



“Design meets Brand Protection”

**Merck – An Innovate and Reliable Partner offering
Brand Protection Solution, applied in Printing & Plastics**

Merck KGaA, Darmstadt, Germany

1

The Brand Protection Problem

2

Merck Solutions for Brand Protection

3

Summary and Conclusion

Counterfeiting: A Global Problem!

Are You Sure, what's in the Containers?!



Affected Industries:

- Pharmaceuticals
- Tobacco
- Cosmetics
- Distilled Spirits
- Sensitive Food
- Luxury Goods
- Electronics
- Industrial parts
- Music, Films, Software
- Toys and Games
- ...

→ **basically all**

Situation today



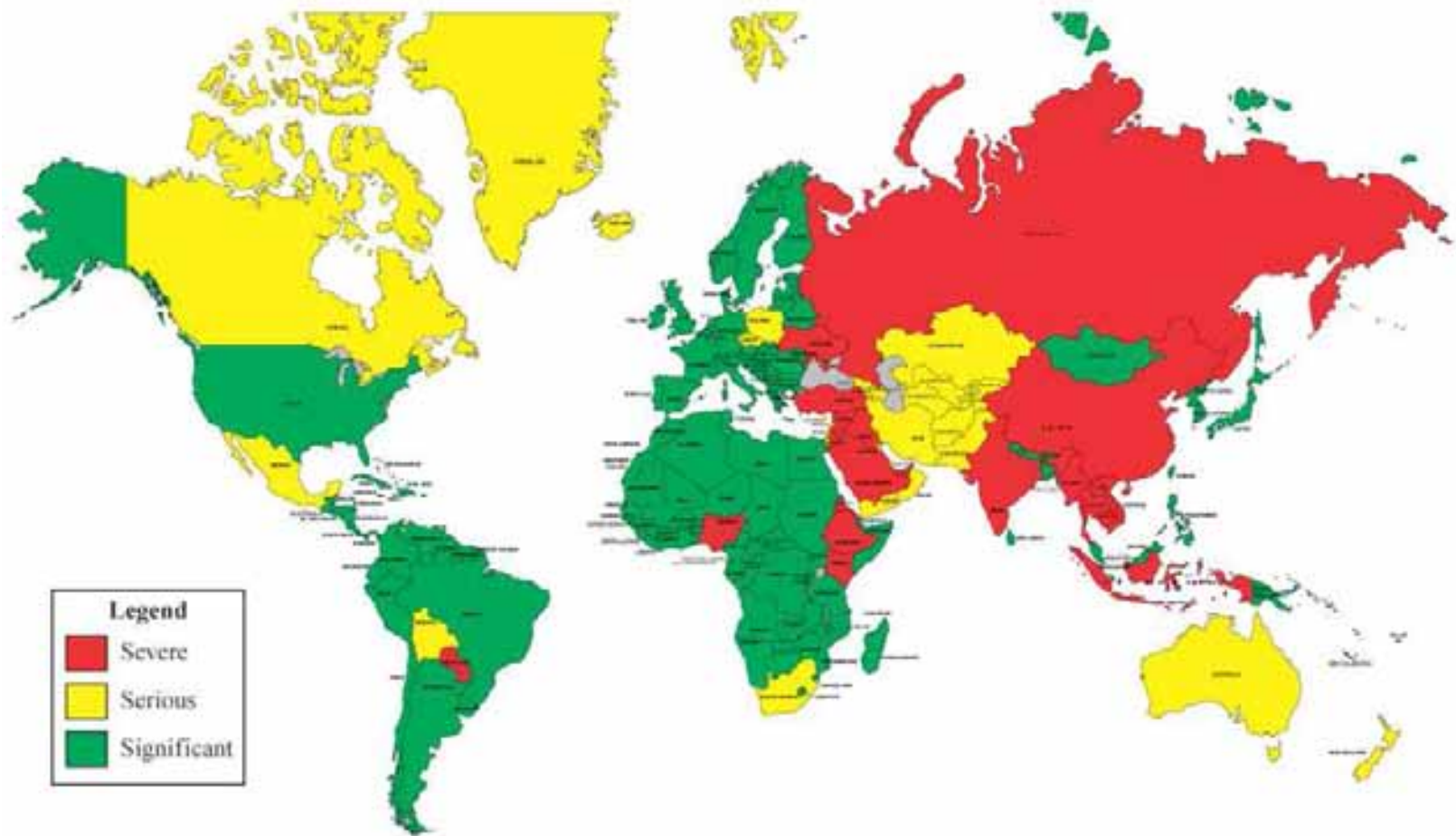
- 10 % of the world trade are fakes or copies
- World wide economic loss per year: EUR 200-300 billion.
(Germany: EUR 29 billion)
- World wide loss of jobs per year: more than 200.000
(Germany: 70.000)
- Most affected goods:
 - pharmaceuticals
 - cosmetics
 - Electronic equipment
 - OEM

