Trackable Nanobarcode Compositions and Methods

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Technology description

Many products, such as medical devices, need a unified way of encoding uniquely-identifying information that can be easily accessed. This can provide traceability to specifications, lot numbers, recalls, etc. This applies to medical devices both in and out of the body as well as many consumer goods. Common codes, such as a UPCs, can only be read if nothing comes in between the scanner and code. For devices in which the code is not accessible (such as implanted medical devices) this is not suitable without invasive measures.

Researchers at Arizona State University have developed a novel method of tagging products using nanomaterial composition "tags" that create a unique fluorescent signature which can be detected with existing readers. These tags can be added before, during, or after manufacture of any product, liquid or solid. Because the different materials have different fluorescent signatures, every combination of these nanomaterials has a unique signature. Furthermore, an even greater variety of tags can be generated through varying both the ratio and the number of metallic constituents in the tags. Such tags can be read even when the material is not accessible, such as in implanted medical devices.

This technology is expandable to consumer goods and moreover to forensic science, where it may provide an alternatives to ballistic fingerprinting and explosives tracing.

Application area

Medical device traceability
Forensic science and Homeland Security
Bullet jacket identification/ballistic fingerprinting
Explosives tracing
Counterfeit prevention measures

Advantages

Low cost
Easily read
Universal coding and reading tool
Self-calibrating
Easy to apply

Can be read even if the composition is obscured or not directly accessible
Reading device is non-destructive

Institution

Arizona State University

Inventors

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