

Vertical concrete slab with polymer polyethylenotereal (PET) reinforcement

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Recycling polymers is a very valued act because of its enormity of waste. Its reuse is ideal in long-life applications such as paving, plastic wood, civil construction, plasticulture, automobile industry and electro-electronics, etc. The process of recycling this material can be mechanical, physical, chemical or even energetic.

Most of the current vertical cemeteries are built in concrete, which is a very serious fault, since conventional concrete does not have the structure to withstand the residues generated by the human bodies' decomposition, causing leakage through the cracks that appear in the slabs of the loci.

A sustainable solution to such a complication may be a substitution of this material with recyclable materials, which are usually disposed of in the environment. The recycled polymer from PET is an excellent option because it presents important characteristics such as low water absorption, resistance from aging and because it is innocuous, which means that it does not constitute a substrate for the proliferation of microorganisms.

A concrete impregnated with polymers would translate in a reduction of porosity and permeability.

Therefore, the objective of this article is to evaluate the efficiency of alternative techniques with the use of polymers in concrete structures in aggressive environments or even new structures based on recycled polymers. There is also the case study in vertical slab of locules, in addition to performance and comparative in the aspect of flexibility and fence.

In conclusion, we will have an analysis of the advantages and shortcomings of the insertion of the organic polymer into the mixture of conventional concrete or structures made of polymers and other sustainable materials. In addition, the presentation of proposals of solution with the conditions that the structure is submitted to.



Figure 1: Symbology used to identify polymer packages. Standard NBR 13.230 of ABNT (Brazilian Association of Technical Standards)

Biography

Luciana Nunes de Magalhães holds a degree in Civil Engineering from Universidade FUMEC, a master's degree and a PhD in Structural Engineering from Universidade Federal de Minas Gerais. Currently, is a professor at Pontifícia Universidade Católica de Minas Gerais and provides updated courses for engineers and architects in the construction / structural systems area at CREA MG. Has professional experience in the Structural Engineering field, besides publications in magazines and congresses, with emphasis on those systems.

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