Description of the Brand Protection Market

Global Counterfeiting Hotspots



Global Counterfeiting Hotspots



Description of the Brand Protection Market

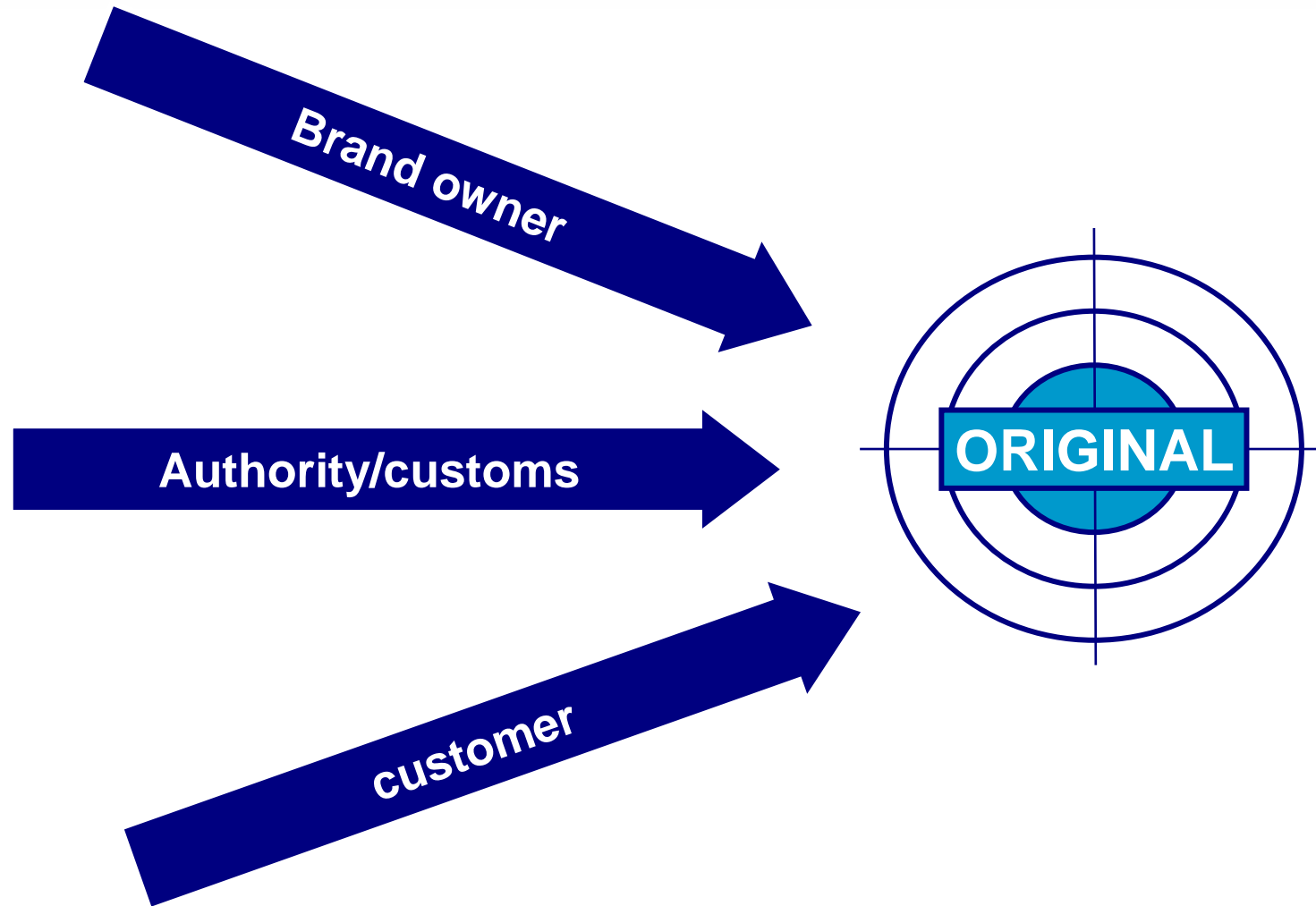
Characteristics of the Target Industries



- Brand owners often request a combination of different features
- What is requested from a security supplier:
 - ✓ Solutions of proprietary & effective product combinations which are difficult to counterfeit
 - ✓ Background as a trustworthy security supplier



Who is able to recognize?



Example



The board of a mobile phone producer asked his security and brand protection department to comment the budget of the department. The answer :

Only in the year 2009 we found and destroyed 22 millionen fakes of mobile phone accessories counting with a sales price of 10 € /piece, we saved claims in the amount of 220.000.000Euro for the company

