

Valorisation of Polyethylene and Plastic Bottle Wastes as Pavement Blocks

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Abstract : This research investigated the possibility of using waste low-dense polyethylene and waste plastic bottles for the production of interlock pavement blocks. In many parts of the world, interlock pavement block is used widely as modern day solution to outdoor flooring applications and the blocks have different shapes, sizes and colours suiting the imagination of landscape architects. Using suitable and conventional mould having a 220 x 135 x 50 mm³ shape, the interlock blocks were produced. The material constituents of the produced blocks were waste low-dense polyethylene and waste plastic bottles mixed in varying, respective percentage-weight proportions of; 100%+0%, 75%+25%, 50%+50% and 25%+75%. The blocks were then tested for unconfined compressive strength and water absorption properties. The test results compared well with those of conventional concrete interlock blocks and the research demonstrates the possibility of value recovery from the waste streams which are currently dumped in open-spaces thereby affecting the environment.

Keywords : pavement blocks, polyethylene, plastic bottle, wastes, valorization

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