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CHARACTERIZATION OF ELASTOMERIC COMPOSITES FILLED WITH INDUSTRIAL EPDM WASTE

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The incorporation of residues generated by elastomeric productive processes, as filler, in other formulations of rubber, have been widely utilized and studied in recycling industries and research centers. The recovery of the vulcanized elastomeric residues consists in the utilization of these residues, as filler, in compositions with the pristine elastomer, by incorporation and posterior vulcanization. It is a mechanical process, without significant chemical alterations in the material. Its recovery can be advantageous when incorporated in new formulations, considering the reduction on the final cost, less consumption of energy and materials and preventing hazardous residue generation. In this context, the objective of this study was to evaluate the technical viability of the incorporation of EPDM (ethylene, propylene and diene terpolymer) vulcanized elastomeric residues, in a base formulation with industrial application. In this sense, first the residue was grounded and characterized for physical and chemical and after compositions with variable residue compositions in phr (parts per hundred of rubber) 0, 20, 40, 60, 100, 120, 140 and 160 phr were prepared. The composites were compared with a control sample provided by the industry. The vulcanization parameters were determined in a oscillatory plate rheometer. After the vulcanization the composites were characterized by density and physical-mechanical properties (Shore A Hardness, deformation permanent compression (DPC), tear and tensile strength). Results have shown that there was a weak interaction between the residue and the elastomeric matrix, resulting in a decrease in the mechanical properties values.