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**DEVELOPMENT AND CHARACTERIZATION OF HYBRID COMPOSITES FROM RECYCLED
POLYPROPYLENE, RUBBER WASTE TIRE AND CALCIUM CARBONATE**

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The main objective of this work was study the possibility of using a fillers hybrid consisting of calcium carbonate, and micronized rubber waste obtained from discarded tires after use, dispersed in the matrix of recycled polypropylene. The composites were prepared with different concentrations of loads: 30% of rubber waste + 10% CaCO₃, 20% waste rubber + 7.5% CaCO₃, 10% of waste rubber + 5% CaCO₃; only 20% CaCO₃, and only 20% of rubber waste. The composites were characterized by rheological tests, by measurements of flow index and dynamic-mechanical analysis (DMA), heat deflection temperature under load and Vicat softening point. Were also made analysis by MEV (scanning electron microscope). Comparing the results of tensile strength tests, was observed that the use of these different loads, occurred a decrease of the tensile strength until failure. The flow index showed a considerable decrease with addition of loads, both in the composites as in the hybrids. The elastic modulus increased with the addition of calcium carbonate, the material became more rigid. The addition of rubber made the modulus decreased considerably, the material became less rigid. The images obtained by MEV could confirm the poor adhesion between polymer matrix and the particles of CaCO₃ and waste rubber. The work showed that with the hybrid composites from different concentrations, occurred significant changes in the composites and hybrids properties. About the cost analysis, the study showed that the use of hybrid loads in recycled polypropylene thermoplastic resin becomes advantageous when the cost difference between the recycled resin, without fillers, and the hybrid composites, is considerable. In point of view of environment preserving, the use of recyclable materials as raw for the production of new products, becomes a practical solution to obtain compatibility and harmony between development and environmental quality, in other words, sustainable development.