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Nota di contenuto	Oxide Scale Behaviour in High Temperature Metal Processing; Contents; Preface; 1: Introduction; 2: A Pivotal Role of Secondary Oxide Scale During Hot Rolling and for Subsequent Product Quality; 2.1 Friction; 2.2 Heat Transfer; 2.3 Thermal Evolution in Hot Rolling; 2.4 Secondary Scale-Related Defects; References; 3: Scale Growth and Formation of Subsurface Layers; 3.1 High-Temperature Oxidation of Steel; 3.2 Short-Time Oxidation of Steel; 3.3 Scale Growth at Continuous Cooling; 3.4 Plastic Deformation of Oxide Scales; 3.5 Formation and Structure of the Subsurface Layer in Aluminum Rolling References4: Methodology Applied for Numerical Characterization of Oxide Scale in Thermomechanical Processing; 4.1 Combination of Experiments and Computer Modeling: A Key for Scale Characterization; 4.2 Prediction of Mild Steel Oxide Failure at Entry Into the Roll Gap as an Example of the Numerical Characterization of the Secondary Scale Behavior; 4.2.1 Evaluation of Strains Ahead of Entry into the Roll Gap; 4.2.2 The Tensile Failure of Oxide Scale Under Hot Rolling Conditions; 4.2.3 Prediction of Steel Oxide Failure During Tensile Testing 4.2.4 Prediction of Scale Failure at Entry into the Roll Gap4.2.5

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Sommario/riassunto

The result of a fruitful, on-going collaboration between academia and industry, this book reviews recent advances in research on oxide scale behavior in high-temperature forming processes. Presenting novel, previously neglected approaches, the authors emphasize the pivotal role of reproducible experiments to elucidate the oxide scale properties and develop quantitative models with predictive accuracy. Each chapter consists of a detailed, systematic examination of different aspects of oxide scale formation with immediate impact for researchers and developers in industry. The clear and strin
