

**A Method For Improving The Cooling Effectiveness of a Gaseous
Coolant Stream Which Flows Through a Substrate, and Related
Articles of Manufacture**

Abstract

A method for improving the cooling effectiveness of a gaseous coolant stream which flows through at least one passage hole in a substrate to an exit site on a high-temperature surface of the substrate is disclosed. The method comprises disrupting the coolant stream at the exit site, so that the coolant stream contacts a greater area of the high-temperature surface. In some embodiments, the exit site is a crater. Moreover, the exit site may be formed within a coating applied over the substrate, e.g., a thermal barrier coating applied over the superalloy substrate.

Related articles are also disclosed.

FIG.6