Polibrick - Rigid Polyurethane Foam Aggregate into Concrete Blocks

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The project is about the reuse of powder that comes from the rigid polyurethane lamination. It is widely used in the internal lining of refrigerators, freezers and refrigerated trucks, and also insulation boards in buildings. Insulation properties of rigid polyurethane foam are known, because of your closed cells. Therefore, set itself as a goal, add rigid polyurethane to the concrete composition, to produce insulating concrete blocks with different percentages of foam applied in the composition. The construction is an important agent in the reuse of solid waste, giving new applications on the construction site. The work methodology was the use of the foam, aggregate in the composition of concrete blocks, replacing the sand volume by 20% and 40% with light aggregate. Also perform the compression test acoustic and thermic analysis and the water absorption test, checking block efficiency. Observing, the new concrete showed positive results in thermal and acoustic insulation, proving the hypothesis that this new material in the composition of the block, may show great potential for reducing ambient temperature variation and decreasing ambient sound intensity. Concrete blocks meet the specifications of NBR 6136, with compression tests complying with the standard, in compressive strength, dimensions, and water absorption. This study may mean a reduction in the costs, time, and materials used to make thermo-acoustic insulation, exempting the use of thermal or acoustic insulation boards in environments, meeting these requirements only with the block. Because of the mass blocks, inferior to common blocks, their use in construction can mean a lighter structure for the project and easier handling of blocks by construction workers.

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