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Metallic and other inorganic coatings — Determination of thermal diffusivity of thermally sprayed ceramic coatings by laser flash method

Revêtements métalliques et autres revêtements inorganiques — Détermination de la diffusivité thermique des revêtements céramiques obtenus par projection thermique par la méthode flash laser

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Contents

Page

Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 13826 was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*.

Introduction

Thermally sprayed ceramic coatings provide protection against high-temperature corrosion, erosion and wear; they can also change the appearance, electrical or tribological properties of the surface, replace worn material, etc. Thermal barrier coatings (TBCs) are typical examples of such ceramic coatings.

Thermal diffusivity data of thermally sprayed ceramic coatings are measured by the laser flash method. The data are used to calculate thermal conductivity when provided with density and specific heat capacity data.

Thermal diffusivity and thermal conductivity are significant properties of such thermally sprayed coatings when designing for thermal insulation, thermal isolation, efficient heat transfer and cooling systems. It is used by designers to calculate appropriate thickness needed to protect the metallic components and thus to determine the maximum temperature to which super-alloys with the thermally sprayed ceramic coatings could be exposed.

This International Standard gives guidelines for the determination of thermal diffusivity of thermally sprayed ceramic coatings by the laser flash method.