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PII: S0301-679X(17)30567-4

DOI: 10.1016/j.triboint.2017.12.009

Reference: JTRI 4993

To appear in: *Tribology International*

Received Date: 7 September 2017

Revised Date: 7 December 2017

Accepted Date: 9 December 2017

Please cite this article as: Capela P, Carvalho SF, Guedes A, Pereira M, Carvalho L, Correia J, Soares D, Gomes JR, Effect of sintering temperature on mechanical and wear behaviour of a ceramic composite, *Tribology International* (2018), doi: 10.1016/j.triboint.2017.12.009.

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Keywords

Grinding, wear, abrasive, low temperature.

Abstract

A new vitrified bonded abrasive composite for grinding wheels and a reference material used in the industrial production of grinding wheels were compared in terms of mechanical properties and wear behaviour. The new formulation abrasive samples were processed using different sintering temperatures. With the new composite, it was possible to, simultaneously, obtain similar mechanical properties and increase the open porosity, at a lower sintering temperature. The results demonstrated that the grinding performance of vitrified bonded abrasives can be optimized varying the heat treatment maximum temperature. The best combination of results was achieved with a sintering temperature of 1000 °C.

1. Introduction

Grinding wheels are largely used in manufacturing industry to shape and finish metals and other materials in an efficient way. Many industries such as aerospace, automotive, biomedical, and industrial heavy equipment, to name only a few, depend on the grinding precision to produce