

## *UTILIZATION OF COCONUT FIBER POWDER POLYMER COMPOSITE AS MANUFACTURER OF SAFETY HELMET*

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### *ABSTRACT*

*This research aims to determine the value and mechanical properties of the impact test and to determine the fracture characteristics of the specimen. The green coconut powder used must be separated from the fiber and sieved with a mesh size of 1.1 mm, making the composite using a glass mold with a size of Length: 55 mm, width: 10 mm, height: 10 mm and a notches depth of 5 mm. Specimens of the test object refer to the ASTM E23 05 standard for impact testing. From the test results, with variations in the material content of 20% coconut powder + 80% resin, 30% coconut powder + 70% resin, 40% coconut powder + 60% resin, 50% coconut powder + 50% resin, 60% coconut powder + 40 % resins. From the research that has been done, it is found that the lowest impact strength of composite materials occurs in variations of 60% resin + 40% coconut powder with an average value of impact strength of 0.532 J/mm<sup>2</sup>, the highest impact strength of composite materials occurs in variations of 20% resin. + 80% coconut powder with an average impact strength of 0.628 J/mm<sup>2</sup>. Variation of 40% resin + 60% coconut powder with an average impact strength of 0.603 J/mm<sup>2</sup>, where the fracture results are classified as clay. The morphology that blends well with the epoxy resin and coconut powder with a specimen variation of 20% coconut powder + 80% resin.*

*Keywords: epoxy composite, coconut fiber powder, and impact test.*