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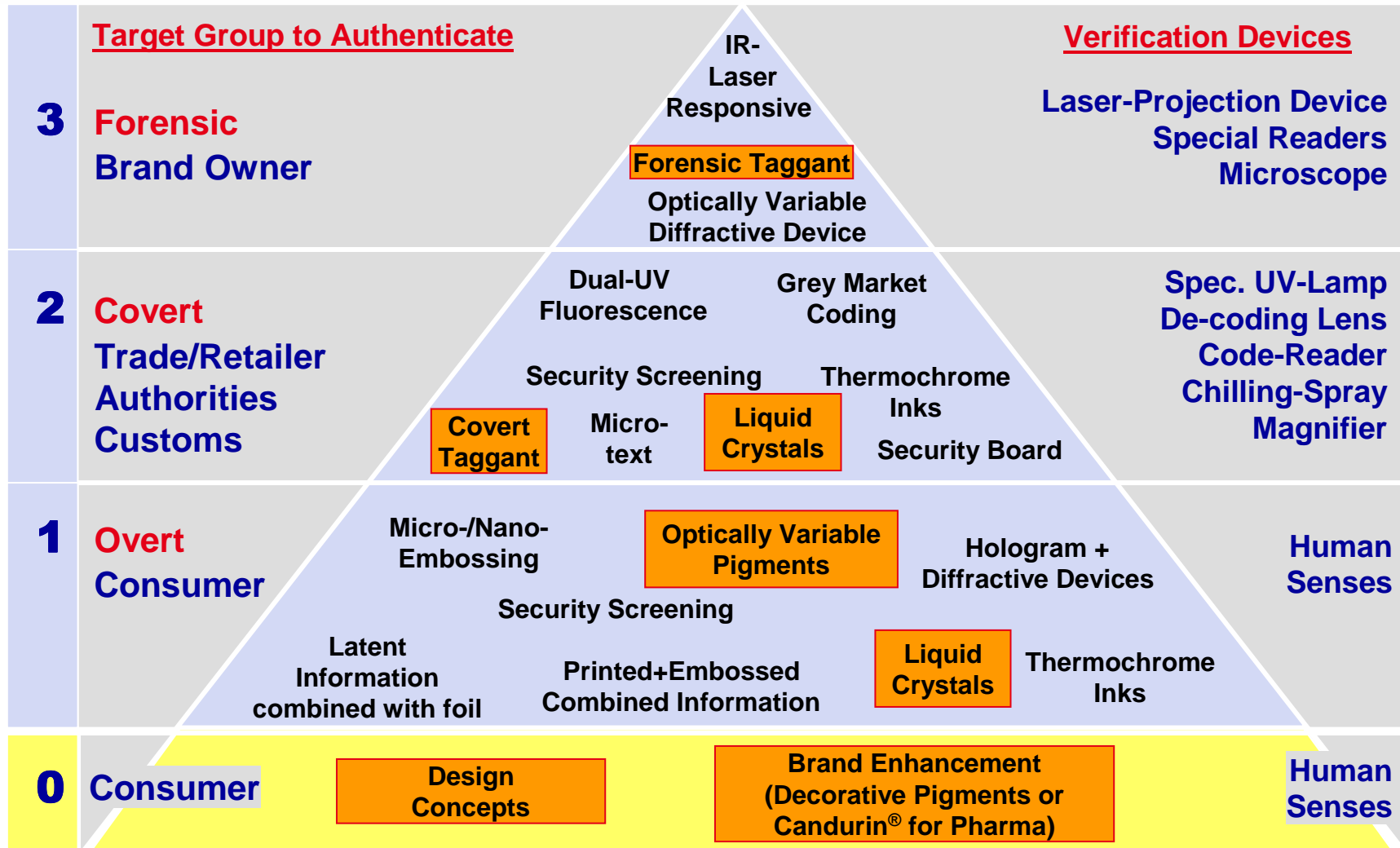
Merck Solutions for Brand Protection

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Summary and Conclusion

Technological Environment – Merck Products

Multi-Level Security Definition

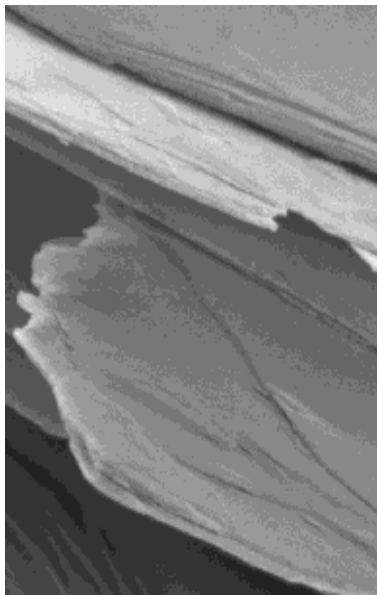


Merck Security Pigments – Proven in the Market

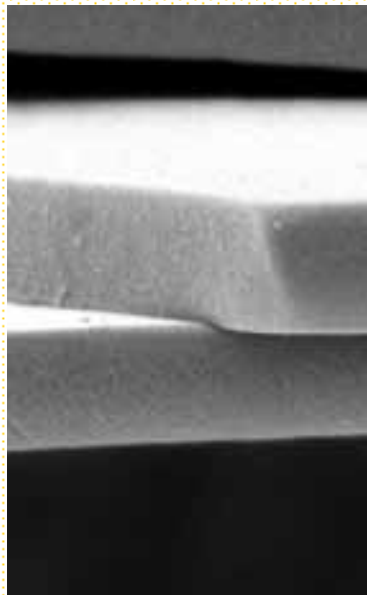
Examples and Reference in High Security



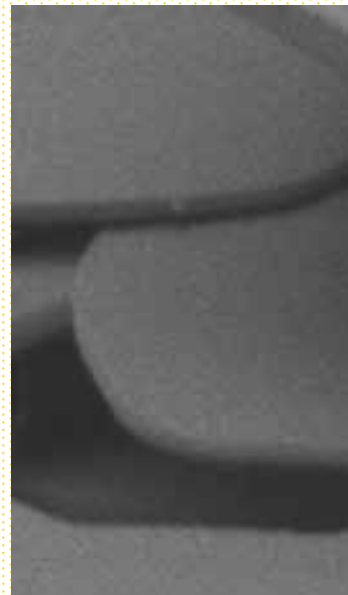
As starting material, many different substrates can be used – natural and synthetic ones



