

Table of Contents

iii	Australian Centre for Geomechanics
v	Committees
vii	Technical Reviewers
ix	Preface
xi	Sponsors

Keynote addresses

3	Thickener modelling – from laboratory experiments to full-scale prediction of what comes out the bottom and how fast <i>PJ Scales, AH Crust, SP Usher, University of Melbourne, Australia</i>
13	The high-density thickened discharge tailings storage facility at Osborne Mine – a case history from inception to closure <i>GI McPhail, SLR Consulting Australia Pty Ltd, Australia</i>

Thickening

45	A novel method to locate and profile the bed of a thickener <i>RD Cook, JL Johnson, WesTech Engineering, Inc., USA</i>
55	Thickeners versus centrifuges – a coal tailings technical comparison <i>S Meiring, PasteTech, Australia</i>
67	Operational results and future trends of filtration technology in minerals processing <i>J Palmer, Outotec Pty Ltd, Australia</i>
81	Dewatering in a laboratory simulation of a multilayer deposit of in-line flocculated mature fine tailings <i>E Rozina, S Mizani, M Malek, M Sanchez-Sardon, P Simms, Carleton University, Canada</i>
95	The influence of slurry density on in situ density <i>D Reid, Golder Associates Pty Ltd, Australia; AB Fourie, The University of Western Australia, Australia</i>
107	Sarcheshmeh Copper Mine paste plant design, start-up and early operation overview <i>S Javadi, B Pirouz, P Williams, ATC Williams Pty Ltd, Australia; A Zarabadi, HR Seif, National Iranian Copper Industries Co., Iran</i>

Rheology

119	Attributes of silica treatment on strength, physical properties and consolidation rates of fluid fine tailings <i>RH Moffett, E.I. DuPont, USA</i>
131	Evaluation of the rheology of pipehead flocculated tailings <i>PT Slatter, KD Seddon, ATC Williams Pty Ltd, Australia</i>
139	Polymer-modified tailings deposition – ongoing testing and potential storage efficiency opportunities <i>TC Riley, D Reid, Golder Associates Pty Ltd, Australia; L Utting, BASF Australia Ltd, Australia</i>
153	Why small-scale testing of reagents goes wrong <i>PD Fawell, AD Costine, AF Grabsch, CSIRO Mineral Resources Flagship, Australia</i>
167	Risk assessment methodology for paste and thickened tailings <i>A Fernandez-Iglesias, ArcelorMittal Global R&D Asturias, Spain; A Correa, ArcelorMittal Mining, France; O Morton, ArcelorMittal Mining, UK; J Laine, R Luiña, G Martínez, University of Oviedo, Spain</i>
181	Stability of a proposed steepened beach <i>D Reid, J Boshoff, Golder Associates Pty Ltd, Australia</i>
195	Research trends on thickening mining wastes <i>J Laine, F Ortega, R Luiña, V Alvarez-Cabal, University of Oviedo, Spain</i>
209	Management of bauxite residue in a temperate climate using mud-farming techniques <i>MB Willan, Golder Associates (UK) Ltd, UK; GS Ghataora, The University of Birmingham, UK</i>

Transport

- 225 Hydraulic driven piston pumps for the transport of pastes and slurries in the mining industry
P Peschken, Putzmeister Solid Pumps GmbH, Germany; K Kivanc, Eti Bakir A.S, Turkey
- 239 Dredging of an active thickened tailings storage facility at the Ernest Henry Mine
TG Fitton, Fitton Tailings Consultants, Australia; WJ Neumann, Neumann Contractors Pty Ltd, Australia
- 247 Comparing long stroke 20' (508 mm) with short stroke 14' (356 mm) piston diaphragm pumps
H Krimpenfort, MHWirth, Germany
- 257 Series connection of diaphragm piston pumps
DM Nagel, R Gansl, FELUWA Pumpen GmbH, Germany
- 267 A launder design method for thickened tailings
TG Fitton, Fitton Tailings Consultants, Australia
- 277 Stress analysis of underground pipelines with flexible couplings – unrestrained approach
J Sabeti, A Asgarian, Hatch Ltd., Canada
- 291 Open channel transportation of thickened tailings
S Javadi, RMIT University, Australia; PT Slatter, ATC Williams Pty Ltd, Australia; SN Bhattacharya, R Gupta, RMIT University, Australia

