MALAYSIA NATURAL FIBRES FOR DIVERSED BIO-BASED APPLICATION

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Overview On Malaysia Natural Fibres And Its Applications

Zuraida Ahmad, Nur Humairah Abdul Razak, Nurizan Omar, Farrah Yusof

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Summary: This chapter presents some of natural fibres available in Malaysia, which have been given the attention by the researchers and engineers in developing green products Located in climatic area, Malaysia is well known in the production of crops such as coconut, pineapple, palm oil and kenaf and their natural fibre byproduct are utilized for making paper, ropes, and basket as well as blending together with inorganic brick to produce lightweight cement composites Today, the applications of this natural fibre is not limited to the conventional product and it goes into specialized area as in the automotive, green food packaging even in the aerospace industries This short review also briefly illustrates the characteristics, advantages and disadvantages as well as the applications of these fibres

Introduction

Environmental issues are one of the alarming present global scenarios This issue is becoming top of national and international agenda For this reason, natural fibres which are biodegradable in nature turned out to be the centre of attraction (Nadzai et al , 2006, Singha and Thakur, 2008, Azman et al , 2010) Natural fibres such as kenaf, bamboo, coir, pineapple leaves, sisal jutes and hemps can be used successfully in composites components for weight reduction and cost (Swift and Smith, 1979, Mansur, 1981, Asasutjarit et al , 2007, Tara and Jagannatha, 2011) These fibres are renewable, non-abrasive to process equipment and can be incinerated at the end of their life cycle for energy recovery as they possess a good deal of calorific value (Beldzki and Gassan,1999, Holmer et al.,1999) Unlike synthetics fibres, they are very safe during handling, processing and use (Kim et al , 2011a, Anuar et al , 2011, Anderson and Joffe, 2011) The distinctive properties of natural fibres composites are improved tensile and bending strength, greater ductility and greater resistance to cracking and hence improved impact strength and toughness (Shinoj et al , 2011)

Even though natural fibres enjoy some superior properties compared to synthetic fibres, but they are also inherent serious problem such as polarity In addition to this, other drawback that has been reported are poor resistances to moisture, limited processing temperature, and low dimensional stability Hence, surface modifications have been executed to improve the adhesion or interfacial bonding between natural fibres and the matrixes (Kim et al , 2011, Moyeenuddin et al , 2011)