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## COMPOSITE ELECTRICALLY CONDUCTIVE MATERIALS BASED ON INDUSTRIAL WASTE

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**Анотація.** Загальновідомим є шкідливий вплив дії на живі організми штучно згенерованих електромагнітних випромінювань. Електропровідний композиційний металонасичений бетон можна використовувати для захисту від ЕМВ. Виготовлення електропровідного металонасиченого бетону з використанням металевго шламу дозволить знизити вартість виготовлення спеціальних виробів для захисту від ЕМВ.

An analysis of the levels of electromagnetic pollution shows that in industrial cities the harmful level of electromagnetic radiation from artificial radiation sources exceeds the natural level by hundreds of times [1-2]. More than half of the population of industrial cities is exposed to the harmful effects of electromagnetic radiation with levels exceeding the normalized values [3].

To protect the population from electromagnetic radiation in the leading European countries, special protective materials are used. At present, it is also important that building products not only ensure the bearing capacity of the building structure, but also minimize the heat loss of the structure. To solve such a complex problem, VNTU scientists have developed composite cellular concrete. Such material is able to provide premises with a low level of heat loss and at the same time reduce the impact of electromagnetic radiation on a person. It was possible to obtain such a material due to the use of finely dispersed metal filler in the composition of the molding sands [4]. Due to the use of metal powders (waste from metalworking industries) as part of the raw mixes of fine-grained concrete, a new type of concrete based on mineral binders, betel-m, was obtained [5].

In [6], the authors found that the mineral filler and metal powder take an active part in the formation of the structure of the metal-cement composition, which is expressed in a change in the kinetics of plastic strength values, which further affects the physical-mechanical and radioprotective properties of the material.

Researchers in [7] found that fine-grained metal-saturated concrete can be used for the manufacture of structures for the external finishing and protective coating of buildings. Composite cellular concrete has a low reflection coefficient and high absorption rates [8] of electromagnetic radiation. The heat-shielding characteristics of products made of cellular metal-filled concrete are ensured by the presence of a high-temperature-inertia component in the structure of the composite material.

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