

# Aurubis AG

# Metals for Progress

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Concentrate markets

Nicolas Albrecht, Vice President Primary Raw Materials



# What drives the market in 2022?

## Primary Raw Materials

- Wood Mackenzie and CRU forecast **higher surplus of copper concentrates over the next few years**, leading to more **optimistic TC forecasts** above today's benchmark level.
- Wood Mackenzie predicts a **copper in concentrate production growth peak of 9.1 % in 2023**, while CRU expects 4.3 % for the same year.
- According to CRU, the expansion of **Escondida, Grasberg and Kamoakamoa** account for **460 kt of copper in concentrates growth** in 2022. Also, new projects such as **Quebrada Blanca 2** and **Quellaveco** will ramp up in the second half of 2022.
- **Smelter maintenance shutdowns** are expected to result in a production loss of **~511 kt Cu in concentrates in 2022** with a peak in May (~120 kt).
- Analysts expect **weak smelter capacity growth** compared to mine capabilities growth. The projected smelter capacity growth significantly declines after 2023, especially for China.

Note: Lost production is an internal estimation based on duration of maintenance closures

Sources: CRU Copper Concentrates Outlook 2022Q1; Wood Mackenzie Copper Long-Term Outlook 2021Q1; Aurubis

» **Substantial surpluses of copper concentrates expected in the coming years.**

# What drives the market in 2022?

## Refined Copper & Copper Products

- The crisis in Ukraine will have a **significant impact on the world economy** in the short to mid-term due to **high energy** and **commodity prices**, as well as further **disruption to supply chains** and **trade**. It also leads to **uncertainties on the metal market** and will thus likely drive **higher volatility in metal prices**.
- According to CRU, **Russia** is an **important producer of refined copper** at ~4 % of global production. In this context, Western sanctions are expected to have a **negative impact on LME copper inventories**.
- Wood Mackenzie expects a **60 kt deficit of refined copper in 2022**, followed by a **significant surplus in the market until 2024**. CRU expects a slightly higher deficit of 100 kt in 2022, again with a subsequent surplus.
- According to Wood Mackenzie the **accelerated transformation of “Western” energy policy** and **energy transition towards sustainable energy production** should **support growing demand for refined copper** in the mid-term.

