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Reduction of diamond-coated cutting tool wear during graphite cutting

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Highlights

- When cutting graphite in air, oxidation causes extreme wear to diamond cutting tools.
- Wear during high-speed cutting is dominated by the high temperature exposure time.
- During low-speed cutting, the heat generation rate predominates as a factor of wear.
- Nitrogen blowing reduces wear to diamond cutting tools by mitigating oxidation.

1. Introduction

In the aerospace industry, carbon-fiber-reinforced carbon composites (C/C composite) and carbon-fiber-reinforced plastics (CFRP) having light weight and high strength are used to achieve energy conservation. Their application is now expanding to the

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