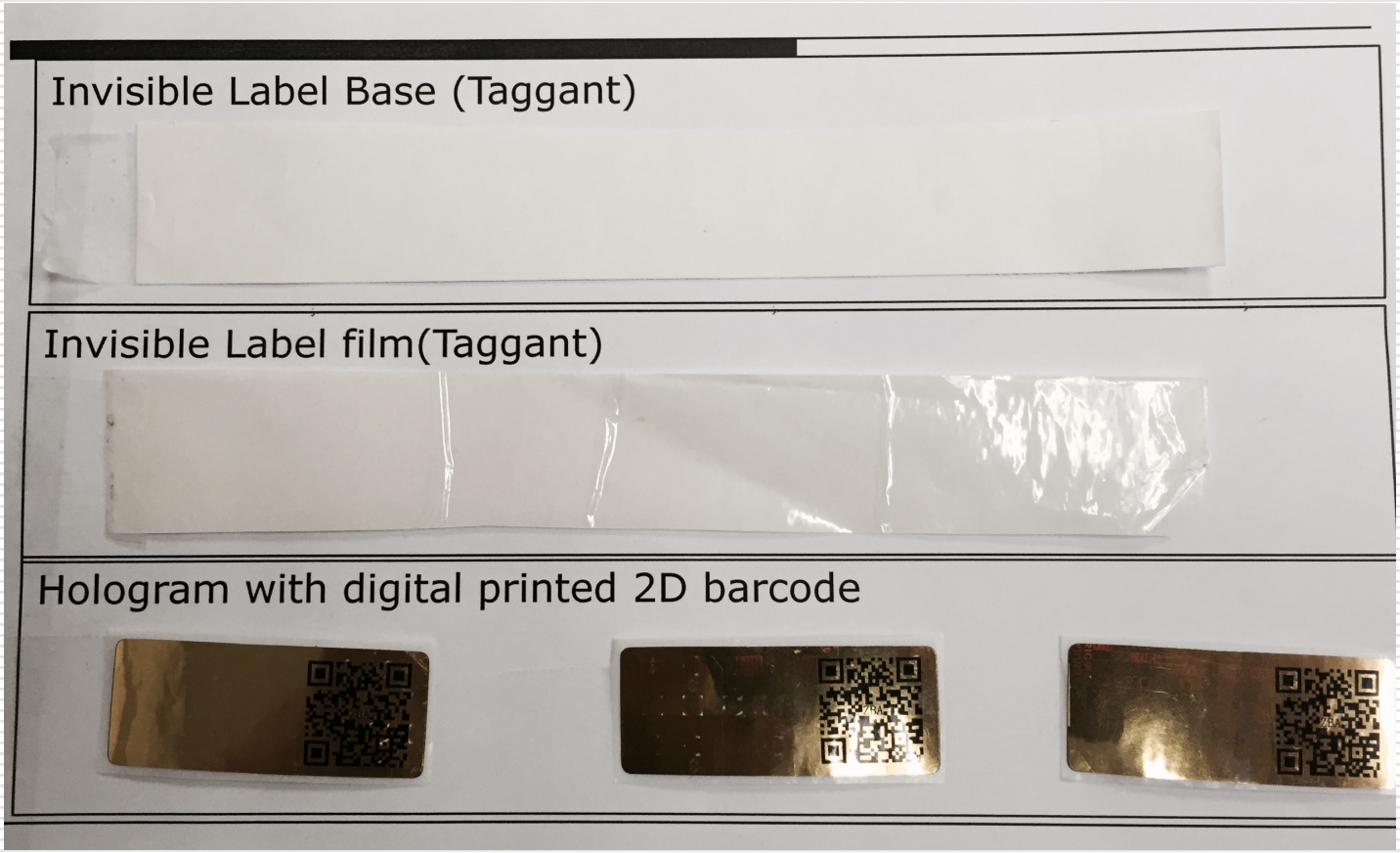
Lepton-id

Taggant Overview

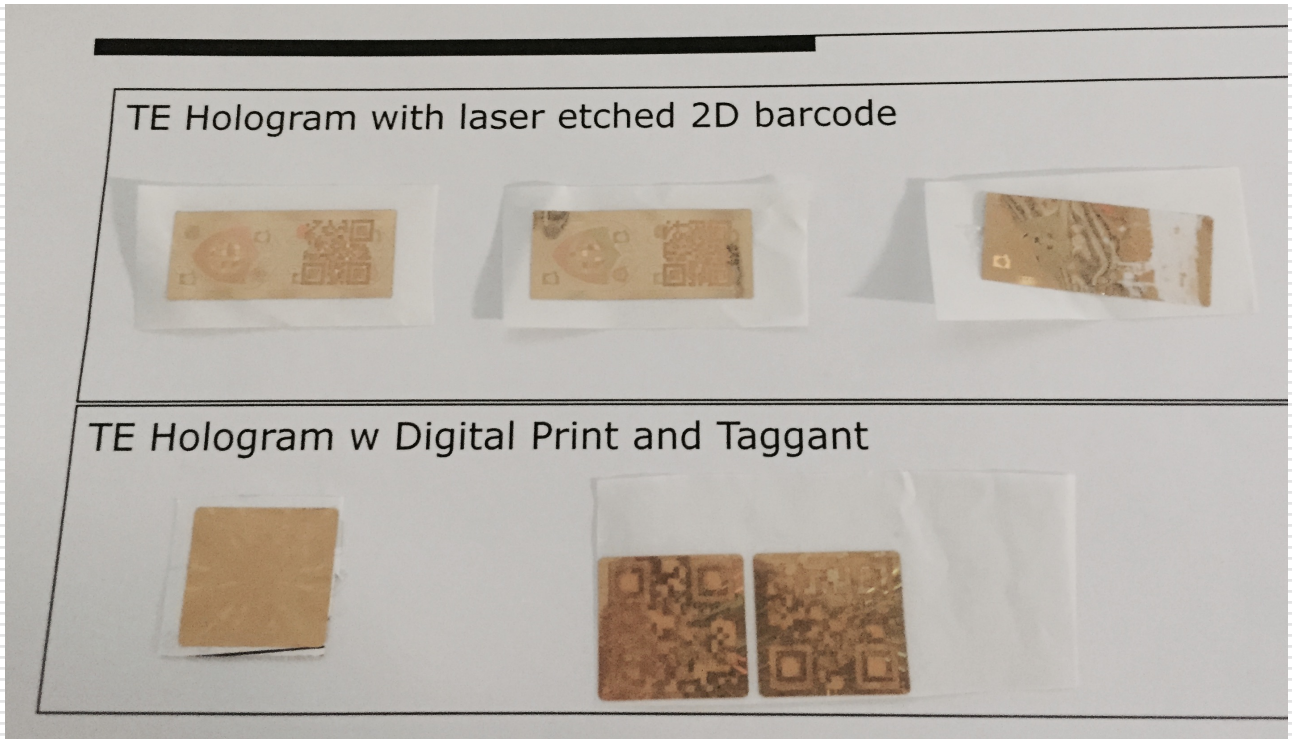
Demonstration

1. Invisible Label Base
2. Invisible Label Film
3. Hologram with digital printed 2D barcode
4. Tamper Evident Hologram with Laser Etched 2D barcode
5. Tamper Evident Hologram with Laser Etched 2D barcode and Taggant
6. Taggant Viewer Terminal
7. IR Laser pen
8. Taggant Detector (Audible and Visible)
9. Demonstration of low cost VI1170 Anti stokes detector
10. Demonstration of invisible label base (IR) using VI3800 terminal
11. Demonstration of coated and uncoated thread
12. Demonstration of logo on shirt with coated and uncoated taggants
13. Invisible Label base detection

EXAMPLES


Invisible Label Base (Taggant)
Invisible Label film(Taggant)
Hologram with digital printed 2D barcode

EXAMPLES Continued



Sample Taggant Locations

Embedded in Pkg.

Embedded in Ink

Sample Taggant Locations

Embedded in Pkg.

