Mine Waste Transformation Through Characterisation- a mission to reimagine waste management

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Meeting the needs of the energy transition is a once-in-a-generation challenge like no other before. To meet the projected metal demand to support this, the global community will produce increased volumes of mine waste requiring best practice management. Mine waste is suspected to be a host of critical metals and minerals. If identified as significant resources of critical metals, remining waste can support global effort to adopt circular economy principles.

Whilst a straightforward proposition, practical investigations show this is anything but. Mine waste materials are complex and heterogenous potentially originating from multiple ore sources, processed by different methods, and subjected to weathering under changing climatic conditions. In Australia, a sampling campaign has been undertaken to identify critical metal resources in waste. Results demonstrate that mineralogical characterisation is key to identifying valorisation options for not only recovering critical metals/minerals, but to also reduce associated environmental legacy issues and mining footprints.