

Sustainability innovations @Aurubis

Pb2023

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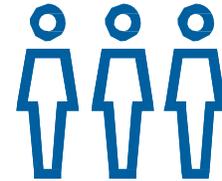
Athens 23/06/23

Aurubis: We excel in metals



Successful in
20 countries on
3 continents

> 7.200 x
passion and
engagement



156 years

experience in the
production of non-
ferrous metals



One of the
worldwide leading
companies in
copper recycling

about **1 million t**

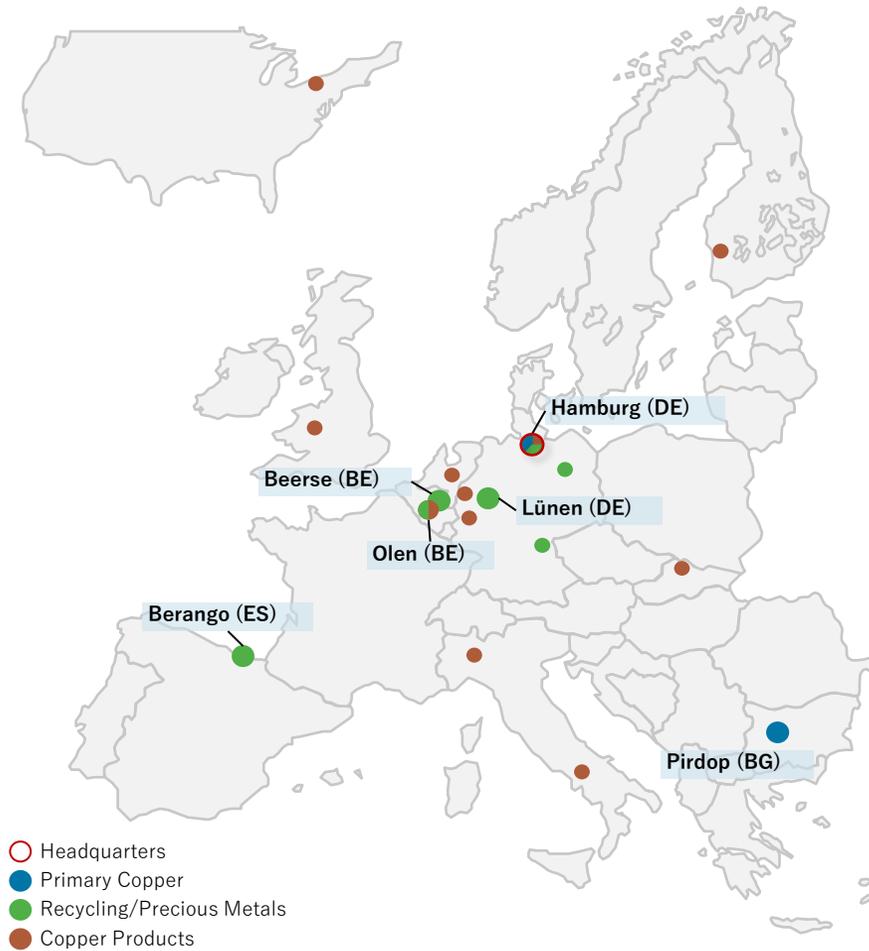


of recycling materials
is processed by Aurubis
on a yearly basis



different **metals**
are recovered by
Aurubis

Aurubis on the map



Aurubis operates a closely linked network of **6 key plants in Europe** with a focus on **smelting and refining of primary and recycling raw materials**

Expanding with **a recycling facility in US** – Richmond, Georgia

Furthermore, Aurubis operates a network of **9 plants and 3 service centers in Copper Products**

Aurubis has a **service and sales network in more than 20 countries** (Europe, Asia, and North America)