Embedded in Ink

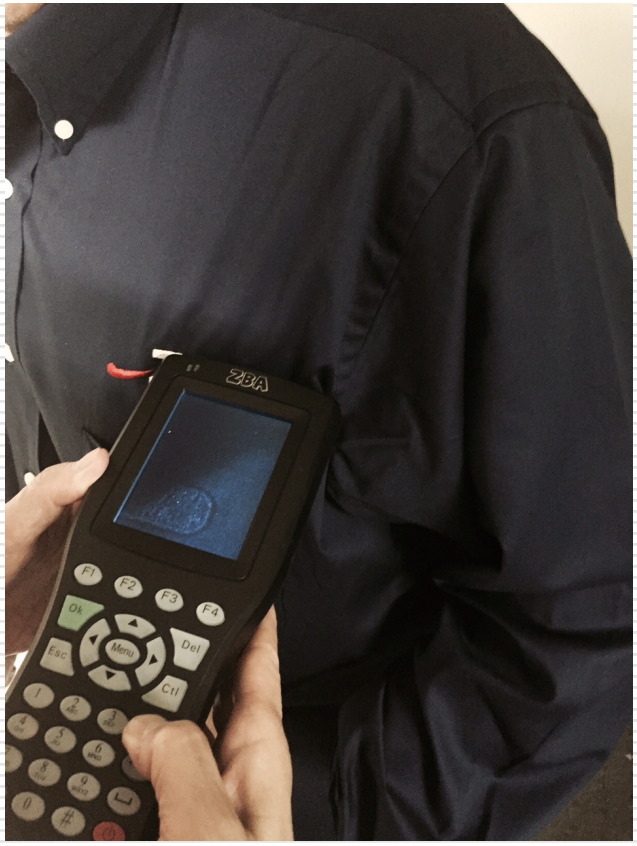
Molded in Top

Thread Example

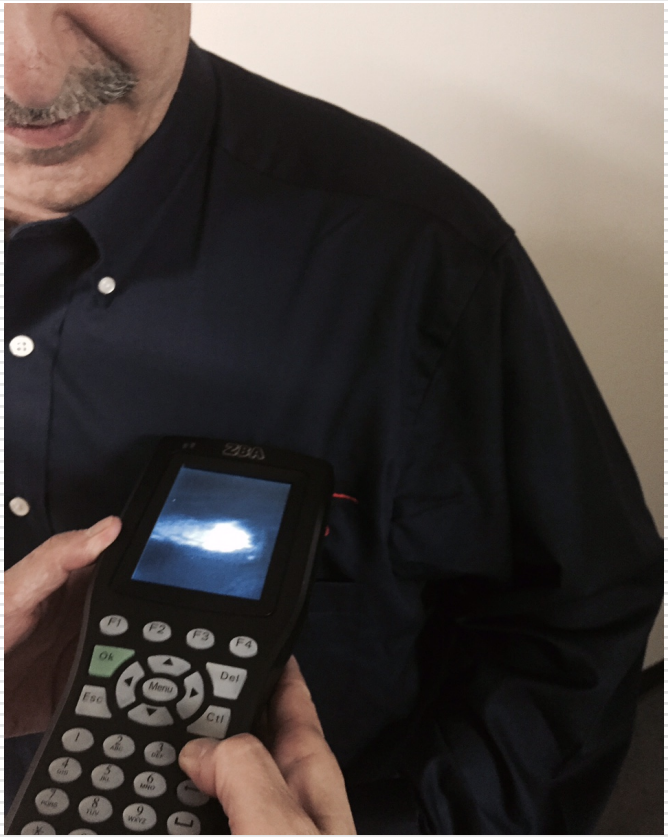
Thread Uncoated—no Taggant

Thread Coated—IR Organic Taggan

LOGO Thread Example



Logo Uncoated—no Taggant



Logo Coated—IR Organic Taggant

Our Solution

- Taggants
- Optical Detection
- Delivery Mechanism
- Track & Trace
- Invisible Bar Code
- Cloud Based Verification

Characteristics of Taggant

Taggant	Medium	Ease of Use	Environmental	Life
Organic	Soluable	Easy to print	Sensitive to UV	Shorter
Inorganic	Suspension	Silk screen and offset	Insensitive to enviornmental	Infinite
		Modified bubble jet		

Detection Optical Based

Detection Organic
Stokes conversion characteristics:
UV
Visible
IR

Detection In-Organic
Stokes and Anti-Stokes characteristics
-
Visible
IR

Stokes shift is the difference (in wavelength or frequency units) between positions of the band maxima of the absorption and emission spectra (fluorescence and Raman being two examples) of the same electronic Transition. It is named after Irish physicist George G. Stokes

Detection Capability

Detector 1

CUSTOMIZED TERMINAL

Detector 2

IR LASER PEN

Detector 3

TAGGANT DETECTOR AUDIBLE AND VISIBLE INDICATOR

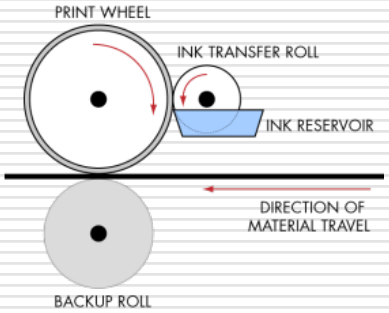
Delivery Mechanism

Delivery mechanism of Inorganic Taggant
Bar code
Hologram (Tamper evident)
Ink (UV Cure)
Injection mold
Embed into adhesive
Threads
Label Base