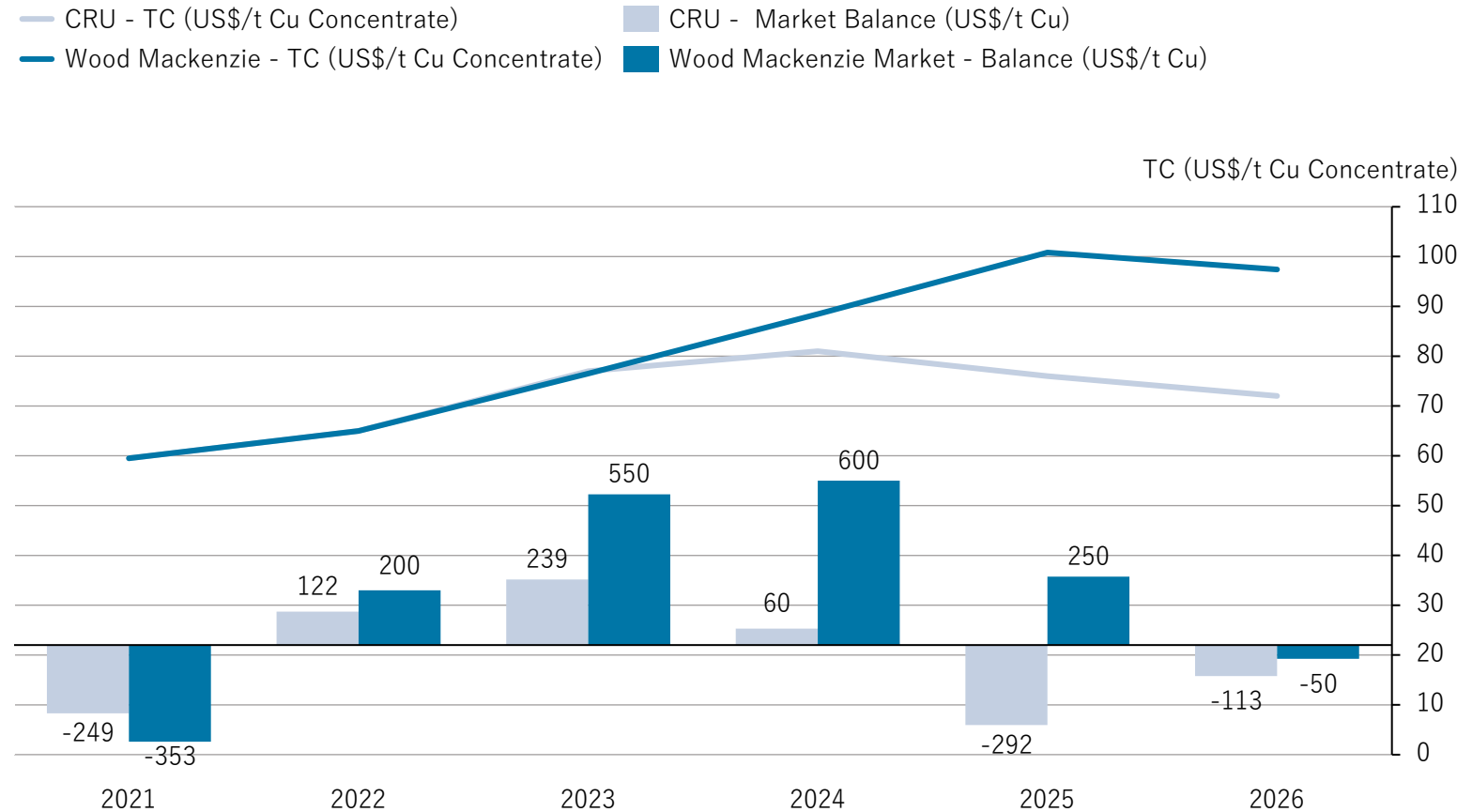
Note: Lost production is an internal estimation based on duration of maintenance closures

Sources: CRU Copper Concentrates Outlook 2022Q1; Wood Mackenzie Copper Long-Term Outlook 2021Q1; Aurubis

» **Accelerated shift to green energy and high energy prices support the current copper price level in the mid-term.**

# Expected surplus of copper concentrate over the next few years leads to TC forecasts above today's benchmark level

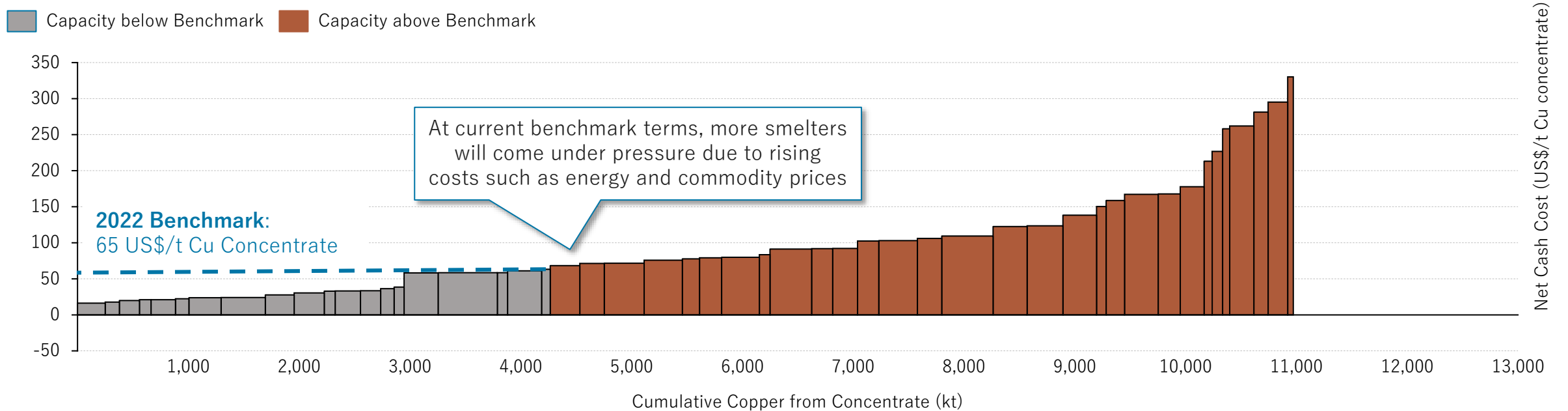
## Global Copper in Concentrate Market Balance & TC Forecast