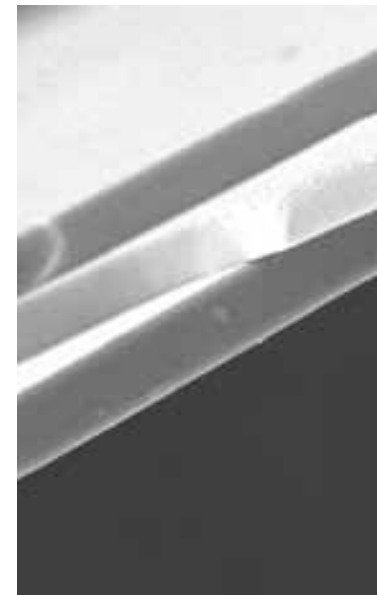
Mica



Silica



Al-oxide



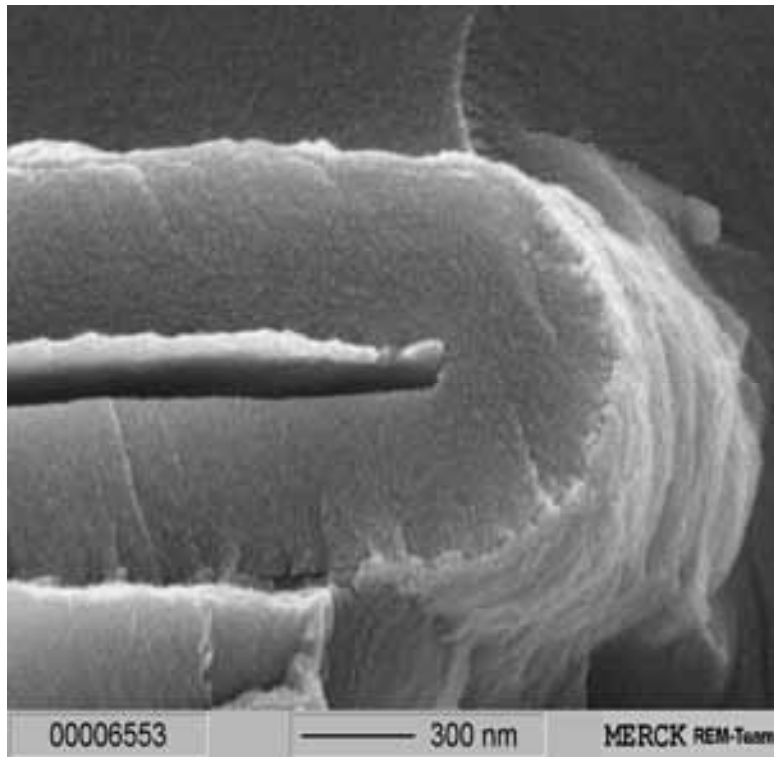
Borosilicate

Exclusive to Merck

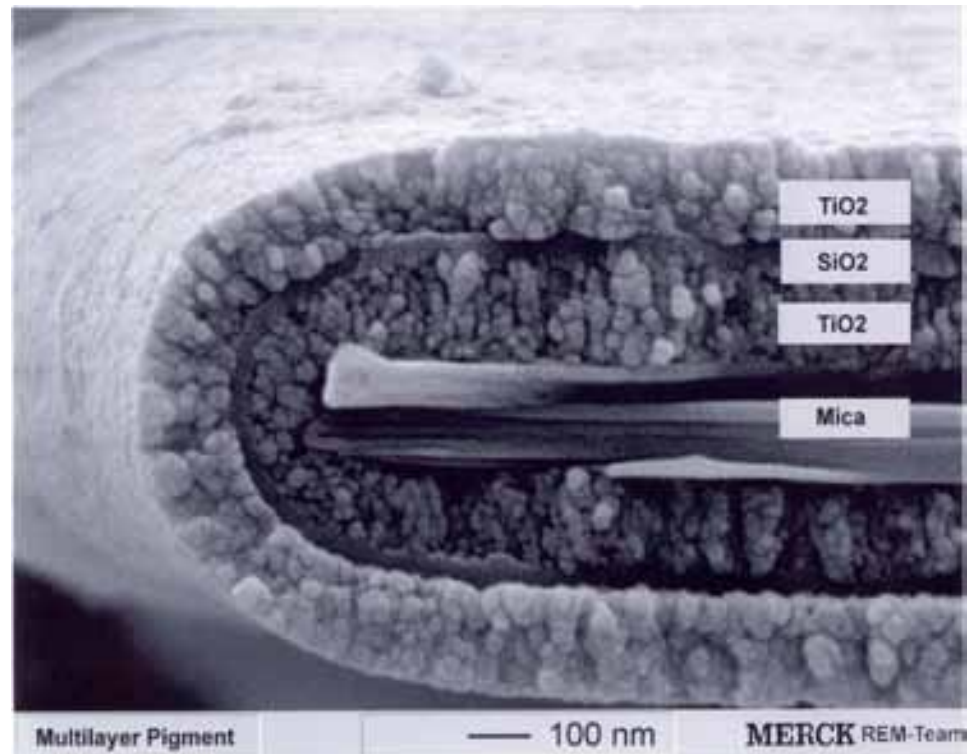
Different coating structures are applied to achieve different color effects



Monolayer



Multilayer



SECURALIC® - pigments for brand protection



- **Securalic® pigments**

7 effect pigments with unique color travel

- **Securalic® GT pigments**

3 effect pigments with unique color travel combined with a green IR-light aktive taggant

- **Securalic® Concept Box**

Individual solutions of effect and/or functional pigments (Iriodin, Colorstream, Miraval, BiFlair, Solarflair, Minatec and/or Laserflair) with one or more of the IR-, UV-forensic and forensic taggants

