

INTISARI

Penggunaan produk plastik meningkat diberbagai bidang aplikasi dikarenakan tingkat fleksibilitas dan biaya produksi yang rendah. Salah satu aplikasinya adalah pembuatan benang plastik untuk produksi karung plastik. Benang plastik terbuat dari bahan baku polipropilena, kalsium karbonat, polipropilna daur ulang. Permasalahan yang sering terjadi dalam pembuatan benang plastik adalah kuat tarik benang plastik yang tidak sesuai standar perusahaan. Hal ini diakibatkan oleh penggunaan komposisi bahan baku yang kurang tepat. Tujuan dari penulisan tugas akhir adalah memperbaiki komposisi bahan baku yang memberikan nilai kuat tarik benang plastik sesuai standar. Hasil dari penulisan tugas akhir menunjukkan bahwa, Perbandingan yanag digukan pada formulasi 1 PP murni 77%, CaCO_3 10%, PP *rececly* 13% dengan nilai kuat tarik sebesar 4 kgf. Formulasi 2 PP murni 78,2%, CaCO_3 18,6%, PP *rececly* 3,2% dengan nilai kuat tarik sebesar 3,9 kgf. Formusai 3 PP murni 73,9%, CaCO_3 23,1%, PP *rececly* 3% dengan nilai kuat tarik sebesar 3,5 kgf. Berdasarkan hasil pengujian kuat tarik formulasi pertama dengan perbandingan PP murni 77%, CaCO_3 10%, PP *recycle* 13%, adalah yang paling baik dibanding dengan formulasi dua dan tiga dengan nilai kuat tarik sebesar 4 kgf. komposisi bahan pengisi kalsium karbonat yang lebih banyak akan menurunkan sifat mekanik. Hal ini dikarenakan kalsium karbonat memiliki kompatibilitas terhadap polipropilena yang buruk.

Kata kunci : benang plastik, komposisi, kuat tarik, kalsium karbonat, polipropilena daur ulang

ABSTRACT

The use of plastic products was increasing in various application fields due to the level of flexibility and low production costs. One of the applications was the manufacture of plastic yarn for the production of plastic bags. Plastic threads are made from polypropylene, calcium carbonate, recycled polypropylene raw materials. The problem that often occurred in the manufacture of plastic threads was the tensile strength of the plastic threads that do not comply with company standards. This was caused by the use of the raw material composition that was not quite right. The purpose of writing this final project was to improve the composition of the raw materials that give the plastic yarn tensile strength according to the standard. The results of the writing of the final project showed that, the ratio used in the formulation of 1 pure PP is 77%, CaCO₃ 10%, PP recycled 13% with a tensile strength value of 4 kgf. Formulation of 2 pure PP 78.2%, 18.6% CaCO₃, 3.2% recycled PP with a tensile strength value of 3.9 kgf. Formulation 3 PP 73.9% pure, 23.1% CaCO₃, 3% recycled PP with a tensile strength value of 3.5 kgf. Based on the results of the first formulation tensile strength test with a ratio of 77% pure PP, 10% CaCO₃, 13% recycled PP, is the best compared to formulations two and three with a tensile strength value of 4 kgf. The composition of the calcium carbonate filler would decrease the mechanical properties. This was because calcium carbonate has poor compatibility with polypropylene.

Key words : plastic yarn, composition, tensile strength, calcium carbonate, recycled polypropylene