

**VARIATION OF MAGNESIUM ADDITION TO TENSILE STRENGTH,
POROSITY AND MICRO STRUCTURE OF CAST ALUMINUM PISTON
WASTE**

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ABSTRACT

Casting is a process of melting metal until it melts and then poured in the mold until it freezes. In this study aluminum (Al) from used pistons was used as raw material for casting and added with magnesium (Mg). This research was conducted at the Jember Polytechnic Automotive Engineering Laboratory and the Malang Polytechnic Mechanical Engineering Laboratory. The method used in this study is an experimental method with variations in the addition of magnesium by 4%, 6%, and 8% of the weight of the aluminum piston material before melting. The results of the calculation of the highest average porosity lies in the specimen with the addition of 6% magnesium, which is 39.114%. The highest tensile test results with an average value lies in the specimen with the addition of magnesium by 8% which is 21.7 N / mm² with an average strain of 2.83%. From the results of microstructure observations, it is found that the image shows that magnesium granules have been mixed into the cast aluminum metal.

Keywords: Aluminum, magnesium, Porosity, Tensile Test, Micro Structure.