The Merck Brand Protection Concept

The **covert level** – IR Up-converters



Green dot in control window = all OK



The Merck Brand Protection Concept

The **covert level** – IR Up-converters in Plastics



The Merck Brand Protection Concept

The **forensic level** – 3rd line features



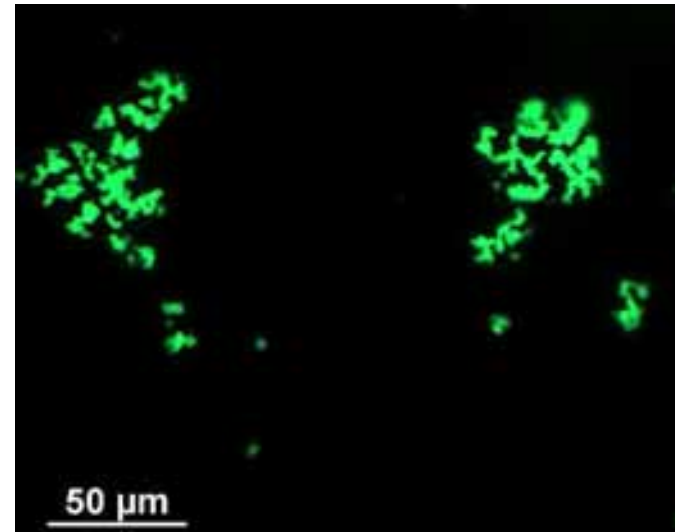
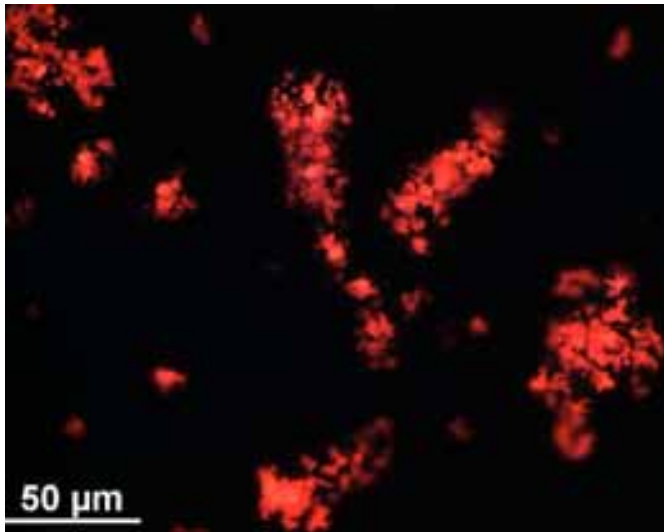
The **forensic level** of brand protection

- Merck **decorative effect pigments** or Merck **security pigments** combined with 3rd level feature such as
 - **unique forensic taggants** based on Merck proprietary technology
 - to be identified by forensic methods only
 - special know-how needed to detect the taggants
 - nature of forensic taggants only revealed to brand owner

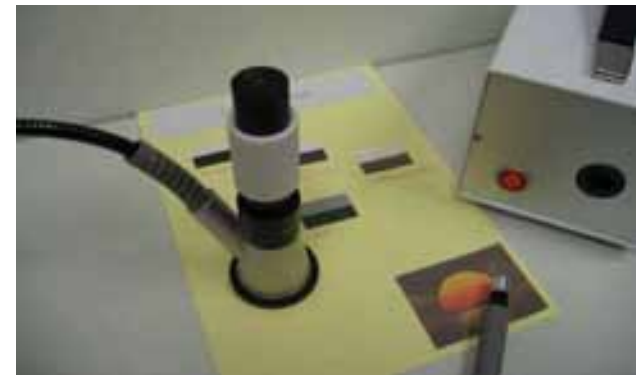
Intrinsic pigment-based UV security taggants



