

Securing element with ferromagnetic microwires

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The securing elements are constituted from composite materials (see photo), realized by the embedding of the glass-coated ferromagnetic microwires in a cellulosic matrix. These can be used as anti-shoplifting or validating elements in order to identify the counterfeit products. The main quality characteristics of the paper are presented in table,



Composite cellulosic material with ferromagnetic glass-coated microwires. highly advantageous in anti-counterfeiting applications

The advantages of the microwires securing were:

- the possibility of the identifying at distance;
- stable magnetic properties even at high temperatures and corrosive media;
- wide range of the functional temperatures;
- stability at shielding - the codes shielded by metallic panels can be read; stability at mechanical action; small sizes and low consumption. and for the microfibers with special properties, from the last generation (which offer the possibility to the magnetic encoding of the information):
- very large amount of the generated codes;

the information can be read both from a stationary source, and from a source in motion;

The encoding is impossible to destroy, both in the continuous and also in variable magnetic field, (reliable encoding); Possibility to read the information from any code randomly oriented in space.

Main quality characteristics of the secured paper

Characteristic properties		
Basis weight, g/s.m.	SR EN ISO 536:97	60-130
Breaking length, km	SR EN ISO 1924-2/96	5.0-6.5
Tensile strength, kPa	SR ISO 2758:2004	200 - 450
Tensile strength, number	SR ISO 5626:1996	380 - 450
Water absorption, Cobbo.	SR EN 20535/96	28-32
Ash content, %	SR ISO 2144:1999	5.0 - 8.5
Retention ratio of the (ferromagnetic microwires, %		79-84

Applications

The main applications were related to the securing of the value papers, fiscal documents and special stamps through the magnetic encoding.