INSTITUTUL NAȚIONAL DE CERCETARE - DEZVOLTARE
PENTRU INGINERIE ELECTRICĂ INCDIE ICPE-CA

Nr. Registrul Comerțului
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$EEM_{(50\ Hz - 1\ MHz)}$ ELECTROMAGNETIC SHIELD

Description

$EEM_{(50\ Hz - 1\ MHz)}$ electromagnetic shield is a composite material based on magnetic materials recovered from pyrite ashes, made in the form of compact bricks, that provides protection to low frequency electromagnetic fields (50Hz) and radiofrequency electromagnetic fields.

Characteristics:

- shape: rectangular plate (L=12 cm, l=80 cm, h=1.5 cm);
- density: 2,3 ... 2,9 g/cm^3;
- frost-thaw resistance (gelling): after five frost-thaw cycles there are not any cracks on the surface;
- shock resistance: no cracks;
- compression strength: min. 3.5 daN/cm^2;
- tensile strength by bending: min. 0.6 daN/cm^2;
- relative permeability (μ_r) in the frequency range 100 kHz ... 1 MHz: 1.5±20%;
- conductivity in the frequency range 100 kHz … 1 MHz: 1.5±20% S/m;
- attenuation of electromagnetic waves according to frequency:
  - 100 kHz: 700±30% Np/m;
  - 500 kHz: 1.7x10^3±30% Np/m;
  - 600 kHz: 1.9x10^3±30% Np/m;
  - 700 kHz: 2x10^3±30% Np/m;
  - 800 kHz: 2.2x10^3±30% Np/m;
  - 900 kHz: 2.4x10^3±30% Np/m;
  - 1 MHz: 2.5x10^3±30% Np/m.

Applications

EEM electromagnetic shield is used as a building material in areas with increased exposure to low frequency and radiofrequency electromagnetic fields.