Development of a Comprehensive Model of Heap Leaching of Copper Minerals

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Heap leaching is an increasingly important technique for the recovery of metals such as copper, gold, zinc and uranium from low grade ores. This presentation discusses the development of a comprehensive leach process model in a computational fluid dynamic modeling software environment to cover the complex range of physics present. The model accounts for transport phenomena through the stockpile, reaction kinetics for the important mineral species, bacterial effects on the leach reactions, and heat, energy and acid balances for the overall leach process.