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Metallic and other inorganic coatings — Determination of thermal conductivity of thermal barrier coatings at elevated temperature

Revêtements métalliques et autres revêtements inorganiques — Détermination de la conductivité thermique des revêtements barrières thermiques à température élevée

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Foreword

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

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Introduction

Thermal barrier coatings are highly advanced material systems, generally applied to surfaces of hot-section components made of nickel or cobalt-based superalloys, such as combustors, blades, and vanes of power-generation gas turbines in thermal power plants and aero-engines operated at elevated temperatures.

The function of these coatings is to protect metallic components for extended periods at elevated temperatures by employing thermally insulating materials that can sustain an appreciable temperature difference between load bearing alloys and coating surfaces. These coatings permit the high-temperature operation by shielding these components, thereby extending their lives.

Although thermal conductivity is an important property of thermal barrier coatings, ISO 18555 only describes a method for measuring this parameter of thermal barrier coatings at room temperature.