- CRU and Wood Mackenzie forecast **positive TC development** in the range of **72 to 97 US\$/t** by 2026
- Wood Mackenzie forecasts a strong **peak in mine Cu concentrate capability growth of 9.1 %** in 2023 (CRU: 4.3 %)
- Wood Mackenzie forecasts a higher **surplus of copper in concentrates** than CRU
- According to Wood Mackenzie, **annual mine production growth of 4 %** over a four-year period is expected to **outpace smelter capacity growth**
- According to Wood Mackenzie, **Quellaveco** and **Quebrada Blanca 2** will ramp up in the second half of 2022. **Kamoa-Kakula** will also significantly add to the concentrate market. **Grasberg** and **Spence** will continue to ramp up.

# Rising TC benchmarks expected due to surplus of Cu concentrates and higher smelter costs driven by energy, commodity and labor costs

## Smelter Cost Curve – Net Cash Cost 2022



- Wood Mackenzie forecasts a TC benchmark level of 97 US\$/t by 2026 due to the declining smelter project pipeline and increasing concentrate capabilities
- Using Wood Mackenzie’s Smelter Cost Model as a reference, **current TC benchmark levels** are **unsustainable** for ~61 % of the **Cu smelter capacity** as these **operate above 65 US\$/t**.
- Higher **commodity and energy price levels, labor availability** and **stricter environmental regulations** will be key drivers for the increase in **capital intensity** and **operation costs** in the smelter segment, which should increase TC levels in the coming future

Warburg Bank Visit 30.05.

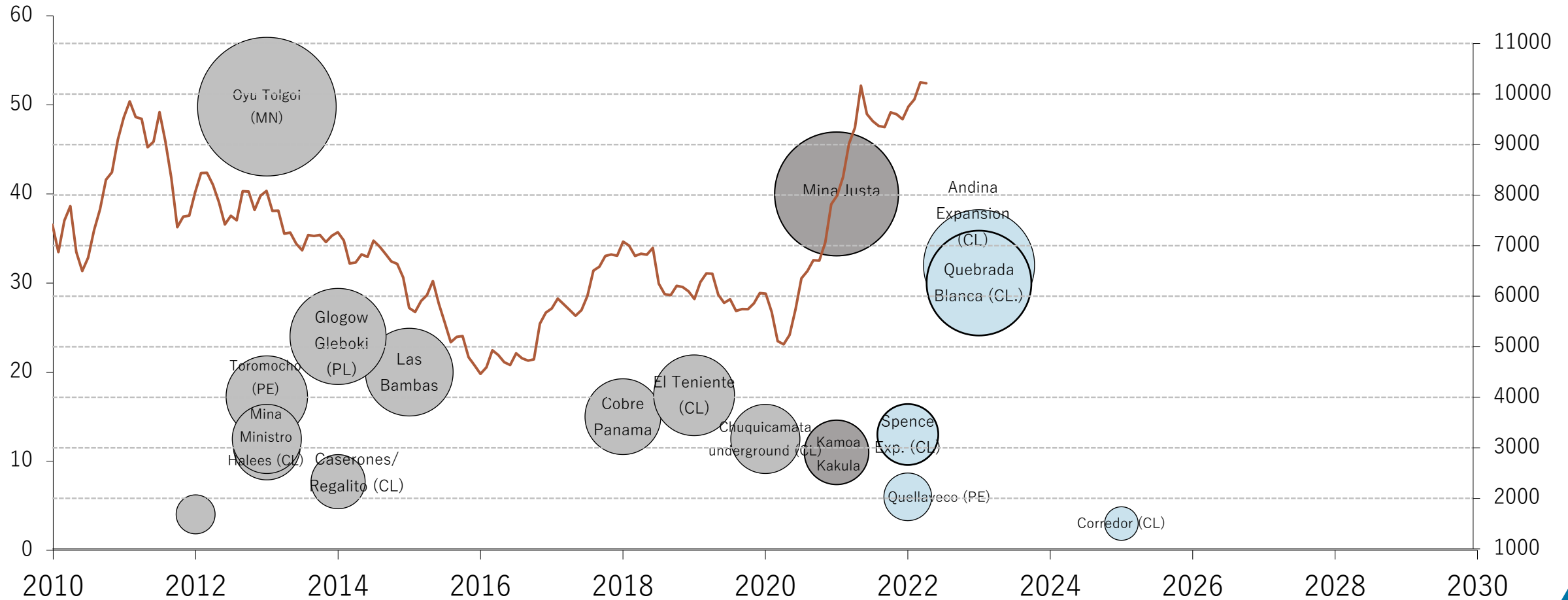
# Expected copper prices will support mining projects

