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## **MINIMIZATION OF CUTTING FLUIDS ECOLOGICAL IMPACT BY NEAR DRY MACHINING**

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### **Abstract**

This paper analyses a new technology for minimizing the use of metalworking fluids (MWF) during the machining process. Despite the fact that near dry machining (NDM) produces almost similar cutting performance to conventional flood supply machining while using much less MWF, for being fully utilized in industry is necessary to research ecological impact of these machining techniques. To take full advantage of minimal quantity lubrication (MQL) technique and expand its applicability, an understanding of its environmental consequences is critical. Thus, in this study, the MWF characteristics were analyzed and their changes occurred during the gear milling process were investigated using a multi gas monitor. Emissions composition and component gases concentrations were investigated in dry cutting (DC), MQL via atomized spray mist, in flood cooling (FC), and in open atmosphere.

*Key words:* cutting fluids, environmental pollution, gear milling process, green manufacturing

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