

Table of Contents

Preface

Chapter 1: Additive Manufacturing Techniques

Large Titanium Preforms Manufactured by Cold Spray

C. Doblin, S.H. Zahiri, M. Faizan-ur-Rab, S. Gulizia, A. Vargas-Uscategui, A. Yousefiani and B. Zamorano

3

Manufacturing of a Ti6Al4V Aerospace Component by Metallic Wire Based Laser Beam Directed Energy Deposition

E. Vaamonde, P. Rey and M. Salgueiro

13

Ti and Co-Cr-Mo Alloy Dissimilar Surface Modification Obtained by Laser Surface Alloying / Additive Manufacturing

G.A. Assumpção, A.F. Ramirez-Rodrigues and J.B. Fogagnolo

23

Effect of Layer Thickness and Particle Size Distribution on the Microstructure and Properties of Ti6Al4V Processed by Laser Powder Bed Fusion

N. Belsure, R. Sandberg, E. Hryha, G. Soundarapandiyan and F. Deirmina

29

Chapter 2: Sustainability and Recycling

Exploitation of FAST/SPS to Recycle Surplus Titanium Alloy Particulates for Sustainable Solutions and near Net Shape Components

S. Lister and M. Jackson

41

3D Printing of Ti-6Al-4V Parts from Waste Material

M. Grande-Molina, L. Calvo, L. Poudelet, R. Cardona, C. Chirico and B. Ferrari

49

Effect of the Scanning Speed and Powder Recycling Impact on Titanium Ti-6Al-4V Alloy by PBF – L/M

Á. Nieto, A. Perrián, J. Santaolaya and C. Galleguillos

59

Chapter 3: Some Specialised Applications

Porous Titanium for Biomedical Applications Produced Using Coarse Titanium Powder via the Space Holder Technique

A. Govender and M. Kiliswa

69

Comparison between TiN Coating on Porous Ti-6Al-4V Produced by PBF-EB/M or PM for Bipolar Plates in PEM Fuel Cells

J. Villemur, C.R. Villarreal, J.M. Crego, J.R. Blasco Puchades and E. Gordo Odériz

79

Powder Metallurgy Technologies for Low-Cost Titanium-Based Laminated Armor

S.V. Prikhodko, P.E. Markovsky, D.G. Savvakina, O.M. Ivasishin, O. Stasiuk and D. Oryshych

89

Sintered Titanium Sponge Using Stop-Controlled SPS Technology

T. Hutsch, J. Trapp and T. Weißgärber

97