Size of deposits

(in million t of copper content)

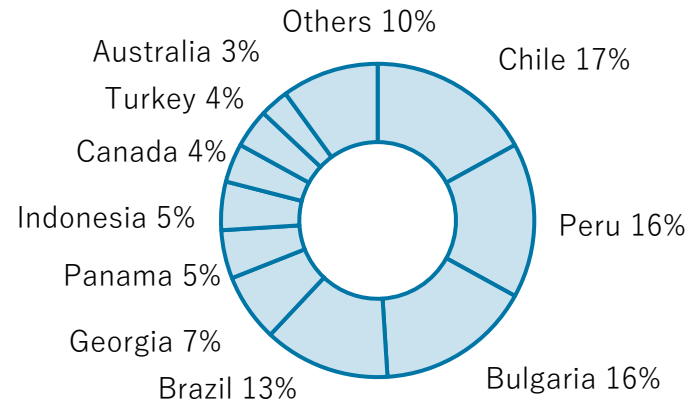
Copper price

(in US\$/t – 3-month quotation)

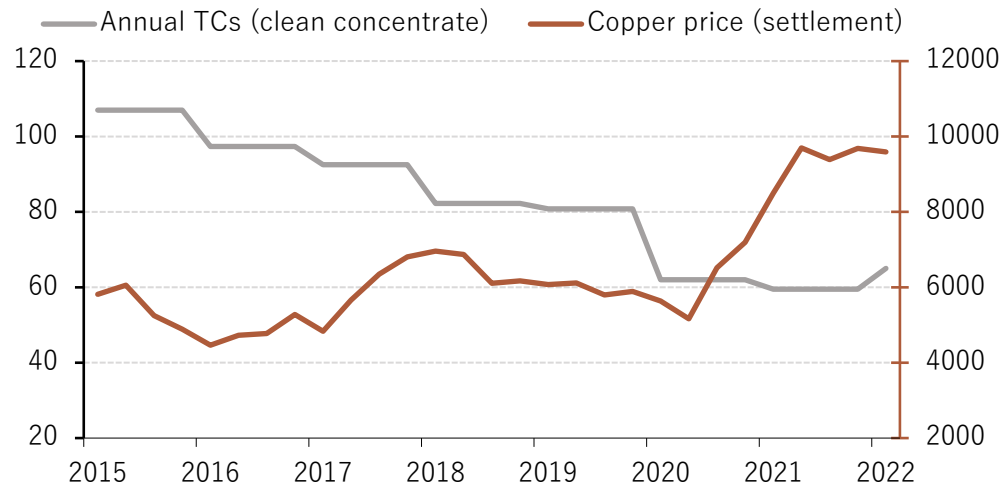


# Increasing production continues to lead to a good concentrate supply on the market

## Origin of copper concentrates in FY 20/21 (in %)



## TC trend for copper concentrates (in US\$/t)



- First 2021 framework contract between Freeport-McMoRan and China Copper for standard concentrates with TC/RC of US\$ 65/t and 6.5 cts/lb
- TC/RC levels vary according to concentrate complexity
- Continuous high copper price incentivizes mines to maximize output and bring new mine capacities online in order to increase supply of concentrates
- TC/RC levels are also affected by production disruptions, strikes, and export restrictions, as well as expanded smelting capacities in China

