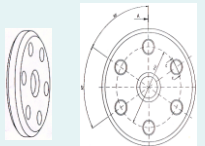


Materials specific to the defense industry, produced by INCDIE ICPE-CA

CARBON MATERIALS

RESISTANT TO THERMOMECHANIC SHOCKS



Technical characteristics

- Mechanical strength, (MN/m²): > 21;
- Gas outlet temperature, (°C): ~2700;
- Gas speed through the nozzle, (m/s): 330;
- Gas outlet time through the nozzle, (s): 4 – 6;
- Gas composition: CO₂, CO, H₂O, N₂, NO, NO₂, H₂;
- Gas pressure in the nozzle, (bar): 150.

Delivery status:

- semi-finished product;
- finished product.

Applications: nozzles for rockets

AINiCo-based HARD MAGNETIC MATERIALS



AINiCo magnets have fairly high Br remanence and high energy product (B.H)_{max}, low temperature coefficient of remanence - 0.02%/°C, high Curie temperature (850°C) and maximum temperature of use - 450°C.

Applications: In electrical measuring devices (moving coil measuring instruments, magnetic brake for electro-mechanical watt-hour meters), precise electroacoustic transducers (loudspeakers, microphones), switch sensors, applications which require stable temperature and time stable magnets, as well as for defense applications.

MATERIALS FOR ELECTROMAGNETIC SHIELDING

Flexible shields for electromagnetic protection



Physical and functional characteristics:

- density: 0.98 – 1.1 g/cm³;
- attenuation of electromagnetic radiation: 25 – 30 dB for frequency range of 3 – 16 GHz and thickness of 1.0 mm

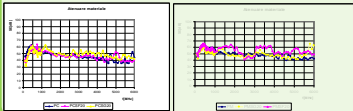
FLEXIBLE THIN MATERIALS FOR PROTECTION AGAINST ELECTROMAGNETIC RADIATIONS

Composite materials with polymeric matrix, reinforced with metal-plated or carbonic texture.

Efficient protection of electronic equipment which ensure attenuation of about 65 dB.

Staff protection by using these materials in manufacturing clothing articles.

Various products such as tarpaulin, protection carpet, protection suits, radar absorbing curtain can be manufactured.



HEAVY ALLOYS, SINTERED PRODUCTS

Applications: girorotors, weights for accelerometers, counterweights

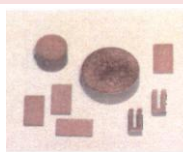
POLYMER-CARBON COMPOSITES

Applications:

- large applicability for ground vehicles and aerospace structures
- other applications: electromagnetic shielding, sports equipment, fishing tools.



Fe-Si-based SOFT MAGNETIC COMPONENTS



Fe-binder polymerized materials

Applications:

Automotive industry, servomotors for oil pump acting in the ABS - AISIN SEIKI brake system, motor of the fuel injection pump for diesel-driven cars Bosch, motor for cooling fans of FAURECIA radiator, Fittings and magnetic cores in magnetic circuits with time-variable induction used either in pulsed DC at high frequencies or in AC circuits.



ACTIVE PIEZOCERAMIC ELEMENTS

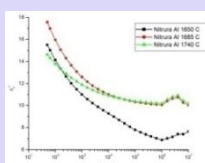
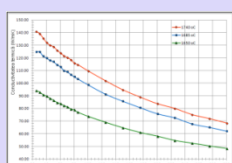
Active elements (disks, rings) belonging to solid solution system, based on lead zirconate titanate Pb (Ti, Zr) O₃ system, modified with niobium (Nb).



Sensors, transducers, actuators

AIN-based ceramic

Targets for the deposition of layers of ceramic material with superior electrical insulating properties, simultaneously with a high degree of thermal conductivity to ensure the most efficient transfer of heat.



Thermal conductivity vs temperature

Real permittivity vs frequency in the range of 0 ... 10⁷ Hz

INCDIE ICPE-CA Department of Advanced Materials

We invite Romanian companies to visit the project site related to knowledge transfer services under the project C 133/23.09.2016 - PHOENIX <https://www.icpe-ca.ro/proiecte/poc/phoenix/phoenix.htm>