

MEDIA RELEASE

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ATC Williams Builds Dedicated Rheology and Slurry Group to Service Growing Demand

Specialist engineering consultancy, ATC Williams, has appointed renowned specialist Dr Paul Slatter to head a new dedicated rheology and slurry engineering group charged with applying the latest research to a growing need to move valuable resources and waste products via slurries.

ATC Williams' CEO Trevor Osborne, said optimising slurry pumping had become increasingly important to mining and manufacturing companies all over the world, "as water becomes more valuable, mine and plant sites become more remote and economic and environmental pressures force companies to cut costs and increase efficiencies".

ATC Williams has serviced clients in eight countries, adapting new technologies to traditional processes to help optimise existing systems and save millions of dollars.

"New technology and research skills are critical to better understand a product's rheology, particularly when working towards lower water content," Mr Osborne said.

"We have therefore also expanded our geotechnical and tailings testing laboratory with specialist rheology testing facilities, including one of the few pipe-loops in Australia."

The laboratory will be invaluable in helping Dr Slatter and the rheology and slurry engineering group provide expert assessment, strategy and execution for a variety of mining, and industrial organisations.

Until recently, Dr Slatter was Professor of Rheology and Fluid Engineering, and Director of the Rheology and Materials Processing Centre, at RMIT in Melbourne. He will be working with his previous PhD graduates who are also members of the new group at ATC Williams.

"Water and energy resources management is progressively becoming a key issue for mining, industrial and commercial industries, including pharmaceutical, manufacturing, food processing, utility, and water and waste water treatment industries," Dr Slatter said.

"Across a range of industries and particularly in the mining sector, we design and troubleshoot slurry transport and pumping systems, conduct specialist laboratory testing for characterisation of slurries, optimise slurry systems for greater solids throughput, analyse pipe, open channel and free surface slurry flow and characterise wear rates.

"These services are becoming more important than ever because operations are being increasingly scrutinised by owners, investors, government and employees, forcing companies to seek new ways to improve the bottom line and work with environmentally sustainable practices," he said.

“The solutions aren’t easy. Transporting liquid and semi liquid matter is complex, unique to each situation and involves significant cost and environmental considerations, Dr Slatter said.

“The issues we see vary - we have areas in Western Australia where companies may pump slurries hundreds of kilometres, and want to do this at low water content with higher concentration to reduce overall water losses and therefore costs of make-up water. In contrast, in some wetter areas in Queensland, a risk exists of temporary closure due to excess water and flooding to the environment, in which case there is less imperative for high concentration slurries. However higher water content slurries will impact capital and operational costs and an optimum balance needs to be found.

“Companies are ardent about finding solutions, and our rheology and slurry team are resolute in providing them,” he said.

Dr Slatter has written over 400 published technical papers, has presented 16 Invited International Keynote Addresses and is cited in 15 design textbooks on Mining and Mineral Processing Plant Design. His previous involvement in the hydrodynamic contexts of pipe flow, fittings losses, pump de-rating and free surface flows has produced pragmatic design tools for industry. He has served on a number of International Technical Committees in Rheology, Slurry Flow and Pump and Pipeline Design.

For more information visit www.atcwilliams.com.au or phone Dr Paul Slatter in Melbourne +61 3 8587 0900.

Case Study of Slurry Pipeline Optimisation

A recent Slurry Pipeline Optimisation study by ATC Williams demonstrated the benefits of higher concentrations for an overseas copper mine. The tailings solids throughput was 8.83 Mtpa (million tonnes per annum) and a range of solids concentrations were evaluated for the 500 diameter pipeline to the tailings storage facility. The lowest concentration considered was 39%, and the highest was 51%. By operating the pipeline at the higher concentration, a water saving of 39% was achieved, together with a pumping power saving of 48%.

“Characterising and understanding the rheology of this particular slurry was the key to determining the optimum upper concentration limit,” Mr Osborne said.

(Concentration by weight)	Slurry Hourly Volume (m ³ /hr)	Water Hourly Volume (m ³ /hr)	Pumping Head (m/km)	Pumping Power (kW/km)
39%	2129	1728	14.6	112.7
51%	1462	1062	10.0	59.0
Reduction	667	667	4.6	53.7
Saving %	31%	39%	32%	48%