Tomorrow Metals - Our metals for an innovative world

Renewable energies



e-mobility



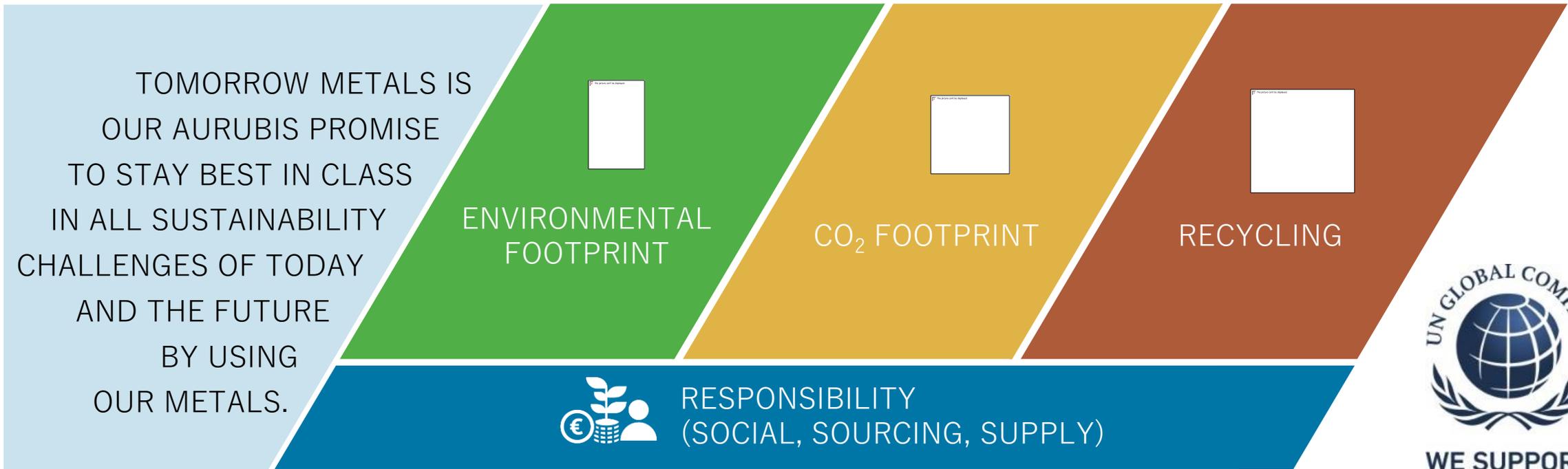
Digitalization



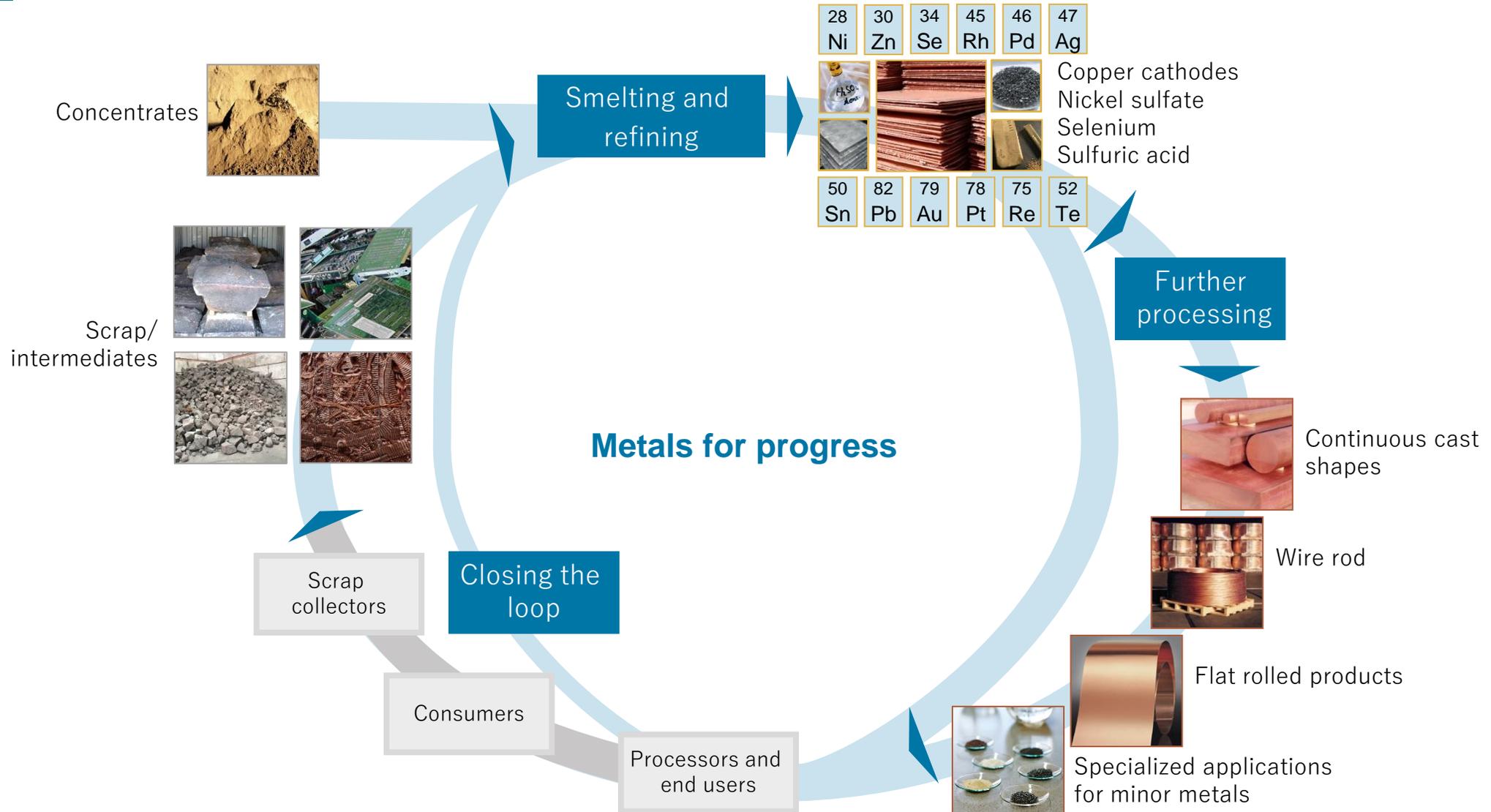
Urbanization



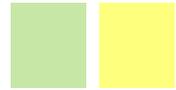
Tomorrow Metals



Closing the loop is part of Aurubis' integrated business model

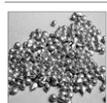


Material portfolio Aurubis Group

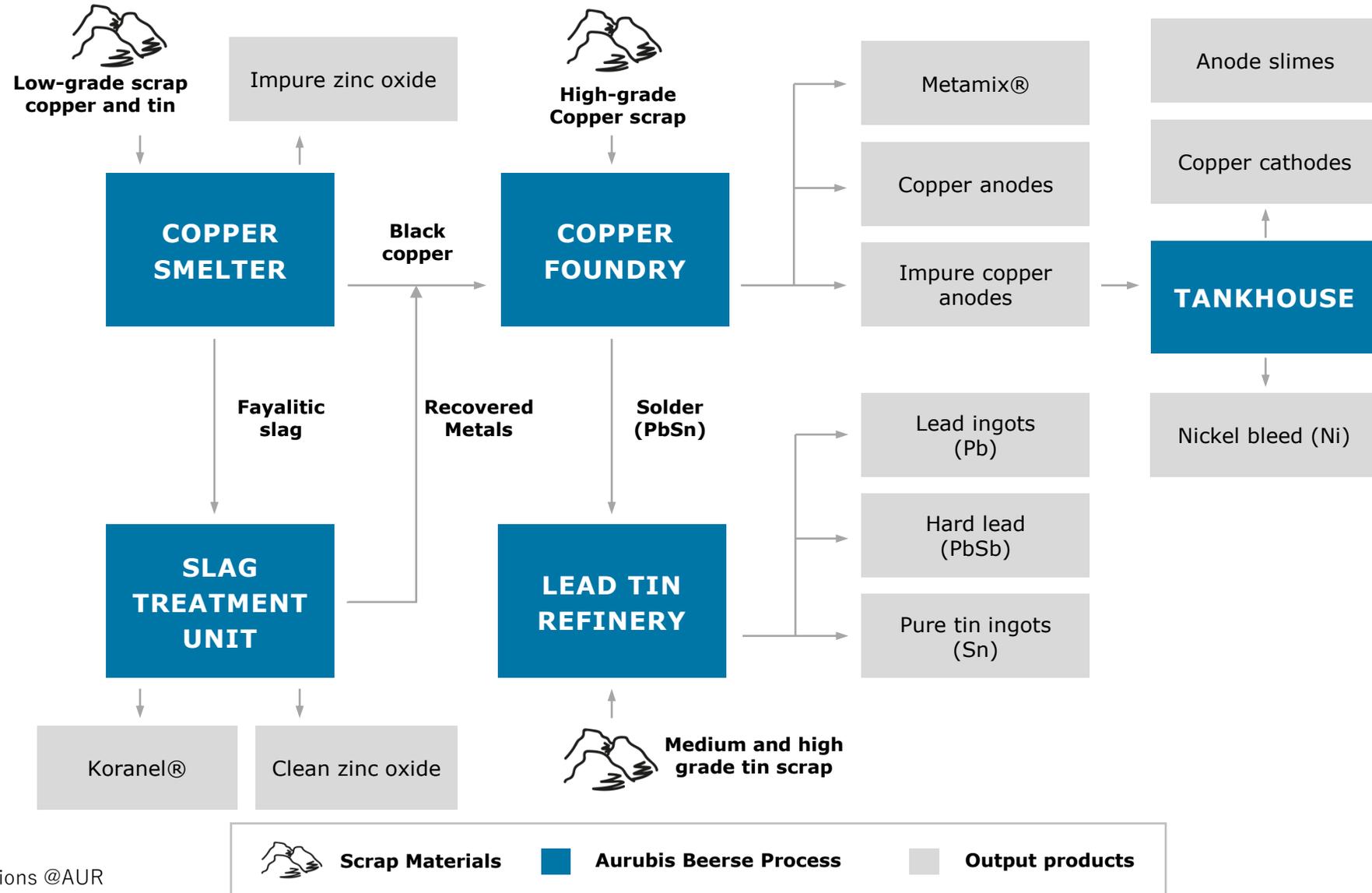
 Activities Beerse / Berango plants

	Concentrate processing ¹	2,429,000 t
	Copper scrap/ blister copper input	540,000 t
	Other recycling materials	524,000 t
	Cathode output	1,111,000 t
	Continuous cast wire rod output	880,000 t
	Copper shapes output	218,000 t
	Flat rolled products + specialty wire output	176,000 t
	Sulfuric acid output	2,296,000 t

¹ Custom smelter production

	Gold	47 t
	Silver	911 t
	Lead	44,016 t
	Nickel	3,863 t
	Tin	9,340 t
	Zinc	13,917 t
	Minor metals	867 t
