

# Contents

<b>Part I     Aluminum and Magnesium Alloys</b>	
<b>Hot Cracking in Welds of Aluminum and Magnesium Alloys . . . . .</b>	<b>3</b>
S. Kou, V. Firouzdor, and I.W. Haygood	
<b>Critical Conditions for Weld Solidification Crack Growth . . . . .</b>	<b>25</b>
Carl E. Cross, N. Coniglio, P. Schempp, and M. Mousavi	
<b>Hot Tearing Test for TIG Welding of Aluminum Alloys: Application of a Stress Parallel to the Fusion Line . . . . .</b>	<b>43</b>
A. Niel, F. Deschaux-Beaume, C. Bordreuil, G. Fras, and J.-M. Drezet	
<b>Hot Cracking Susceptibility of Wrought 6005 and 6082 Aluminum Alloys . . . . .</b>	<b>59</b>
Paul Kah, Jukka Martikainen, Esa Hiltunen, Fisseha Brhane, and Victor Karkhin	
<b>Prediction of Liquation Crack Initiation in Al-Mg-Si Alloy Welded Joints . . . . .</b>	<b>71</b>
Jukka Martikainen, Esa Hiltunen, Fisseha Brhane, Victor Karkhin, and S. Ivanov	
<b>Hot Tearing Sensitivity of Al-Mg-Si Alloys Evaluated by X-Ray Microtomography After Constrained Solidification at High Cooling Rate . . . . .</b>	<b>87</b>
E. Giraud, M. Suéry, J. Adrien, E. Maire, and M. Coret	
<b>Part II     Steels and Stainless Steels</b>	
<b>Short Term Metallurgy and Hot Cracking During Laser Beam Welding of Austenitic Stainless Steels . . . . .</b>	<b>103</b>
Thomas Böllinghaus, A. Gumenyuk, and V. Quiroz	
<b>Laser Weldability of Stainless Steel . . . . .</b>	<b>131</b>
Carl E. Cross, N. Coniglio, E.M. Westin, and A. Gumenyuk	

<b>Weld Solidification Cracking in 304 to 304L Stainless Steel . . . . .</b>	<b>145</b>
P.W. Hochanadel, T.J. Lienert, J.N. Martinez, R.J. Martinez, and M.Q. Johnson	
<b>Solidification Cracking Studies in Multi Pass Laser Hybrid Welding of Thick Section Austenitic Stainless Steel . . . . .</b>	<b>161</b>
Miikka Karhu and Veli Kujanpää	
<b>Influence of Minor and Impurity Elements on Hot Cracking Susceptibility of Extra High-Purity Type 310 Stainless Steels . . . . .</b>	<b>183</b>
K. Nishimoto, K. Saida, K. Kiuchi, and J. Nakayama	
<b>Investigations on Hot Cracking of Novel High Manganese TWIP-Steels . . . . .</b>	<b>209</b>
D. Keil, M. Zinke, and H. Pries	
<b>Solidification Cracking Susceptibility in C-Mn Steel CO<sub>2</sub> Laser Welds . . . . .</b>	<b>225</b>
M.F. Gittos, S.M.I. Birch, and R.J. Pargeter	
<b>Part III Nickel-Base Alloys</b>	
<b>Application of Solidification Models for Controlling the Microstructure and Hot Cracking Response of Engineering Alloys .</b>	<b>265</b>
John N. DuPont	
<b>In Situ Observations of Ductility-Dip Cracking Mechanism in Ni-Cr-Fe Alloys . . . . .</b>	<b>295</b>
J.S. Unfried, E.A. Torres, and A.J. Ramirez	
<b>Further Development of the Cast Pin Tear Test for Evaluating Solidification Cracking in Ni-Base Alloys . . . . .</b>	<b>317</b>
B.T. Alexandrov and John Lippold	
<b>Behavior and Hot Cracking Susceptibility of Filler Metal 52M (ERNiCrFe-7A) Overlays on Cast Austenitic Stainless Steel Base Materials . . . . .</b>	<b>333</b>
Steven L. McCracken and Richard E. Smith	
<b>Investigation of Weld Crack Mitigation Techniques with Advanced Numerical Modeling and Experiment – Summary . . . . .</b>	<b>353</b>
Y.P. Yang, S.S. Babu, J.M. Kikel, and F.W. Brust	
<b>Weld Cracking Susceptibility of Alloy C-22 Weld-Metal . . . . .</b>	<b>367</b>
M.L. Gallagher and John Lippold	
<b>Weldability of a New Ni-Cu Welding Consumable for Joining Austenitic Stainless Steels . . . . .</b>	<b>393</b>
J.W. Sowards, B.T. Alexandrov, John Lippold, and G.S. Frankel	

<b>Metallurgical Response of Electron Beam Welded Allvac<sup>®</sup> 718Plus<sup>™</sup></b>	415
J. Andersson, G. Sjöberg, and H. Hänninen	
<b>Stray Grain Formation and Solidification Cracking</b>	
<b>Susceptibility of Single Crystal Ni-Base Superalloy CMSX-4 . . . . .</b>	429
John N. DuPont and T.D. Anderson	

Hot Cracking Phenomena in Welds III

Lippold, J.C.; Boellinghaus, Th.; Cross, C.E. (Eds.)

2011, XVIII, 439 p., Hardcover

ISBN: 978-3-642-16863-5