

# ACHIEVEMENT OF GREEN MANUFACTURING USING ALTERNATIVE TYPES OF COOLING IN MACHINING PROCESSES

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## ABSTRACT

Machining is a process commonly used in the production of mechanical workpieces. Improving efficiency must be accompanied by environmental awareness with special emphasis on the social protection and labor. Higher values of the cutting parameters offer the possibility to achieve higher productivity, but at the same time present a risk of deterioration surface quality and tool life. Cutting fluids are used in metal machining for a variety of reasons such as improving tool life, reducing workpiece thermal deformation, improving surface finish and flushing away chips from the cutting zone. In order to increase the efficiency, there are incorporated some new parameters, such as environmental and social acceptability and greater economic profitability. More attention focused to the negative effects of the cooling and lubrication as well as the multiplication of these effects has led to the necessity of finding new solutions. Alternative types of cooling in combination with new materials for making tools and special coatings represent an area of finding appropriate replacement of the cooling and lubricating. The main focus of this paper is demonstration the capabilities and benefits of applying dry machining and alternative types of cooling in terms of reaching a better surface quality with longer tool life.