

COPPER LEACHING USING GLYCINE LEACHING TECHNOLOGY

By

Mining and Process Solutions Pty. Ltd, Australia

Presenter and Corresponding Authors

Associate Professor Elsayed Oraby

Dr Glen O'Malley, R & D Manager

ABSTRACT

Mining and Process Solutions (MPS) Glycine Leaching Technology (GLT) is also being developed to leach base metals such as copper. We found the GlyLeach™ process can unlock oxide copper deposits that are hosted in carbonates. Such deposits cannot be process through traditional acid leaching due to very high acid usage. But more recently we have also had success in leaching remnant copper from spent heaps in the pursuit of gold through our acidic process (GT™) and copper concentrate leaching with the use our GlyLeach™ and GlyAmm™ processes. The copper leached are sulphides which shows GLT can leach oxide and sulphide copper minerals from ores, concentrate and tails.

Both GlyLeach™ and GlyAmm™ are alkaline leaching processes that can complex copper to form copper glycinate complexes. The real advantages of GlyLeach™ are its ESG benefit of being non dangerous good and harmless to humans and environment, but it also leaves unwanted metals intact such as iron, aluminium silicon and manganese in the residue. Downstream metals recovery for glycine leaching technologies uses existing known processes such as solvent extraction, precipitation, or ion exchange resins to recover the copper from solution. GT™ is our acidic process which can not only leach remnant copper but also the gold from spent heaps. Downstream recovery of the copper from GT™ can be by solvent extraction, precipitation, or ion exchange resins with the gold being recovered onto activated carbon.

This paper updated on the progress of GlyLeach™, GlyAmm™ and GT™ processes for the recovery of copper from oxide and sulphide copper minerals contained in ores, concentrate and tailings where it's our hope to do a site demonstration within 2023 to demonstrate viable process solutions to recover copper from spent heaps, hosted in carbonaceous matrix and from concentrates.

Keywords: Glycine Leaching, GlyLeach™ Process, remnant copper, gold, oxide minerals, sulphide minerals, heap leaching