# Aurubis AG

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Schwefelsäure Märkte & Absatzstruktur

Dirk Boyens, Sales By-Products





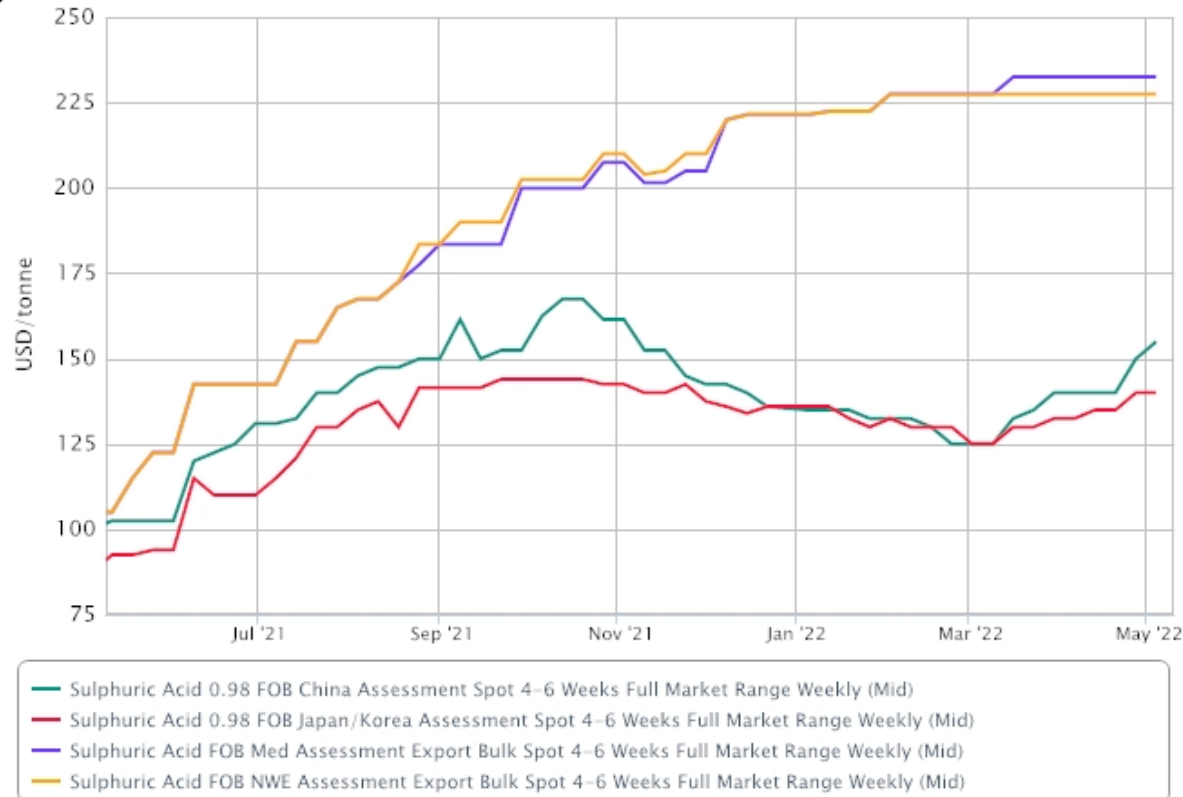
# Schwefelsäure im Überblick

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- Schwefelsäure ist bei Aurubis ein Kuppelprodukt der Konzentratverarbeitung an den Standorten in Hamburg und Pirdop, dass bei der Rauchgasentschwefelung produziert wird
- Aus ~ 1 t Konzentratumsatz wird ~ 1 t Schwefelsäure produziert
- Globales Marktvolumen im KJ 2021 ~283 Mio. t
- Aurubis produzierte ~2.1 Mio. t Schwefelsäure im GJ 2020/21
- Es gibt 3 große globale Absatzmärkte für Schwefelsäure
  - Düngemittel > 180 Mio. t
  - Chemieindustrie > 70 Mio.t
  - Metallindustrie ca. 30 Mio. t