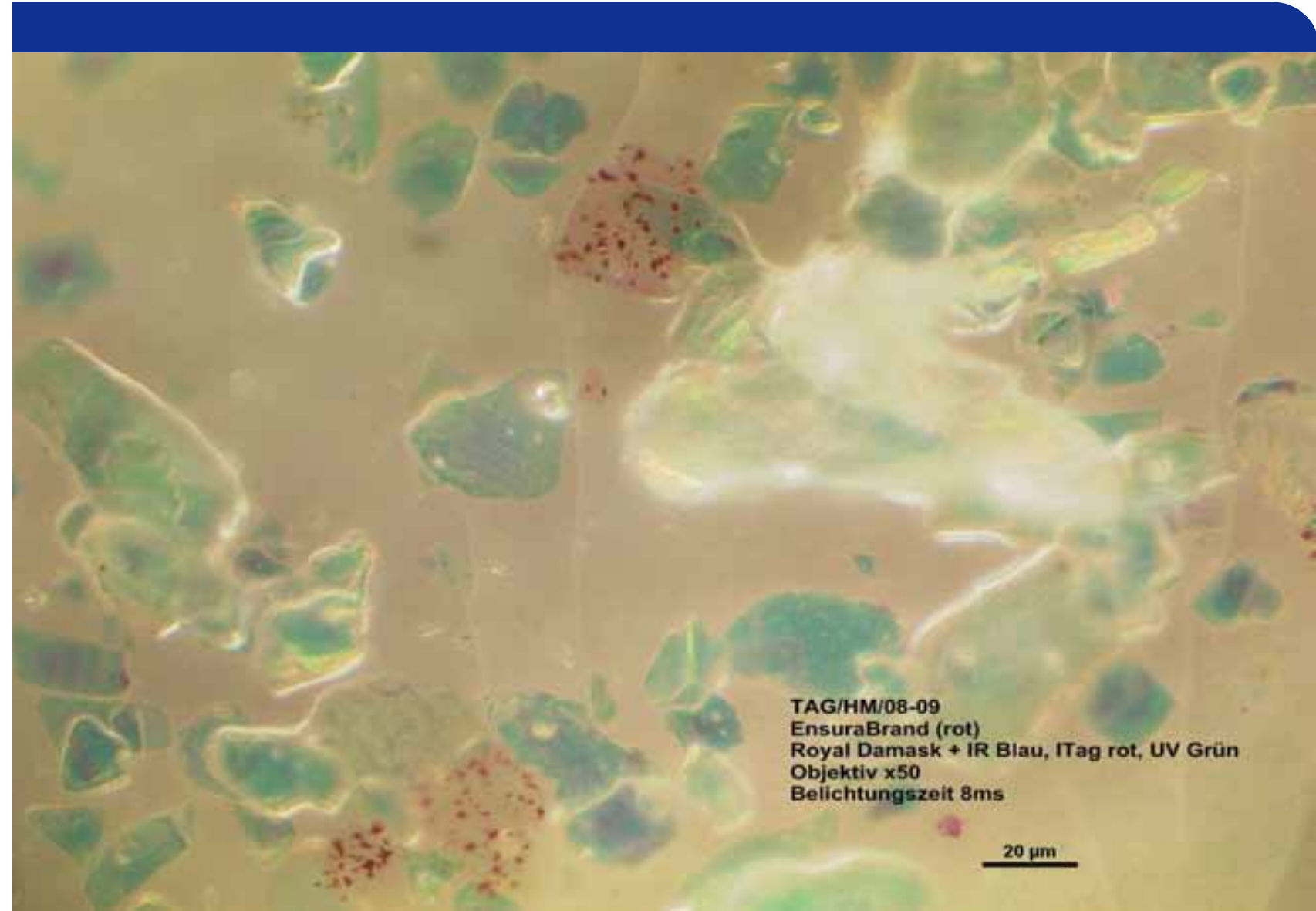
Material: UV-Pigments in Silica Flakes



Detection: UV-Microscope

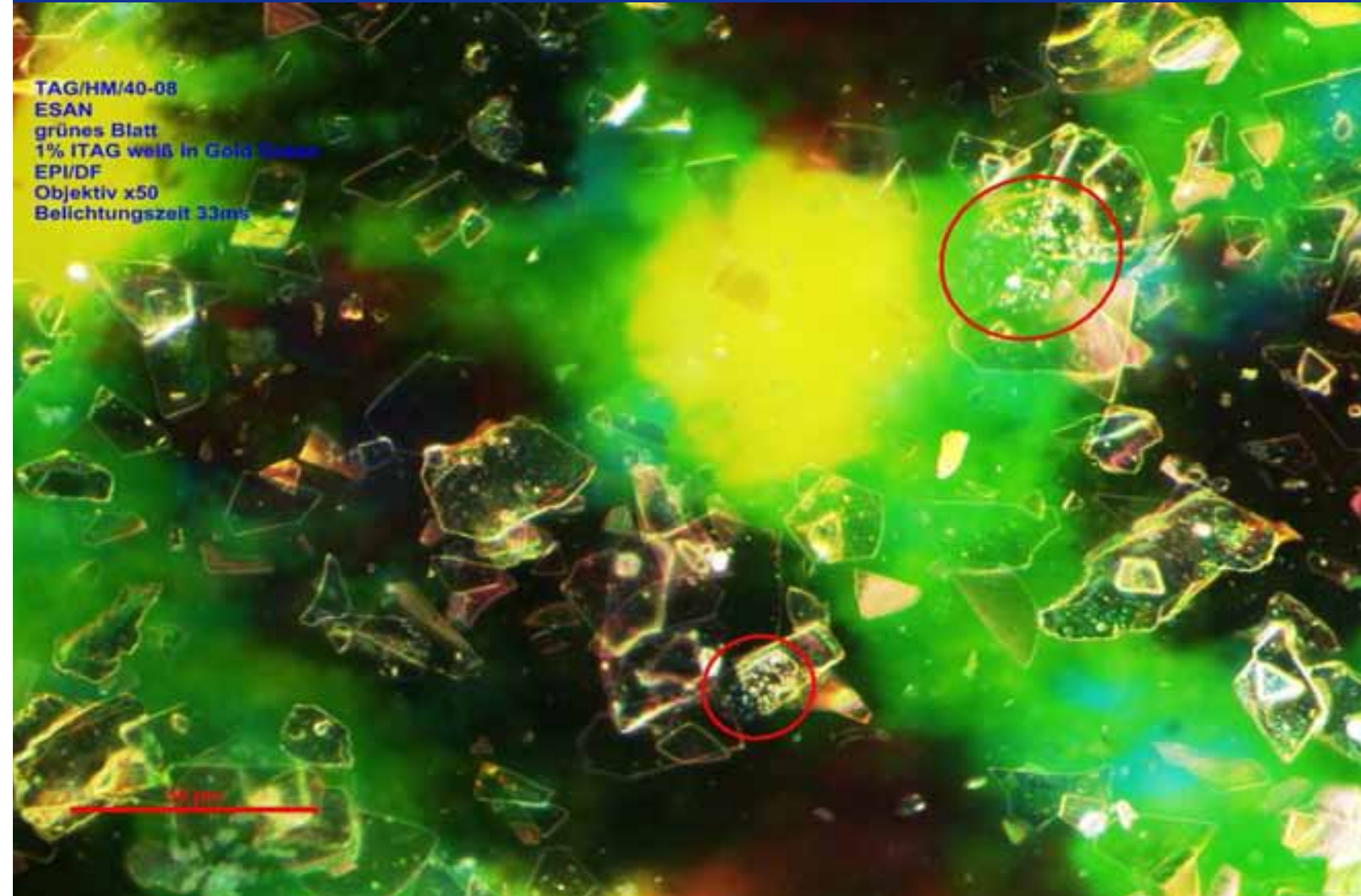


Forensic pigment based security pigments



Security pigment with intrinsic taggant

TAG/HM/40-08
ESAN
grünes Blatt
1% ITAG weiß in Gold Blau
EPI/DF
Objektiv x50
Belichtungszeit 33ms



Conclusion



- Merck is a leading supplier of high security overt features
- With this expertise, we are a highly reliable and trustworthy partner with long history in this market
- Our products provide unique overt or covert features offering exclusive design possibilities – they also have a long-term proven record in different applications

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Features	Customer Benefit
<ul style="list-style-type: none"> ease of applicability in printing & plastics 	<ul style="list-style-type: none"> easy integration in packaging process
<ul style="list-style-type: none"> compatible with other security features and existing design 	<ul style="list-style-type: none"> distinct degree of uniqueness
