

Silver Prize

Korea International Women's Invention Exposition 2010 (KIWIE 2010)



Floor Tile Rubber Made from Natural Rubber Green Composite for Outdoor Floor Covering

This innovative floor tile rubber invention made from natural rubber green composite for the purpose of outdoor applications in Thailand combines an idea for selecting a proper biomaterial for floor tile to improve the quality of life for the persons concerned and garden decoration. Our intention concerns various properties such as durability, high strength and hardness, slip retardant and provides safety, easy to installation and clean, suitable for using in Thailand with high humidity, low water absorption, and thermal insulation as well as costs for the economy compare to commercial ceramic tile.

In Thailand there are no report using natural rubber as for garden outdoor tile in fact it has been applied natural rubber mat for indoor building and cattle pen. Therefore, inventors try to find a suitable rubber formulation and processing technique. These tiles are designed to be soft yet tough and durable, make from natural rubber green composite with dimension of 50x50x2.5 cm (Figure 1) . It was found that a suitable formulation was natural rubber incorporated with sawdust 70 phr. Tensile strength of the resulting tile was found to be 4.14 MPa (Natural rubber 2.57 MPa), Tensile strength after aging at 100 °C, 22 hrs was 5.45 MPa (Natural rubber 1.61 MPa), Hardness was 91.8 shore A (Natural rubber 55.4 shore A), Abrasion at 1000 rpm was about 0.431 cm³ (Natural rubber 0.293 cm³, %water absorption was about 4.5%.

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