	Platinum group metals (PGMs)	9,514 kg

How do we recycle? Our proces...



What do we recycle? Our raw materials...



What do we recycle? Our raw materials...



What do we recycle? Our raw materials...



What do we recycle? Our raw materials...



Driving Sustainable Growth

Always looking for opportunities...

to valorize more metals, shorten recycling flows and reduce our environmental & CO₂ footprint.

2018
Fuming installation



2020
Aquisition of
Metallo
by Aurubis
group



2023 ASPA
Advanced Sludge Processing
by Aurubis

Fuming installation



Fuming installation

Installation

Investment of over 40 Mio Eur

Installation is considered **state-of-the-art**, different from classic Fumer process. Technology has been used in industrial processes for some time. But not in this way and scale.

Carbon footprint is much lower because of ultra efficient energy transfer technology, compared to classical fumer with coke.

The largest non-transferred arc plasma furnace in the world.

Aim:

- Valorizing the remaining metals in our slags – **Zn, Cu and Pb**
- At the same time upgrading our **iron silicates** to one of the most ‘clean’ in the sector, opening doors to high-end applications

Fuming installation

Iron Silicates

Huge tonnages involved – Beerse: 180.000 ton yearly



Today... not a single ton of our slags/iron silicates is **landfilled**.

Tomorrow? Regulatory pressure is **high** for (by)products with hazardous impurities

1 + 1 = 2... Pyro metallurgic recycling and refining of metals is **impossible** without producing slags / iron silicates

If we take sustainability seriously, landfill is not an option.

With this installation, we are safeguarding our promise to close the loop, not only for our metals, but also by valorising our co-products.

Fuming installation

Koranel®

High-end applications...