<ul style="list-style-type: none"> no influence on the existing packaging design due to their semi transparency 	<ul style="list-style-type: none"> no extra approval by local authority necessary
<ul style="list-style-type: none"> customized brand and product protection 	<ul style="list-style-type: none"> protection against faked pharmaceuticals and lawsuits

Weaknesses of competitive products	Merck strength exploiting this weakness
Price of holograms: 0,10 € per square centimeter	Securalic® printed image: lower than 0,002 € per square centimeter

SECURALIC® - Detection devices

- Securalic® IR-laser pen

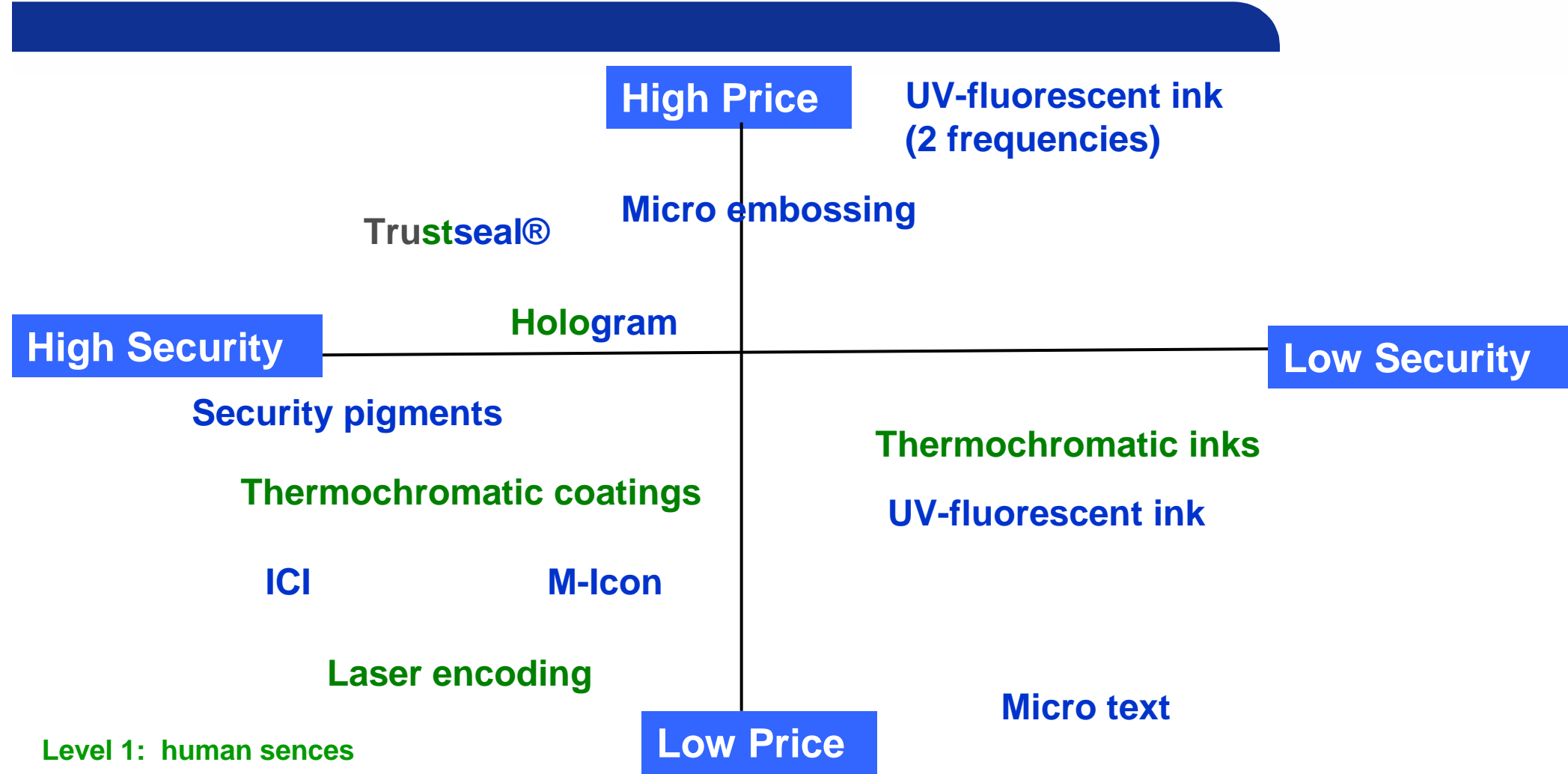


- Securalic® acoustic detector



- Forensic and UV-forensic taggants detection by lab-equipment only

Classification of the features



- Level 1: human senses
- Level 2: simple tools
- Level 3: expensive tools/lab equipment

Counterfeiting – We are just at the Beginning to Understand the Scale of the Global Problem!



