the product should be considered, in order to increase protection
- Scanning hardware is reasonably priced

Day-to-day costs involve:

- Initial organizational setup
- First time label preparation
- Pay-by-Use, per product verification