

SUMMARY

Handhika Prajana, *Department of Mechanical Engineering, Faculty of Engineering Universitas Brawijaya, December 2017, The Influence of Particle Size on the Impact Strength And Hardness of Polyester Composite with Coconut Shell Powder Filler: Moch. Agus Choiron And Bayu Satriya Wardhana.*

Composites are materials made by combining two or more materials to provide a unique combination of properties. Adding fillers or fillers to a polymer composite with a certain volume fraction is one way of improving the composite mechanical properties. The aim of this research is to know the effect of the addition of filler in the form of coconut shell powder on the polyester composite to the composite mechanical properties. The test used to know the composite mechanical properties is impact strength test and hardness test.

In this research, coconut shell powder is sieved with variation of mesh size 180 μm , 140 μm and 125 μm . Furthermore, coconut shell powder was analyzed using 5% NaOH solution. Mixing of coconut shell powder with resin, then printed on pre-prepared mold. In the final stages, impact strength and hardness testing are performed.

From the test results, it can be concluded that the smaller grain size of coconut shell powder will increase the impact strength with the highest value of 0.001398471 J / mm^2 on the specimen size of 125 μm and decrease the value of composite hardness with the lowest value of 37.3796 VHN on the size of powder coconut shell 250 μm .

Keywords : coconut shell powder, polyester, mesh, impact strength, hardness