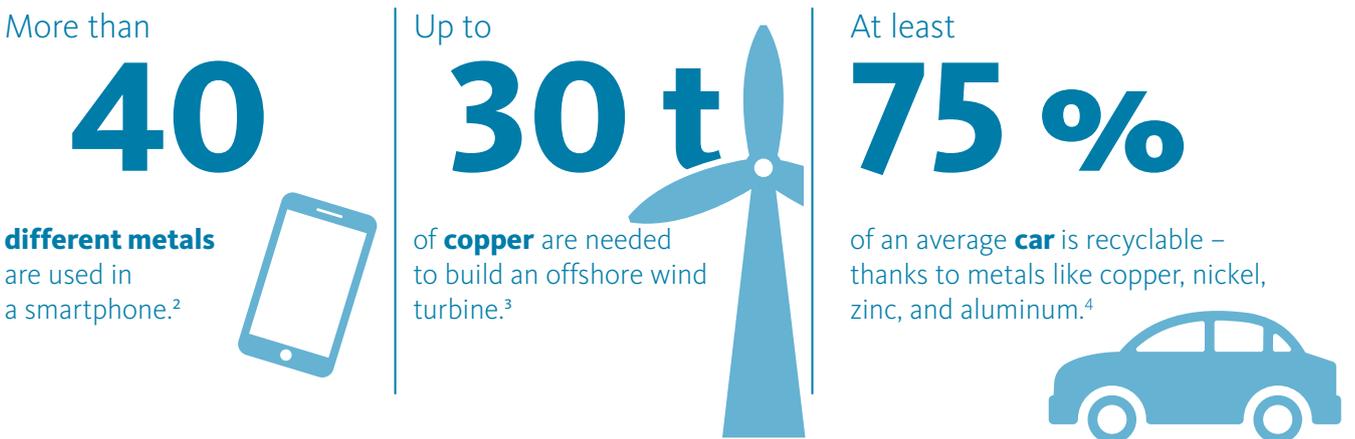


General information about metal recycling

The future needs metals

We encounter metals in all areas of life. The ability to make and process them is inextricably linked to our technological progress. Metals are the foundation for far-reaching developments like the energy and mobility transition, smart homes, and digital transformation. Metals make these future technologies possible in the first place.

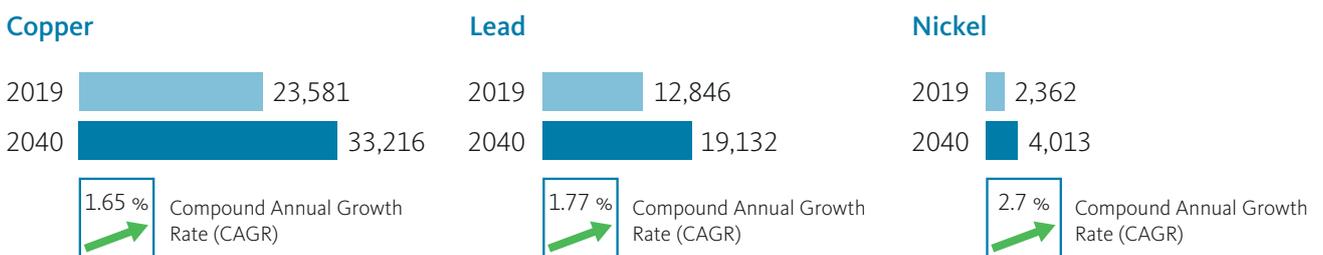
Increasing global demand is confronted by finite natural resources, however. It is therefore of utmost importance to use processed metals responsibly. The solution: metal recycling. It reduces the environmental impact by conserving natural resources and enabling CO₂ and energy reduction.¹ At the same time, it secures the future of Europe's raw material base and reduces dependency on imports.



With metal recycling, we tap new sources of raw materials – right on our doorstep. The worldwide copper resources processed in buildings, infrastructure, and consumer goods – referred to as the “anthropogenic warehouse” – are estimated at up to 450 million t. This amounts to more than 50 % of the current geological reserves and is a significant “resource on demand.”⁵ Nevertheless, demand can't yet be met by recycling raw materials alone, due in part because metal demand keeps growing massively.

