

CHARACTERISTICS OF MATERIALS FOR PROTECTION OF PERSONNEL FROM IONIZING RADIATION

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Currently, the widespread use of electricity has led to an increased electromagnetic background. It is believed that this background has three components: ionizing electromagnetic radiation (radiation), non-ionizing electromagnetic radiation (at frequencies below 3000 GHz) and bio-energy-electromagnetic radiation (radiation from living organisms). An electromagnetic wave is a periodic change in space and time of electric and magnetic fields that propagate from a source of electromagnetic waves. The propagation of electromagnetic waves occurs in a certain sequence according to the laws of symmetry, which can cause the imposition of forces and thereby increase their influence.

The main electromagnetic parameters of a substance include: resistivity (conductivity), dielectric constant, dielectric loss tangent, and magnetic permeability, which are decisive when an electromagnetic wave passes through a substance. The attenuation coefficient of the electromagnetic wave depends on these parameters.

According to the type of physical mechanisms providing protective properties from the action of electromagnetic radiation, all materials can be conditionally divided into three groups: reflecting, absorbing and combined. The most promising materials for creating coatings that protect against the action of electromagnetic radiation are ferrites, due to the fact that they have a small value of magnetic permeability at low frequencies.

Ensuring environmental safety of the living environment, primarily within the building, involves protection (a significant reduction in impact) from any hazardous to human health, both anthropogenic and natural environmental factors. And among many such factors, it is worth highlighting anthropogenic electromagnetic fields, which can have an adverse effect on a person.

Not being a natural environment, electromagnetic fields with a certain power and duration of exposure pose a real threat to people, animals and plants.

The problems that arise with an increased electromagnetic background are not limited to biological aspects. Under the influence of electromagnetic fields, malfunctions in the operation of electronic equipment can occur. And since the functioning of many technical means is accompanied by secondary electromagnetic radiation, it becomes necessary to protect personnel from the negative effects of electromagnetic fields.

All this suggests that modern houses and buildings of the future should protect their inhabitants from electromagnetic danger, and their construction should use such materials and structural solutions that will reduce the level of anthropogenic electromagnetic fields to the necessary minimum within the boundaries of the protected object and ensure normal life people.