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## Mineral colloids in acid mine drainage: from toxic elements to critical elements

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The acid mine drainage present in the Rio Tinto site from the Tartessian times represent a legacy of metal pollution of unprecedented importance due to the large volume and high concentrations of toxic elements mobilized. Here, an overview of the phenomenon, and a detailed analysis using nanoscale techniques of the most important Fe and Al colloids formed in AMD, and their environmental relevance, will be presented. Moreover, the acidity of AMD waters facilitates the mobilization of rare earth elements and valuable metals like copper, potentially paving the path for economically viable site restoration efforts.

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