# Globale Preisentwicklung seit Sommer 2021



Preise in NW Europa und Med Basis auf FOB seit Januar 2022 sehr stabil

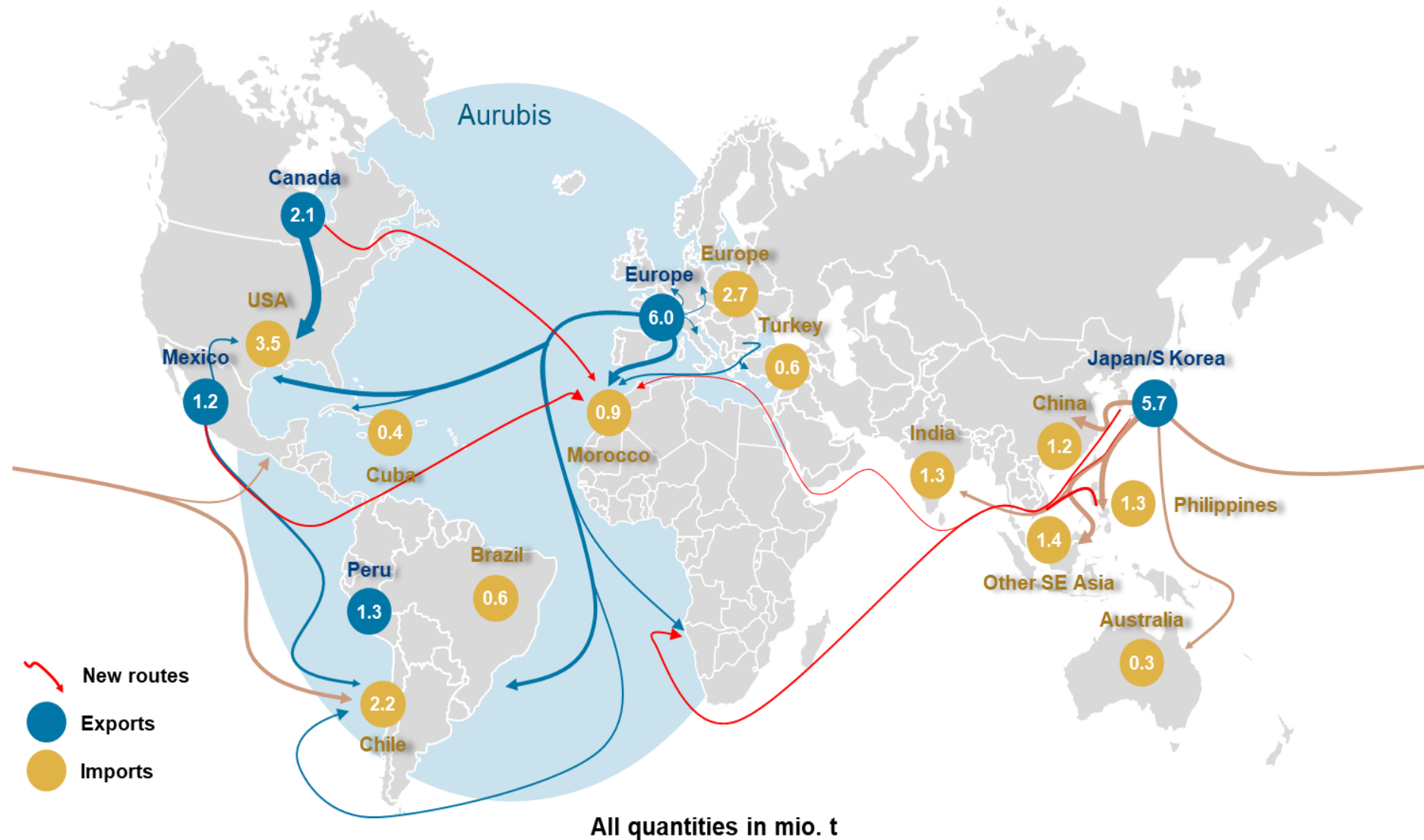
Preise in China wieder im Aufwärtstrend nach kurzem Preisrückgang zu Beginn des Jahres

