

IMPACT OF PORTLAND SLAG CEMENT USAGE ON ECO - SUSTAINABILITY AND DURABILITY OF CIVIL ENGINEERING STRUCTURES

In the current construction industry, ensuring the environmental sustainability and durability of structures is of high priority. The use of Portland slag cement is a proven solution for reducing the ecological impact of construction. This alternative to traditional Portland cement is produced by mixing Portland cement with high-temperature slag, resulting in a more sustainable and environmentally friendly building material. It allows for the utilization of industrial waste and reduces CO₂ emissions during cement production, which is crucial for climate change mitigation strategies.

Portland slag cement is an innovative material for the construction industry, which has improved specifications and significant environmental benefits. The structures raised with the use of this cement are more reliable and resistant to loads due to increased stability. It is ideal for use in high humidity and aggressive environments without affecting quality. Modified Portland slag cement is the preferred choice for construction due to its high water and corrosion resistance.

Studies have been conducted to consistently confirm the superior performance of modified Portland slag cement over traditional materials in the area of construction. In the past many years of research, the properties and characteristics of this material, as well as its impact on the stability and durability of structures have been thoroughly studied. The results confirm that structures built using this cement show significantly higher resistance to aggressive environmental factors such as water, chemical reactions or temperature fluctuations. Structures built using these materials have a significantly longer service life and require less frequent maintenance and repairs than structures built with traditional materials.

The structures built with such materials have a significantly longer service life and require less frequent maintenance and repairs compared to structures built with conventional materials. That results in lower costs and operating expenses, making them a more efficient and sustainable choice for civil engineering projects.

The usage of Portland slag cement increases the resistance of structures to environmental factors such as chemical or biological corrosion, providing durability. In addition, this material also reduces production and construction costs by utilizing industrial waste.

The promotion of the use of Portland slag cement makes it possible to effectively reduce the negative impact of construction on the natural environment and increase the efficiency of resource utilization. In addition, the development of technologies for the production of this material will create new opportunities for the application of innovative approaches in construction, guaranteeing the stability and durability of structures in various operating conditions. The research and implementation of Portland slag cement can make a significant contribution to the development of sustainable construction and improve the quality of life of people.

To improve the environmental sustainability and durability of structures, it is necessary to actively introduce Portland slag cement. The usage of this material has proven to be highly effective in sustainable and green construction. Therefore, it is recommended to further research and develop standards for its use to maximize its benefits and promote its widespread application in the industry.

Summing it all up, it can be concluded that Portland slag cement has a significant positive impact on the eco-sustainability and durability of civil engineering structures. Its active implementation in construction practice is strongly recommended. Maximizing the advantages of Portland slag cement and ensuring the sustainability and eco-friendly nature of the construction industry requires further scientific research and standards development. By standardizing processes using this material, the scope of its application will be expanded and its impact on reducing the negative impact on the environment in construction will be enhanced.