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Nota di contenuto	1. Introduction to magnesium-based nanocomposites -- 1.1. Introduction -- 1.2. The characteristics of magnesium -- 1.3. The

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2. Processing of magnesium-based (nano)composites -- 2.1. Introduction -- 2.2. Liquid state processing -- 2.3. Solid-state processing -- 2.4. Semisolid processing -- 2.5. In situ synthesis -- 2.6. Summary
3. Tensile and compressive properties of magnesium nanocomposites at room temperature -- 3.1. Introduction -- 3.2. Oxide nanoparticle reinforced magnesium composites -- 3.3. Carbide and carbon-based reinforcement containing magnesium nanocomposites -- 3.4. Nitride nanoparticle reinforced magnesium composites -- 3.5. Boride nanoparticle reinforced magnesium composites -- 3.6. Calcium phosphate nanoparticle reinforced magnesium composites -- 3.7. Metallic nanoparticle reinforced magnesium composites -- 3.8. Summary
4. Temperature and strain rate effects on the tensile and compressive properties of magnesium nanocomposites -- 4.1. Introduction -- 4.2. Temperature effects on the quasi-static mechanical properties of magnesium nanocomposites -- 4.3. Strain rate effects on room temperature mechanical properties -- 4.4. Combined effects of temperature and strain rate on the mechanical properties of magnesium nanocomposites -- 4.5. Summary
5. The fatigue response of magnesium-based nanocomposites -- 5.1. Introduction -- 5.2. The mechanism of fatigue deformation -- 5.3. Evaluation of fatigue properties -- 5.4. The fatigue response of magnesium nanocomposites -- 5.5. Summary
6. The tribological behaviour of magnesium nanocomposites -- 6.1. Introduction -- 6.2. Wear mechanisms in magnesium nanocomposites -- 6.3. Evaluation of sliding wear properties -- 6.4. Wear response of magnesium nanocomposites -- 6.5. Summary
7. The thermal response of magnesium nanocomposites : oxidation and ignition -- 7.1. Introduction -- 7.2. The oxidation behaviour of magnesium nanocomposites -- 7.3. Ignition behaviour of magnesium nanocomposites -- 7.4. Summary
8. Creep characteristics of magnesium-based nanocomposites -- 8.1. Introduction -- 8.2. Mechanism of creep -- 8.3. Evaluation of creep properties -- 8.4. Creep response of magnesium nanocomposites -- 8.5. Summary
9. Machinability of magnesium-based nanocomposites -- 9.1. Introduction -- 9.2. Machinability of magnesium-based nanocomposites -- 9.3. Summary
10. Wet corrosion and biocompatibility of magnesium nanocomposites -- 10.1. Introduction -- 10.2. The mechanism in magnesium and magnesium alloys -- 10.3. Evaluation of corrosion resistance -- 10.4. Wet corrosion of magnesium nanocomposites -- 10.5. The biocompatibility of magnesium nanocomposites -- 10.6. Summary
11. Applications and challenges -- 11.1. Introduction -- 11.2. Automobile applications of magnesium nanocomposites -- 11.3. Aerospace applications of magnesium nanocomposites -- 11.4. Electronics applications of magnesium nanocomposites -- 11.5. Biomedical applications of magnesium nanocomposites -- 11.6. Sports applications of magnesium nanocomposites -- 11.7. Challenges of magnesium nanocomposites -- 11.8. Summary.

Sommario/riassunto

Magnesium-Based Nanocomposites: Advances and applications covers the most recent advances in the processing and properties of magnesium-based nanocomposites, a class of lightweight sustainable materials with the potential to be revolutionary energy-saving materials

with a range of beneficial applications. It provides a complete picture of the materials, including their multi-faceted design and applications in technology, electronics, medicine, and the automotive and aerospace industries. The book will enable researchers and engineers, irrespective of their discipline, to better exploit the benefits of magnesium-based nanocomposites for multiple applications that can contribute significantly to the safe health of humans and the planet. It also acts as a guide for tailoring materials for targeted applications, and as useful supplementary reading for advanced courses on composites and nanocomposites.