

Table of Contents

iii	Australian Centre for Geomechanics
iv	The Southern African Institute of Mining and Metallurgy
v	Committees
vii	Technical Reviewers
ix	Preface
xi	Sponsors

Deposition

3	Towards an integrated approach to tailings management <i>A. Chryss, CSIRO Process Science and Engineering, Australia; A.B. Fourie, School of Civil and Resource Engineering, The University of Western Australia, Australia; A. Mönch, D. Nairn, CSIRO Process Science and Engineering, Australia; K.D. Seddon, ATC Williams Pty Ltd, Australia</i>
11	Measurements on freshly-deposited surfaces of two platinum tailings dams <i>G. Blight, University of the Witwatersrand, South Africa; A. Copeland, Anglo American Mining and Technology, South Africa; P. Jardine, Fraser Alexander Tailings, South Africa; C. MacRobert, Anglo American Mining and Technology, South Africa</i>
25	Tailings initial consolidation and evaporative drying after deposition <i>A.L. Li, URS Pty Ltd, Australia; K. Been, I. Wislesky, Golder Associates Ltd., Canada; T. Eldridge, Golder Associates S.A., Chile; D. Williams, Golder Associates Pty Ltd, Australia</i>
43	Accelerated consolidation of soft clays and mine tailings using a desktop centrifuge <i>D. Reid, School of Civil and Resource Engineering, The University of Western Australia, Australia; and Golder Associates Pty Ltd, Australia; A.B. Fourie, School of Civil and Resource Engineering, The University of Western Australia, Australia; S. Watson, Formerly School of Civil and Resource Engineering, The University of Western Australia, Australia</i>
53	KEYNOTE: Perceived and realised benefits of paste and thickened tailings for surface deposition <i>A.B. Fourie, School of Civil and Resource Engineering, The University of Western Australia, Australia</i>
65	Thickened tailings water balance – dealing with excess water <i>J. Moreno, J. Martin, D. Luppnow, SRK Consulting Australia, Australia</i>
73	Contribution of desiccation to monotonic and cyclic strength of thickened gold tailings – not the same as over-consolidation <i>F. Daliri, H. Kim, P. Simms, S. Sivathayalan, Carleton University, Canada</i>
85	Putting beach slope prediction into perspective <i>R.J. Jewell, Australian Centre for Geomechanics, The University of Western Australia, Australia</i>
93	Important considerations in the testing of high density tailings for beach profile prediction <i>G.I. McPhail, SLR Consulting Australia (Pty) Ltd, Australia; M. Becerra, ASMIN, Chile; S. Barrera, ARCADIS, Chile</i>

Thickening and dewatering

105	Design and development of a novel thickener feedwell using computational fluid dynamics <i>T.V. Nguyen, CSIRO Mathematical and Information Sciences, Australia; J.B. Farrow, CSIRO Process Science and Engineering, Australia; J. Smith, Anglo American Mineral Processing, South Africa; P.D. Fawell, CSIRO Process Science and Engineering, Australia</i>
121	RadFlow™ – the next generation feedwell <i>A. Krassnokutski, Roymec Technologies (Pty) Ltd, South Africa</i>
129	A new approach to fine solids dewatering <i>C.St.J. Lowe, Weir Minerals Australia, Australia</i>

- 141 Thickener experiences at Langer Heinrich Mine
M. Cooks, D. Mostert, L. Coetzee, D.J. van Schalkwyk, Langer Heinrich Uranium (Pty) Ltd, Namibia

Polymers

- 157 The effects of synthetic flocculants on some geotechnical properties of kaolin clay
D. Reid, School of Civil and Resource Engineering, University of Western Australia, Australia; and Golder Associates Pty Ltd, Australia; A.B. Fourie, School of Civil and Resource Engineering, University of Western Australia, Australia
- 169 Flocculant testing through the application of experimental design techniques and the application of a flocculant pipe reactor
M. Cooks, B. Plaatjies, Langer Heinrich Uranium (Pty) Ltd, Namibia
- 183 BASF novel flocculant technology in dynamic thickening operation
S. Adkins, A. Berger, BASF Construction Polymers GmbH, Germany; J. Muhor, G. Brodt, BASF SE, Germany; I. Flanagan, BASF Performance Products plc, United Kingdom

Case studies

- 197 Evaluation of the behaviour of high density tailings deposition – CODELCO pilot plant
J. Engels, Knight Piésold S.A., Chile; G.I. McPhail, SLR Consulting Australia (Pty) Ltd, Australia; R. Jamett, Knight Piésold S.A., Chile; C. Pavissich, CODELCO-VP, Chile
- 213 Thickened tailings – a water and energy consumption perspective
J.H.L. Möller, A.J.C. Paterson, Paterson & Cooke, South Africa; T. Verbeek, Anglo American Kumba Iron Ore, South Africa
- 225 Thickening of tailings using hydrocyclones operating under vacuum conditions
G.J. van Ryssen, Cyclone Projects and Consulting, South Africa; P.L. Steenkamp, AngloGold Ashanti Ltd, Senegal
- 233 Application of hydrocyclone technology to TSFs to reduce water consumption
M.A. Knight, J.A. Wates, Fraser Alexander Tailings, South Africa; I. Du Plessis, Multotec, South Africa; and Hatch, South Africa
- 243 Khumani Iron Ore Mine paste disposal and water recovery system
T. Du Toit, Assmang Ltd, South Africa; M. Crozier, WesTech Process Equipment Africa Pty Ltd, South Africa

Mine backfill

- 261 Defining and quantifying sustainable backfill
D. Green, Admixture Systems, BASF, USA; Z. Martic, MEYCO Global Underground Construction, Switzerland; B. Knight, MEYCO Global Underground Construction, Canada; J. Jones, Admixture Systems, BASF, USA

Pipeline transport and rheology

- 273 Relating Atterberg limits to rheology
T.G. Fitton, K.D. Seddon, ATC Williams Pty Ltd, Australia
- 285 Advances in thickened tailings pumping using centrifugal pumps
A. Sellgren, Luleå University of Technology, Sweden
- 297 The performance of centrifugal pumps when pumping ultra viscous paste slurries
J. Crawford, FLSmidth Krebs, United States of America; F. van Sittert, M. van der Walt, Paterson & Cooke Consulting Engineers, South Africa
- 309 Advanced diaphragm pumps with unique technical and commercial quality rating for operating pressures up to 500 bar
H.M. Nägel, FELUWA Pumpen GmbH, Germany

- 325 Paste pumping with rolling rotor design peristaltic hose pump
J. Häkkinen, Flowrox Oy, Finland; A. Clark, Flowrox Inc., United States of America; W. Chabant, Flowrox Pty (Ltd), South Africa; S. Sims, Flowrox Oy, Finland
- 333 Transport pilot tests on thickened tailings to determine the effect of pumping distance on tailings sedimentation
P. Chacón, S. Barrera, ARCADIS, Chile
- 343 Solids transport of non-Newtonian slurries in laminar open channel flow
R.H. Hernández, LEAF-NL, Departamento de Ingeniería Mecánica, Universidad de Chile, Chile; R.H. Fuentes, J.R.I. Ingeniería, Chile
- 359 Author Index