Upgrading from mainly sand blasting, aggregate, sand replacement in concrete to

- Cement replacement
- Porous blocks
- Composite material
- ...

Studies ongoing



ASPA - Advanced Sludge Processing by Aurubis



ASPA - Advanced Sludge Processing by Aurubis

Innovative metals-from-waste recycling

Investment of 27 Mio Eur

Hydrometallurgical facility

Will enable **faster extraction of more precious metals**, such as **Au** and **Ag**, as well as **Sn** and **Pb** from the anode sludge from the tankhouse (production of Cu anodes).

Prime example of the synergies created by the acquisition of 'Metallo' and how the whole company benefits in **developing new innovative solutions together**.

Circular economy at its best!

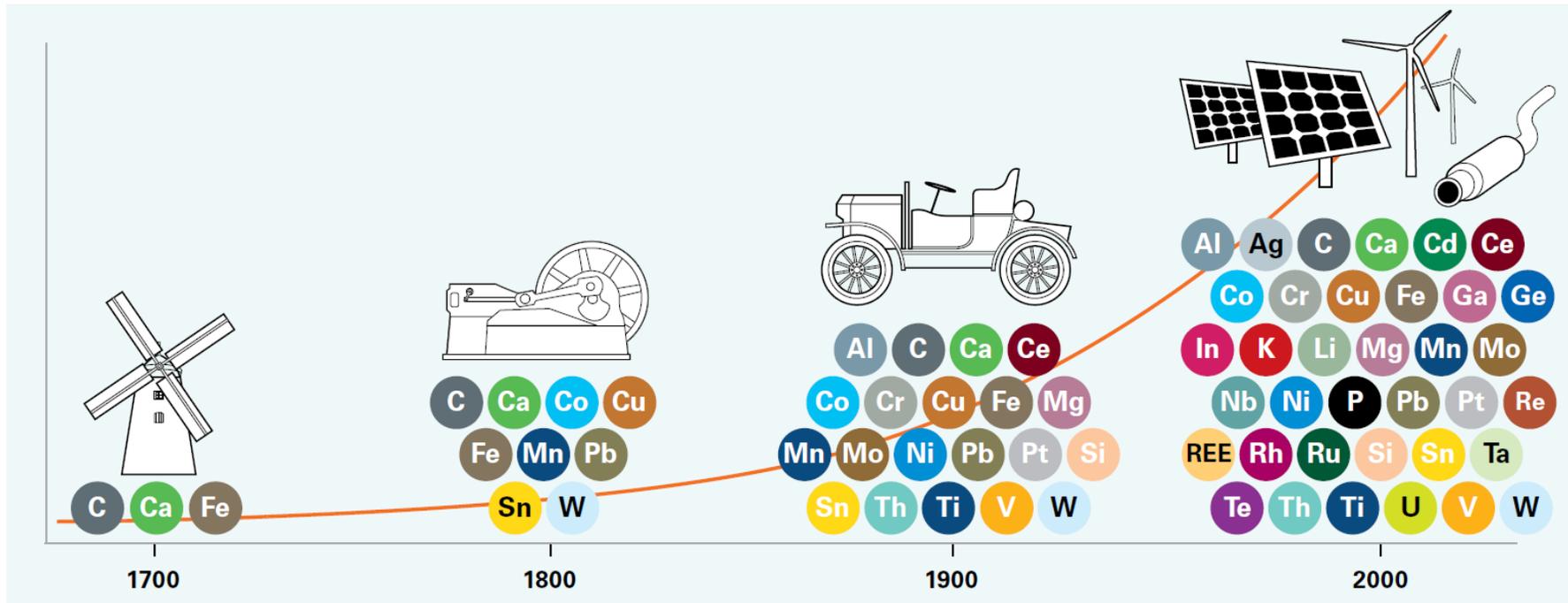


Driving Sustainable Growth

Complexity of raw materials...

has increased exponentially over past centuries, and with it also the **challenges to recycle** these new materials and end-of-life articles.

Closing the loop is hard work and cannot be done without collaboration across companies and industries.



Driving Sustainable Growth

Flanders Metal Valley

Industrial symbiosis between companies & knowledge centres



Circular economy at its best!





Questions ?