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不同模压成型条件下聚丙烯木塑复合材料性能

**Performances of PP wood-plastic composites with different processing methods**

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中文摘要:

为利用农林废弃物和环境保护,以稻秸秆粉、稻壳粉、木粉、竹粉及稻秸秆与木粉的混合粉为填充材料,以PP膜为基体材料,采用层铺模压和混炼模压2种成型方法制备不同填料PP木塑复合材料,对木塑复合材料力学性能和吸湿吸水性能进行测试和分析,用体视显微镜对复合材料拉伸断面进行观察。结果表明,混炼模压成型木塑复合材料力学性能和抗吸湿吸水性能均优于层铺模压木塑复合材料,且混炼模压PP木塑复合材料填充材料与基体之间混合均匀,两相界面之间结合良好,层铺模压PP木塑复合材料有植物纤维粉和PP基体堆积现象。稻秸秆粉制备的PP木塑复合材料综合力学性能较好,竹粉PP木塑复合材料力学性能较差,模压前混炼对PP木塑复合材料吸湿、吸水性有较大的改善作用。该研究可为利用废旧塑料膜作基体制备木塑复合材料的研究与生产提供参考。

英文摘要:

In order to utilize agricultural and forestry wastes and environmental protection, the PP wood-plastic composites were prepared filled with rice straw powder, rice husk powder, wood powder and bamboo powder and mixing powder with two kinds of processing methods (mixing compression molding and layers compression molding). The mechanical properties, water absorption and moisture absorption performance of the PP wood-plastic composites were investigated. The tensile sections of the composites were observed by stereo microscope. The results showed that the mechanical properties, water absorption and moisture absorption performance of the PP composites with mixing compression molding excelled that with layers compression molding, and the filler well-distributed in PP matrix and two phases had good interface combination. The PP composites filled with straw powder had good mechanical properties, and bamboo powder with PP composites had poor performance, and its mechanical properties was low, and mixing compression molding had an important role to improved water absorption and moisture absorption performance of the PP wood-plastic composites.

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