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Nota di contenuto	The Science and Engineering of Thermal Spray Coatings; Contents; Preface to the Second Edition; Preface to the First Edition; Acronyms, Abbreviations and Symbols; 1 Materials Used for Spraying; 1.1 Methods of Powders Production; 1.1.1 Atomization; 1.1.2 Sintering or Fusion; 1.1.3 Spray Drying (Agglomeration); 1.1.4 Cladding; 1.1.5 Mechanical Alloying (Mechanofusion); 1.1.6 Self-propagating High-temperature Synthesis (SHS); 1.1.7 Other Methods; 1.2 Methods of Powders Characterization; 1.2.1 Grain Size; 1.2.2 Chemical and Phase Composition; 1.2.3 Internal and External Morphology 1.2.4 High-temperature Behaviour 1.2.5 Apparent Density and Flowability; 1.3 Feeding, Transport and Injection of Powders; 1.3.1 Powder Feeders; 1.3.2 Transport of Powders; 1.3.3 Injection of Powders; References; 2 Pre-Spray Treatment; 2.1 Introduction; 2.2 Surface Cleaning; 2.3 Substrate Shaping; 2.4 Surface Activation; 2.5 Masking; References; 3 Thermal Spraying Techniques; 3.1 Introduction; 3.2 Flame Spraying (FS); 3.2.1 History; 3.2.2 Principles; 3.2.3 Process Parameters; 3.2.4 Coating Properties; 3.3 Atmospheric Plasma Spraying (APS); 3.3.1 History; 3.3.2 Principles 3.3.3 Process Parameters 3.3.4 Coating Properties; 3.4 Arc Spraying

(AS); 3.4.1 Principles; 3.4.2 Process Parameters; 3.4.3 Coating Properties; 3.5 Detonation-Gun Spraying (D-GUN); 3.5.1 History; 3.5.2 Principles; 3.5.3 Process Parameters; 3.5.4 Coating Properties; 3.6 High-Velocity Oxy-Fuel (HVOF) Spraying; 3.6.1 History; 3.6.2 Principles; 3.6.3 Process Parameters; 3.6.4 Coating Properties; 3.7 Vacuum Plasma Spraying (VPS); 3.7.1 History; 3.7.2 Principles; 3.7.3 Process Parameters; 3.7.4 Coating Properties; 3.8 Controlled-Atmosphere Plasma Spraying (CAPS); 3.8.1 History; 3.8.2 Principles 3.8.3 Process Parameters 3.8.4 Coating Properties; 3.9 Cold-Gas Spraying Method (CGSM); 3.9.1 History; 3.9.2 Principles; 3.9.3 Process Parameters; 3.9.4 Coating Properties; 3.10 New Developments in Thermal Spray Techniques; References; 4 Post-Spray Treatment; 4.1 Heat Treatment; 4.1.1 Electromagnetic Treatment; 4.1.2 Furnace Treatment; 4.1.3 Hot Isostatic Pressing (HIP); 4.1.4 Combustion Flame Re-melting; 4.2 Impregnation; 4.2.1 Inorganic Sealants; 4.2.2 Organic Sealants; 4.3 Finishing; 4.3.1 Grinding; 4.3.2 Polishing and Lapping; References; 5 Physics and Chemistry of Thermal Spraying 5.1 Jets and Flames 5.1.1 Properties of Jets and Flames; 5.2 Momentum Transfer between Jets or Flames and Sprayed Particles; 5.2.1 Theoretical Description; 5.2.2 Experimental Determination of Sprayed Particles' Velocities; 5.2.3 Examples of Experimental Determination of Particles Velocities; 5.3 Heat Transfer between Jets or Flames and Sprayed Particles; 5.3.1 Theoretical Description; 5.3.2 Methods of Particles' Temperature Measurements; 5.4 Chemical Modification at Flight of Sprayed Particles; References; 6 Coating Build-Up; 6.1 Impact of Particles; 6.1.1 Particle Deformation 6.1.2 Particle Temperature at Impact

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Sommario/riassunto

This extensively updated and revised version builds on the success of the first edition featuring new discoveries in powder technology, spraying techniques, new coatings applications and testing techniques for coatings -- Many new spray techniques are considered that did not exist when the first edition was published! The book begins with coverage of materials used, pre-spray treatment, and the techniques used. It then leads into the physics and chemistry of spraying and discusses coatings build-up. Characterization methods and the properties of the applied coatings are presented, and the

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