Growing demand for metals until 2040⁶:

All figures in thousand t



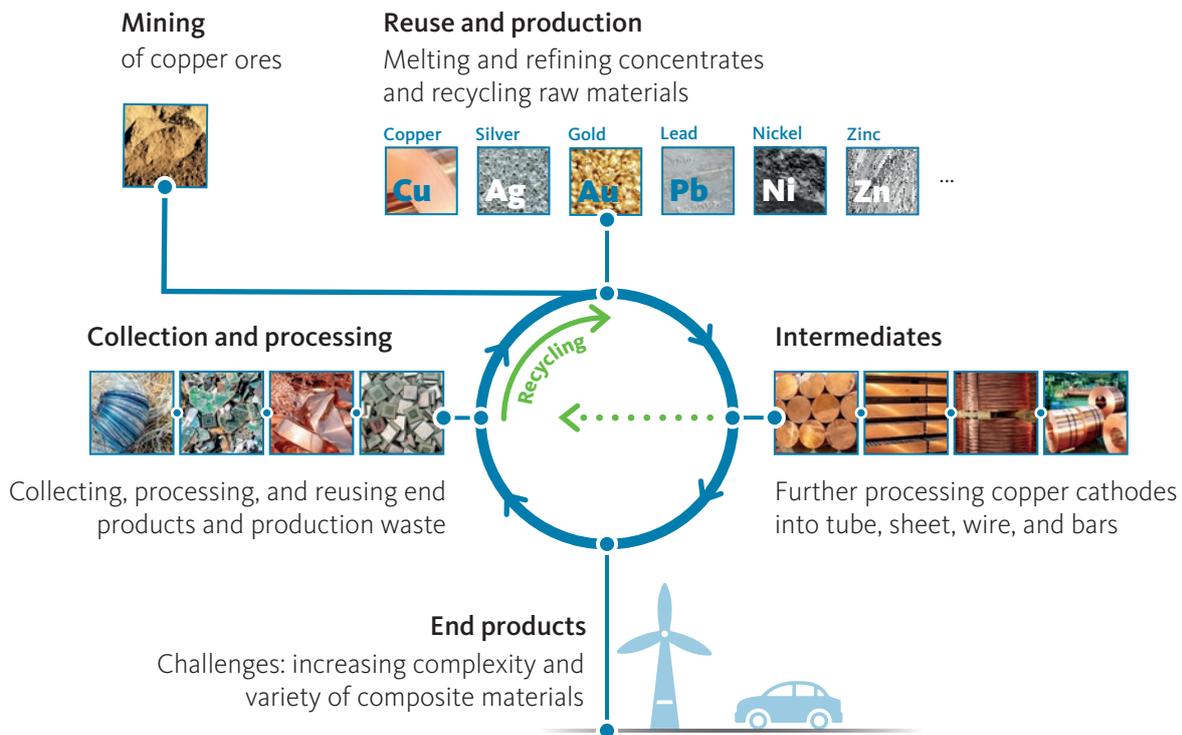
Sources: ¹ German Copper Institute, ² WVMetalle, ³ “Metals pro Climate” initiative, ⁴ German Federal Environment Agency (UBA), ⁵ Fraunhofer Institut, ⁶ Wood Mackenzie

Coming full circle: The circular economy in the metal industry

Metals are not consumed, they are used. Once extracted, they can theoretically be processed over and over again, without their material properties suffering.

A particular challenge in recycling is that the end products are becoming more and more complex. This means they consist of more and more small, often firmly connected

components made of different materials. Before metals can be reused within the material cycle, they therefore have to undergo an increasingly complex preparation process. Furthermore, there are still many products and materials that don't even enter the recycling process in the first place. For example, the collection rate of e-scrap is just around 45 %.⁷



Opportunities of metal recycling

- » Constant source of raw materials: the “anthropogenic metal warehouse” is growing continuously
- » Maximum added value: the possibility to recycle metals over and over again
- » Up to 85 % less energy used and up to 60 % reduction in CO₂ emissions⁸
- » Makes Europe less dependent on raw material imports

Challenges of metal recycling

- » Complex separation and processing procedures due to the increasing variety and complexity of end products
- » Illegal disposal of scrap affects the recycling rate
- » The complexity of recycling is not reflected in legislation
- » Recyclability is not yet adequately considered in product design

Sources: ⁷ German Federal Environment Agency, ⁸ International Copper Association/Copper Alliance

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