Table of Contents

Melt Quality & Treatment

Preface Committees Sponsors

Industry Directions	
A Historical Review of the Developments in Casthouse Technology and a Peek into the	
Future P. Whiteley	3
Hydro Casthouse Reference Centre T. Furu and I.K. Steen	9
Safety & Environment	
Recent Developments in Australian Aluminium Casthouse Personal Protective Clothing M. Lee	19
Greenhouse Emissions in Primary Aluminium Smelter Cast Houses - A Life Cycle Analysis P. Koltun, A. Tharumarajah and J.F. Grandfield	27
Dross Generation & Handling	
Predicting Dross Formation in Aluminium Melt Transfer Operations J.A. Taylor, M. Prakash, G.G. Pereira, P. Rohan, M. Lee and B. Rinderer	37
Furnace Operations to Reduce Dross Generation A. Peel, J. Herbert, D. Roth and M.J. Collins	45
Dross Processing Technology A. Peel, J. Herbert, D. Roth and M.J. Collins	53
Automated Metal Siphoning and Cast House Energy Consumption J. Locatelli and G.W. Liu	61
Technological Researches Concerning a Decrease in the Losses Due to the Oxidation of Remelted Scrap from Aluminium Alloys I. Butnariu, I. Butnariu and D. Butnariu	71
Furnaces & Refractories	
Furnace Operation: "A Gold Mine in your Casthouse" G. Girard, J. Barresi, C. Dupuis and G. Riverin	77
Homogenization Aspects, Continuous versus Batch in an Integrated Modern Casthouse F. Niedermair	85
Fives Solios Experience in Modern Secondary Aluminium Casthouse Construction L. Allen, P. Hipwood and B. Houghton	95
Dry Hearth Melting Furnaces P. Newman	103
The Benefits of Forced Circulation for Aluminium Reverberatory Furnaces P. Campbell	111
Launder System for Aluminium Casting M.V. Canullo, F. Daroqui, J. Ottaviani, M. Martín and R.A. Laje	119

The Impact of Rising Ni and V Impurity Levels in Smelter Grade Aluminium and Potential Control Strategies J.F. Grandfield and J.A. Taylor	129
Development of a Phosphate - Free Reticulated Foam Filter Material for Aluminium Cast	12)
Houses L.S. Aubrey, R. Olson and D.D. Smith	137
Results with a Multi Stage System of Filtration Employing a Cyclone J.H. Courtenay and F. Reusch	147
The Use of Electromagnetic Fields for the Detection of Inclusions in Aluminium S. Poynton, M. Brandt and J.F. Grandfield	155
Cast House Productivity	
Estimating the Production Capabilities of Casthouse Equipment Configuration Options P.W. Baker	165
Direct Chill & Continuous Casting	
Downstream Considerations of Fusion Clad Casting R.B. Wagstaff, T.F. Bischoff and D. Sinden	175
Billet Sump Modification of Al-Billets for the Prevention of Starting Cracks M. Rosefort, T. Koehler and H. Koch	179
New Billet Mould Casting Technology C. Emes and R.J. Collins	187
Macrosegregation Mechanisms in Direct-Chill Casting of Aluminium Alloys D.G. Eskin and L. Katgerman	193
Organic Coatings to Prevent Molten Metal Explosions A.W. Lowery and J. Roberts	201
The Supply of Casthouse Equipment and Empowerment of Knowledge to Cast Aerospace Alloys the Almex Way S. Hamer	205
Grain Refinement and Hot Tearing of Aluminium Alloys - How to Optimise and Minimise M. Easton, D.H. StJohn and L. Sweet	213
DC Casting Using a TF Combo Bag: 3D Modeling of the Distribution of Molten Metal and Heat Transfer	
S.P. Tremblay, A. Arsenault, D. Larouche, F. Ilinca, J.F. Hétu and J.P. Dubé	223
Ingot Casting	
Safety Enhancement in Ingot Casting at Tomago Aluminium V. Nguyen, J.F. Grandfield, P. Rohan and B. Todd	235
Technological Jump in Aluminium Ingot Production C.M. Brocato	243
Aluminium Bahrain - Benefits at ALBA from Use of Improved Graphite Rings for Production of Extrusion Ingots	
M.A. Kadhim, H.A.A.J. Ghuloom, G. Martin and M. Jacobs	251