Underground issues

- 301 Paste backfill system design and commissioning at Chambishi Copper Mine
AX Wu, XX Miao, XH Liu, YM Wang, University of Science and Technology Beijing, China; CL Wang, JJ Zhang, Africa Mining PLC of China Nonferrous Metals Co. Ltd., Zambia
- 309 Optimisation and stabilisation of coal rejects at the Peabody Metropolitan Mine using Acti-Gel® 208
JH Worsley, JE Marsh, Active Minerals Australia Pty Ltd, Australia; R Patel, Peabody Energy Australia, Australia; SB Feldman, Active Minerals International, USA
- 321 Experimental study on the physical and mechanical properties of a cemented unclassified tailings backfill
XC Yang, GS Liu, LJ Guo, Beijing General Research Institute of Mining & Metallurgy, China
- 329 Early curing age paste backfill exposures – the role of effective stress
RL Veenstra, Glencore Australia Pty Ltd, Australia; AG Grice, AMC Mining Consultants (Canada) Ltd., Canada; MW Grabinsky, University of Toronto, Canada; WF Bawden, Mine Design Engineering, Canada
- 341 Gwalia mine – backfill system operational review
S Wilson, Paterson & Cooke (UK) Ltd, UK; J Snyman, Paterson & Cooke Consulting Engineers (Pty) Ltd, South Africa; M McGuinness, Paterson & Cooke Canada Inc., Canada; J Albrecht, J De Vries, St Barbara Ltd, Australia
- 357 A comparison of two paste plants in India
C Lee, Golder Associates Ltd., Canada; G Chatterjee, A Gandhe, Golder Associates Consulting (India) Pvt Ltd, India; BV Rao, A Nirvan, DP Ravikumar, Hindustan Zinc Ltd, India
- 371 Chemical technology case study in cemented paste backfill – Newmont’s Tanami Gold Mine
R Salter, UGC BASF, Australia; A Flemmer, Newmont Tanami Operations, Australia; J Gelson, UGC BASF Asia Pacific, Australia; Z Martic, UGC BASF Global, Switzerland
- 383 Mobile paste backfill systems – a decade of work
S Longo, A Quintero, D Kennard, Golder Associates Ltd., Canada
- 391 Acti-Gel® 208 as an additive for paste and hydraulic backfill
K Tarr, I Bedard, Natural Resources Canada CanmetMINING, Canada; H Kim, Active Minerals International LLC, Canada
- 407 Some physical and mechanical properties of cemented fillings under high pressure
WS Lyu, University of Science and Technology Beijing, China; P Yang, Beijing Union University, China; SJ Cai, University of Science and Technology Beijing, China
- 419 Recycling fine slurry – an alternative to paste for coarse rejects co-disposal in Queensland coal mines
AD Thomas, NT Cowper Snr, Slurry Systems Pty Ltd, Australia; S Whitton, Mechanical Advantage Pty Ltd, Australia
- 433 Assessing the flow liquefaction susceptibility of cyclone underflow material
J Boshoff, D Reid, Golder Associates Pty Ltd, Australia

Beach slope prediction

- 443 Practical observations in beach slope formation and application of the thin layer equilibrium model to observed data
JA Wates, HA Venter, VT Dittle, RA Cooper, Fraser Alexander Pty Ltd, South Africa
- 455 Stochastic beach profile modelling
KD Seddon, B Pirouz, ATC Williams Pty Ltd, Australia; TG Fitton, Fitton Tailings Consultants, Australia
- 467 Simulation of the meandering flow path of a beaching slurry using a random walk technique
GI McPhail, SLR Consulting Australia Pty Ltd, Australia
- 477 Chuquicamata full-scale field deposition trial
B Pirouz, S Javadi, P Williams, ATC Williams Pty Ltd, Australia; C Pavissich, ATC Williams Pty Ltd, Chile; G Caro, Codelco, Chile

Above ground disposal

- 493 Characterisation of a thickened tailings beach
KD Seddon, JK Albee, ATC Williams Pty Ltd, Australia
- 505 Tailings co-disposal case study – art or science?
A Beveridge, BASF Australia Ltd, Australia; P Mutz, Murray Zircon Pty Ltd, Australia; D Reid, Golder Associates Pty Ltd, Australia
- 521 Upstream stacking of thickened tailings at Neves Corvo
R Lopes, Golder Associates Ltd., Canada; R Bahia, Golder Associates Portugal Unipessoal Lda, Portugal; M Jefferies, Golder Associates (UK) Ltd, UK; M Oliveira, Somincor, Portugal
- 535 The impacts of using thickened tailings on water management and CAPEX of tailings storage facilities
K Fabian, AECOM, USA; M Jacobs, Goldcorp Inc., Canada; A Hooshier, E Ngwenya, AECOM, Canada
- 547 Managing high-density tailings disposal – deposition, water management and closure considerations
S Kam, Golder Associates Ltd., Canada; D Yaschyshyn, N Hmidi, Goldcorp Canada Corp., Canada
- 561 Differential water footprint assessment – conventional versus paste tailings disposal
A Fernandez-Iglesias, S Andres, ArcelorMittal Global R&D Asturias, Spain; R Luiña, D Pecharroman, V Alvarez-Cabal, University of Oviedo, Spain
- 575 Hillendale thickened tailings storage facility – from project to closure
K Goss-Ross, Independent Tailings Consultant, South Africa
- 587 The Sarcheshmeh thickened tailings scheme – a case study
A Roshdieh, P Williams, KD Seddon, ATC Williams Pty Ltd, Australia
- 597 Author Index