

Copper: the metal for a better future

Many of the world's largest copper deposits are found in Chile due to the volcanic activity that created the Andes mountain chain.

Where it comes from

Copper occurs naturally in a variety of forms in the earth's crust. Over 150 copper minerals have been identified, of which perhaps a dozen are economically feasible to mine and process into copper metal. Copper minerals are found in various types of ore deposits, the two most common being porphyry copper deposits and sediment-hosted deposits, and these are the source of around 60% and 20% respectively of the world's current copper production.

According to the United States Geological Service (USGS), there are 870 million tonnes of copper reserves in the world, which in other words are copper deposits that have been discovered, evaluated and assessed to be economically profitable to mine. Almost a quarter of these reserves are in Chile, which is the world's largest copper producer.

Copper resources, which include reserves as well as potentially profitable identified deposits are estimated at 2.1 billion tonnes. In practice,

many of these resources may never become economically viable reserves or may do so only after decades and/or as a result of high copper prices. It takes time and high-risk investment to conduct the detailed exploration, and metallurgical processing, mining, political, infrastructure, environmental, social and other studies required to ascertain a project's feasibility – and many, when assessed in greater detail, will not meet the required criteria.

Relative scarcity

It is increasingly hard to find high-quality copper projects in areas of low jurisdictional risk that can offer strong financial returns for a combination of reasons.

First, the easier, higher-return deposits have already been developed and undeveloped deposits tend to be remoter, smaller, deeper, more complex to process and have lower copper grades. Increasingly, new projects are discovered in countries that do not have a mining tradition.

Average copper grade (world)



Source: Wood Mackenzie