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EFFECTS OF REUSING ABRASIVE MATERIAL IN ABRASIVE WATER JET CUTTING ON THE QUALITY OF PROCESSED SURFACES AND ENVIRONMENT

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Abstract

The aim of the current study is to analyse the effects of reusing the abrasive material, in different rates, on the quality of surfaces processed by abrasive water jet cutting (AWJ) and to correlate it with the environmental impact. In view of this, two aluminium alloys are processed, Al 2024 T3 and Al 6065 T651, respectively, with large applicability in the aeronautic and machine building industries. It was found that for reusing rates of the abrasive material higher than 60%, a better quality of the processed surfaces in terms of the five analyzed parameters according to the ISO/WD/TC44 N 1770 standard resulted. Consequently, a lower amount of virgin abrasive material is necessary, which in turn leads to both, economic and environmental benefits.

Key words: environmental friendly technology, jet cutting, reused abrasive, surface quality

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