

# Paste 2021

Proceedings of the 24th International  
Conference on Paste, Thickened and  
Filtered Tailings

**EDITORS** Andy Fourie and David Reid



# Paste 2021

## Proceedings of the 24th International Conference on Paste, Thickened and Filtered Tailings

21–23 September 2021

### *Editors*

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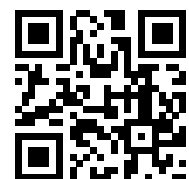


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The dedicated efforts of the peer reviewers have resulted in the high quality of the technical program and the papers compiled for this publication. The editors thank the following people who contributed their time and expertise as reviewers of manuscripts for the proceedings of the 24th International Conference on Paste, Thickened and Filtered Tailings. A technical and critical review of each paper was undertaken by a minimum of two reviewers for the production of these proceedings.

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# Preface

This, the 24th International Conference on Paste, Thickened and Filtered Tailings, returns to Perth, Western Australia. The series commenced in Edmonton, Canada in 1999 under the leadership of Richard Jewell.

The tailings industry has seen momentous shifts in emphasis in recent years. Aside from the currently more visible operational difficulties resulting from the COVID-19 pandemic, a probably more enduring shift is that occasioned by the Brumadinho tailings storage facility (TSF) failure in Brazil in 2019. In the aftermath of this failure, and the concerns it generated about the stability of many existing TSFs around the world, a new standard, the Global Industry Standard on Tailings Management (GISTM), was released. The GISTM has many far reaching requirements, paramount among these being the geotechnical stability of a TSF and the potential impacts should failure of such a structure occur.

Whereas earlier conferences in this series focused more on the technologies required to develop a high-density thickened TSF and potential benefits such as reduced water consumption, attention is increasingly turning to geotechnical risk reduction – a direct influence of the GISTM. As such, it is much more likely that a thickened tailings, or even a filtered tailings option would be included as a potential solution for any new project, whereas previously such options were often presented as a niche solution. This more widespread acceptance of potential alternative options that are based on significantly more dewatering, such as filtered tailings, comes with the requirement to ensure these alternatives are designed and operated to the highest industry standard currently achievable. This is where the current conference has a major role to play.

As can be seen from the Table of Contents of this conference proceedings, there is a significant number of papers dealing with geotechnical issues related to both high-density thickened tailings and filtered tailings, as well as related case studies. An emerging trend, which is perhaps also an indirect result of some of the requirements of the GISTM, is papers on instrumentation and monitoring of tailings facilities. This development is to be welcomed, as it will certainly improve our understanding of the behaviour of new TSFs, and will be particularly beneficial in demonstrating behaviour of thickened or filtered tailings that is consistent with design expectations. This will assist the industry to move forward with the selection and implementation of improved tailings management solutions.

Aside from the many papers related to surface deposition of thickened tailings, this conference includes a large number of papers dealing with underground backfilling applications, where a binder, usually cement, is added to the thickened tailings prior to disposal underground. This cemented paste backfill (CPB) is an integral component of many underground mining strategies, enabling improved ore recovery and reduced underground instability risks. A notable feature of this conference is the obvious maturing of the application of various instrumentation for monitoring the performance of CPB, after placement into the underground void. As with surface TSFs, improved monitoring provides an essential feedback loop to ensure improved future design and operation of these operations.

On behalf of my co-editor, Dr David Reid, I thank everyone who played a part in assembling these proceedings. This includes the authors, the organising committee, the technical reviewers, and the staff at the Australian Centre for Geomechanics.

Special mention must go to Garth Doig, Candice McLennan, Christine Neskudla, Josephine Ruddie, and Stefania Woodward for their support and effort in ensuring the proceedings are of the highest quality, and for organising the event with meticulous care.

An event such as this could not have taken place without the support of Principal Sponsor, SRK Consulting, and all our industry sponsors. Thank you to all sponsors for your involvement in and your support of this conference series.

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Professor Andy Fourie, The University of Western Australia  
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