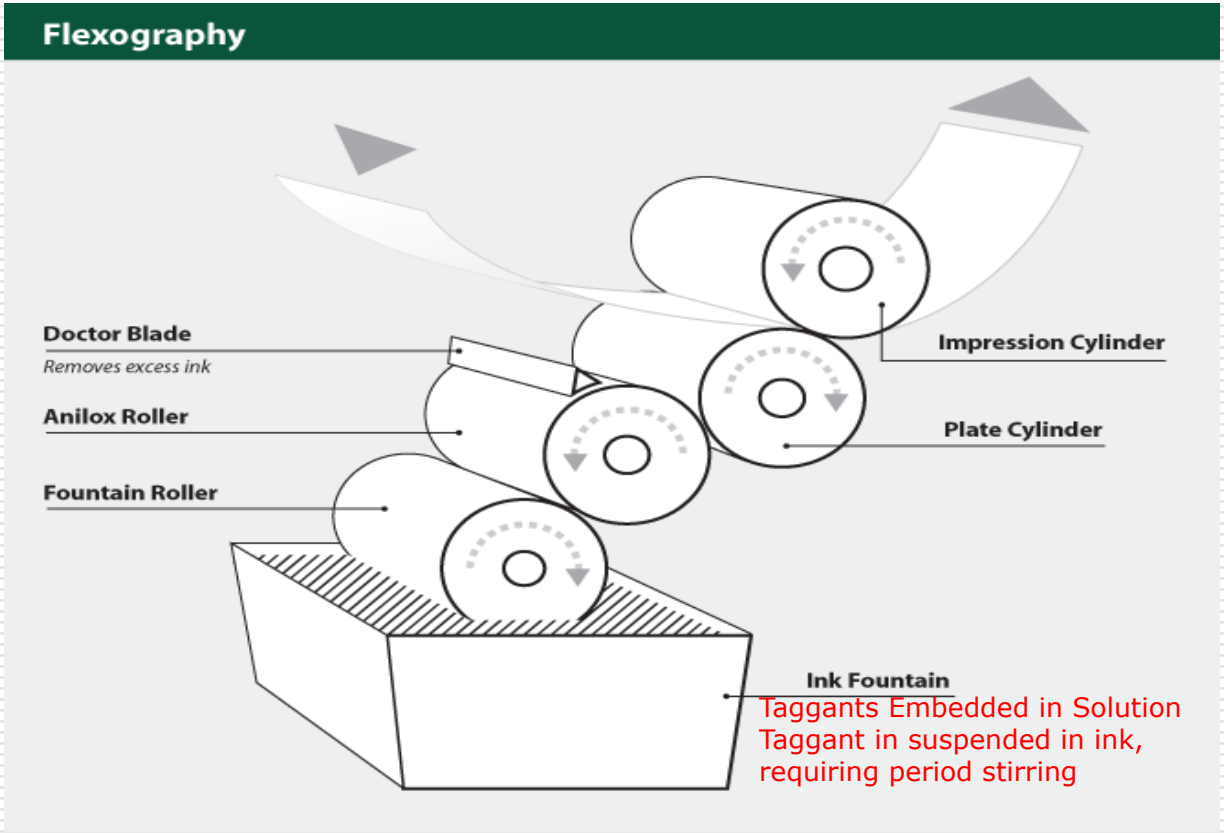
Delivery mechanism of Organic Taggant
Bar code
Hologram (Tamper evident)
Ink (Air or low level heat dry)
Label Base
Embed into adhesive
Threads

We prefer operating in IR range (detection by sophisticated electronics)

Flexographic Printing



Our Taggants in Ink



Our Solution

We produce a taggant that becomes a physical marker added to a multitude of materials to allow various forms of authentication.

Our nano particles organic or In-organic taggant compound is responsive in the IR spectrum.

We produce standard and custom detectors in the respective IR Spectrum.

Our solution allows marked items for verified qualities such as lot number, concentration and product genuine verification.

Comparison Organic vs In-Organic Taggants

Organic		In-Organic
Low cost		Low cost
Readily avaialble		Limited supplers and technically dificult to formulate
Easily to detect		Complicated to read characters
Human detectable with UV light		Total stealth to human
Easy to apply		Easy to apply
Most UV is organic		Most IR is in-organic
Limited life		Long life
Limited temp <600 C		> 1800 C
Dificult to verify		Capable of Forensic verification
Not customizable		Customizable morphology
Low temp -40C issues		Surviable to -55 C
No usueable for injection molding		Ok for Injection molding

Summary

- We can customized anti-counterfeit solution to your needs
- We have multi-level approach
- Scalable technology
- Viable technology for track and trace needs
- Applicable to various mediums
- Low cost
- Viable technology for Currency, Pharmaceutical, Military, Cosmetics, Apparel, Consumer etc.
- Complete solution (Made in USA)

Thank you