

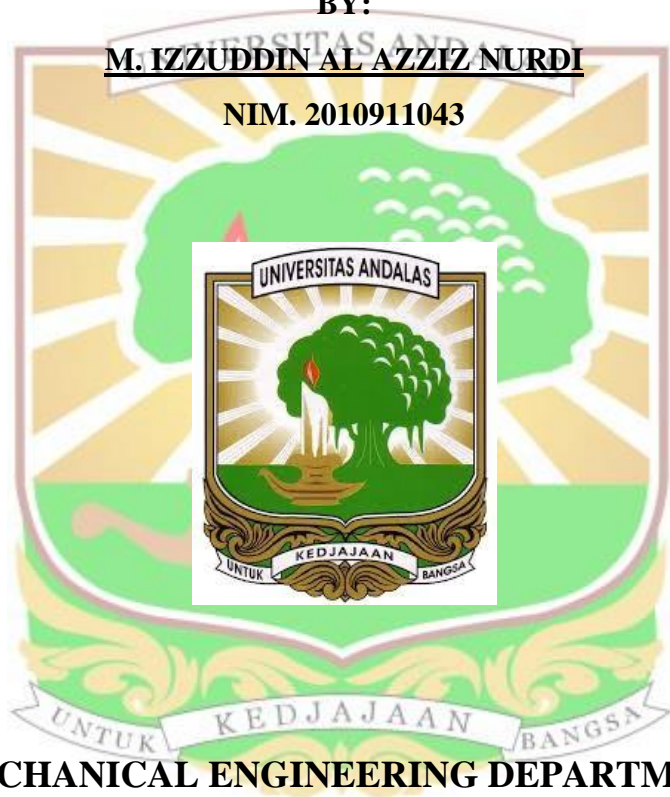
FINAL PROJECT

**EFFECT OF PERCENTAGE MOS₂ POWDER
ADDITION IN DROMUS COOLANT ON TOOL WEAR
OF COATED CARBIDE TOOLS IN TURNING LOW
CARBON STEEL**

BY:

M. IZZUDDIN AL AZZIZ NURDI

NIM. 2010911043



MECHANICAL ENGINEERING DEPARTMENT

ENGINEERING FACULTY

ANDALAS UNIVERSITY

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ABSTRACT

It is urgently needed in today's manufacturing industry to achieve high levels of product quality and productivity at low costs and optimizing the use of time, energy and resources. To achieve this, production speed must be increased and all process factors in the machining process must be optimized. The turning process with cutting fluid and its impact on the tools life is one element that needs to be considered. The use of soluble cutting fluid with addition of MoS₂ powder to increase surface tools life (machining performance) is the subject of this final project. In this research, low carbon steel (ST37) with percentage of added MoS₂ in dromus are 0%, 2%, 4% and 6% while keeping the feed rate (0.1 mm/rev), depth of cut (0.5 mm) and spindle speed (1170 rpm) constant. Tool Wear was observed until it reaches 0.2 mm, then the wear rate was calculated based on cutting time. Using One-way ANOVA and Tukey hsd post-hoc analysis obtained the results that there was a decrease in Coated Carbide tool edge wear with the increasing percentage of MoS₂ addition of 6%. This decrease in wear rate indicates that the addition of MoS₂ to dromus increases tool life and decreases wear rate. The conclusion from this research is that dromus supplemented with MoS₂ can be an alternative cutting fluid that is more effective in increasing tool life than using dromus alone.

Keywords: MoS₂ Powder, cutting fluid, coated carbide, tools life, low carbon steel