BAB V
CONCLUSION

5.1 Conclusion

From the research that has been carried out, it can be concluded that the addition of Molybdenum disulfide (MoS_2) additives in the metal cutting process has a significant effect in slowing down the tool wear rate and increasing tool life. Furthermore, the test results show that the higher the level of Molybdenum disulfide (MoS_2) used, the tool edge wear rate (flank wear) tends to decrease, and the tool life increases when compared to the use of Dromus coolant alone. This is due to the cooling properties of Dromus working in tandem with the lubrication capabilities of Molybdenum disulfide (MoS_2), which can reduce friction between the tool and the workpiece during the turning process. In conditions without the addition of MoS_2 , the average tool wear rate was recorded at 0.0091197 mm/min. Adding MoS_2 at 2% reduced the wear rate to 0.008106 mm/min. Increasing the MoS_2 concentration to 4% resulted in a wear rate of 0.007099 mm/min, and at 6% MoS_2 concentration, the wear rate reached its lowest point of 0.006396 mm/min.

5.2 Recommendation For Future Research

Future research should consider exploring a broader range of molybdenum disulfide (MoS_2) concentrations and alternative coolant types to better simulate diverse and practical industrial machining environments. Additionally, expanding the scope of observation beyond tool wear such as analyzing tool and workpiece contact area and feed motion variations would contribute to a more comprehensive understanding of the cutting process. Such investigations are expected to support the optimization of machining performance for greater efficiency and applicability.