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Design of forensic nano-tagants with an unmistakable fingerprint

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Selected functionalised markers, tags and taggants with unmistakable fingerprints and useful optical, colorimetric and fluorometric properties can be incorporated into products and packaging to prevent and detect fraud or counterfeiting. They are forensically useful for banknotes, textiles, inks, cigarettes, spirits, medicines, pharmaceuticals, fuels, automotive parts and consumer goods. It is claimed that they have not been counterfeited and do not affect the product specification or introduce adulteration. They can also be used to define environmental forensics or explosive traceability. Some taggants are molecular (example volatiles for inclusion in illicit drugs); others are microscopic nanoengineered particles. These can be multi-layered, bar coded or emit from the UV to the IR. In these entire applications one requires taggant uniqueness and detectability. We describe here microscopic uniquely-labelled forensic taggants with tightly-defined compositions, a forensically-recognizable morphology, an optical response and tuneable transferability. We outline their use in forensic coatings to deter gun crime.

Biography

P A Sermon was born in Caversham in 1945. He was educated at Westminster City School, Bangor University and University of Bristol (PhD, DSc). He was Professor of Physical Chemistry at the University of Surrey, where his research concentrated on bottom-up nanotechnological routes to catalysts, sensors and biofuels, until the autumn of 2010. He then became Professor of Nanomaterials at the Wolfson Materials Processing Centre in 2011. His research is now focused in nanomaterials and biomimetic nanomaterials with useful forensic, catalytic and photocatalytic properties. This research is supported by Government Agencies and the Royal Society. On Thursday 10th November 2011 at a dinner at the Royal Society, it was announced that he was a recipient of a Royal Society Brian Mercer Feasibility Award

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