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High Grades in Hypogene Porphyry Copper Deposits

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Exploitation of high-grade copper ore accelerates payback of capital expenditure, lowers operating costs, and hence enhances profitability; it also gives rise to lower carbon footprints and less waste per tonne of copper produced. This presentation reviews the geological features responsible for high grades in hypogene porphyry copper deposits, with particular focus on permeability and reactivity of porphyry intrusions and their host rocks. The influence of alteration types and sulphide assemblages on copper grade is assessed. Porphyry copper exploration programs may be designed to take account of features conducive to high grade development.