CONTROL UNIT OF FOAM CONCRETE MANUFACTURING PROCESS

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One of the current materials that is widely used in construction is foam concrete. It is used in the construction of apartment buildings, which makes this material profitable in the present crisis conditions. Foam concrete or cellular concrete has high thermal properties that provide comfortable conditions for human life. This confirms the demand for foam concrete in European countries. Foam concrete is widely used in the road industry. The problem of developing foam concrete with enhanced performance properties, density and strength indicators that meet European standards and products from leading European manufacturers is practically significant and relevant. The use of such materials is closely related to energy saving, economy, ecology, product competitiveness, and conservation of natural resources, which in turn requires the creation of a regulatory framework for the foam concrete manufacturing process in Ukraine in accordance with the requirements of international and European documents. Many publications have been devoted to the study of the physical, chemical and thermal insulation properties of foam concrete. At the same time, however, little attention has been paid to the issue of metrological support and the regulatory framework for the manufacture and use of foam concrete.

Metrological quality control of foam concrete manufacturing technologies involves the measurement of various physical parameters of the material using special devices. Visual observation can be used to assess the quality of manufactured foam concrete. Various problems may arise during the foam concrete production process, such as insufficient mixing of components, incorrect temperature, too high or low humidity, insufficient drying time, etc. However, it is more efficient to develop a special unit that can control and manage the foam concrete production process, including the preparation of the foam concrete mixture. The technological process begins with a bunker where the mixture is stirred. The operator adds all the necessary components with additives and sets the appropriate program for the preparation of the construction mixture. The quality control unit of the foam concrete mixture includes digital temperature, pressure and density sensors that are connected to a microcontroller that reads and analyzes the data. The unit can also be supplemented with software for process automation, as well as data collection and analysis.

References:

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