Studi penambahan serat ijuk perlakuan kimia terhadap sifat kristalinitas dan kekuatan mekanik polipropilena dengan variabel waktu dan temperatur pencampuran kering = Study addition of palm fiber chemical treatment of the crystallinity and mechanical properties of polypropylene with variable time and temperature of dry mixing

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Abstrak

[Pada penelitian ini, serat ijuk dihancurkan dan diayak ukuran 40 # setelah itu serat ijuk diberi perlakuan kimia dengan NaOH 2 % selama 1 jam, KMnO4 0,1 N selama 15 menit, dan NaClO 5 % selama 5 jam dengan tujuan mendapatkan selulosa kristalin. Setelah itu dilakukan proses pencampuran kering (hotmelt mixing) antara polipropilen dengan serat ijuk hasil perlakuan kimia dengan 7,5 % volum serat ijuk terhadap polipropilen dengan variabel temperatur 160°C, 165°C, dan 170°C dan variabel waktu pencampuran 15 menit dan 20 menit. Setelah itu dilakukan pengujian uji FTIR buat serat, sedangan buat komposit adalah uji tarik, uji STA, uji XRD, dan uji FE-SEM hal ini dilakukan untuk mendapatkan sifat kristalinitas dan mekanik dari komposit polipropilen ini. Hasil penelitian menunjukkan bahwa serat ijuk hasil perlakuaan lebih kristalin dari pada serat ijuk tanpa perlakukan, polipropilen dengan serat ijuk hasil perlakuaan kimia cukup kompatibel terhadap polipropilen, dari penelitian didapatkan sifat kristalinitas terbaik pada variabel 165°C selama 20 menit. Dan yang memiliki sifat kekuatan tarik paling baik adalah variabel 170°C selama 20 menit, sedangkan yang memiliki % elongasi paling baik adalah dengan variabel 160°C 20 menit. .....In this work, palm fiber crushed and sieved size 40 # after the palm fiber chemically treated with 2% NaOH for 1 hour, 0.1 N KMnO4 for 15 minutes, and 5% NaClO for 5 hours in order to obtain crystalline cellulose. Once that is done the dry mixing (hotmelt mixing) between polypropylene and palm fiber chemical treatment results with 7.5% volume of the palm fiber and polypropylene with a variable temperature of 160°C, 165°C and 170°C and a variable time mixing 15 minutes and 20 minutes. After it was examined FTIR test for fiber, while the composite is made tensile test, STA test, XRD test and FE-SEM test this is done to obtain crystallinity and mechanical properties of polypropylene composites this. The results show that fiber perlakuaan results more crystalline fibers than untreated palm fiber, polypropylene and palm fiber chemistry results treatment compatible enough to polypropylene, crystallinity of the research showed the best properties on the variable 165 ° C for 20 minutes. And who has the most excellent tensile strength properties are variable 170 ° C for 20 minutes, while the best of % elongation is at a variable 160 ° C 20 minutes.;In this work, palm fiber crushed and sieved size 40 # after the palm fiber chemically treated with 2% NaOH for 1 hour, 0.1 N KMnO4 for 15 minutes, and 5% NaClO for 5 hours in order to obtain crystalline cellulose. Once that is done the dry mixing (hotmelt mixing) between polypropylene and palm fiber chemical treatment results with 7.5% volume of the palm fiber and polypropylene with a variable temperature of 160°C, 165°C and 170°C and a variable time mixing 15 minutes and 20 minutes. After it was examined FTIR test for fiber, while the composite is made tensile test, STA test, XRD test and FE-SEM test this is done to obtain crystallinity and mechanical properties of polypropylene composites this. The results show that fiber perlakuaan results more crystalline fibers than untreated palm fiber, polypropylene and palm fiber chemistry results treatment compatible enough to polypropylene, crystallinity of the research showed

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