Thank you
for your
attention!

Merck – An Innovate and Reliable Partner in High Security and Brand Protection Projects



Merck KGaA

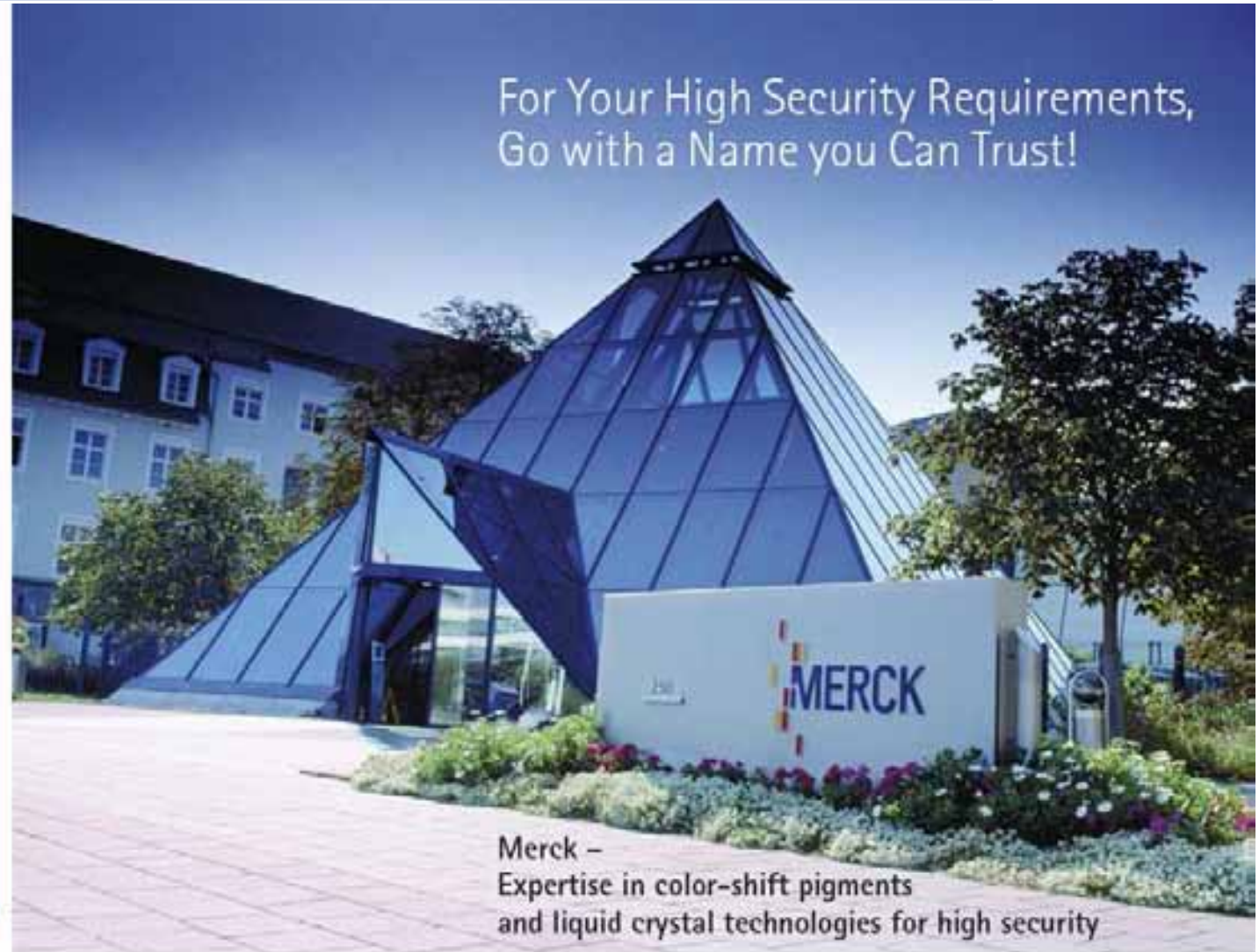
With a tradition of over three hundred years, Merck KGaA, Darmstadt, Germany is the oldest pharmaceutical and chemical company in the world.

Starting in the late eighties, Merck KGaA has successfully established a high security business based on unique and innovative products that are continuously developed in line with our customers' needs.

Our strong R&D commitment to new products, targeted application services and consistent quality assurance make us a reliable and esteemed partner to customers in the high security business.

Based on its technical expertise in color-shift pigments and liquid crystal technologies, Merck KGaA offers specially designed optically variable security products, which are dedicated exclusively to the high security business, especially for applications on banknotes.

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For Your High Security Requirements,
Go with a Name you Can Trust!

Merck –
Expertise in color-shift pigments
and liquid crystal technologies for high security