Japan und Korea zeigen ähnlichen Trend

Ausblick ist schwer prognostizierbar, da bedingt durch Rohstoffpreise und Verfügbarkeiten insbesondere die Düngemittelindustrie starken Schwankungen unterliegt

Wir gehen von einem gleichbleibenden Preisniveau bis zum GJ Ende aus

# Globale Schwefelsäure Verkaufsströme



Quelle: CRU

Aurubis / Warburg Bank Besuch, 30 Mai 2022

# Größter globaler Schwefelsäureverkauf ist in den Düngemittelmarkt mit > 180 Mio. t

Düngemittel



Chemie



Metallverarbeitung

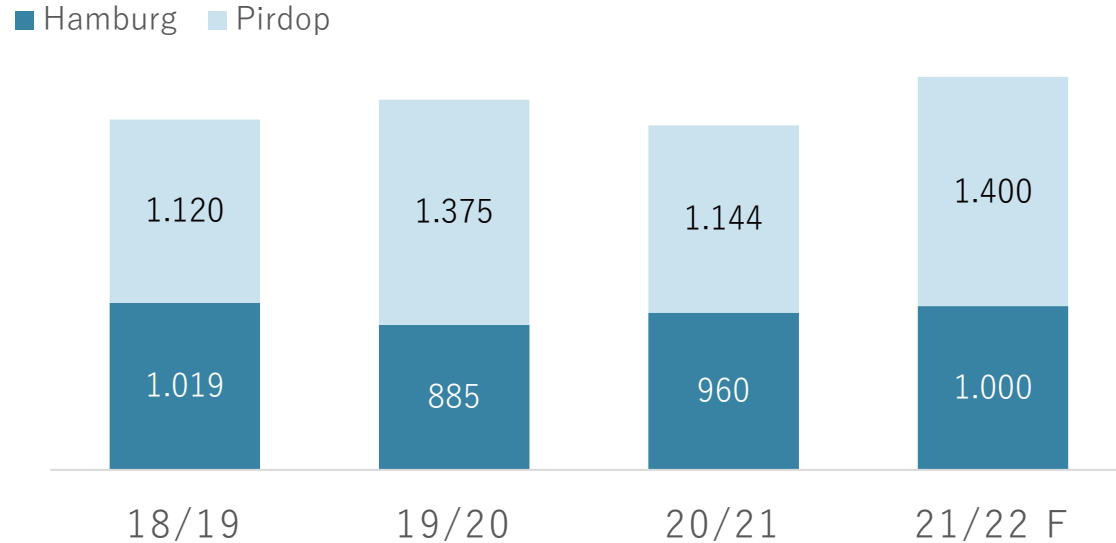


Batteriesäure

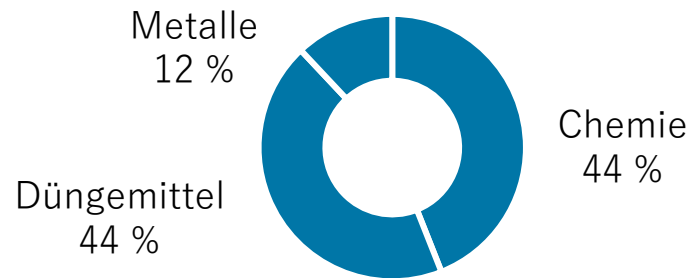


# Aurubis Absatzstruktur – Schwefelsäure

Schwefelsäureproduktion Aurubis Konzern (in 1.000 t)



Kundenverteilung per Industrie



Kundenverteilung per Industrie

	Hamburg	Pirdop
Düngemittel	20 %	60 %
Chemie	70 %	26 %
Metall	10 %	14 %

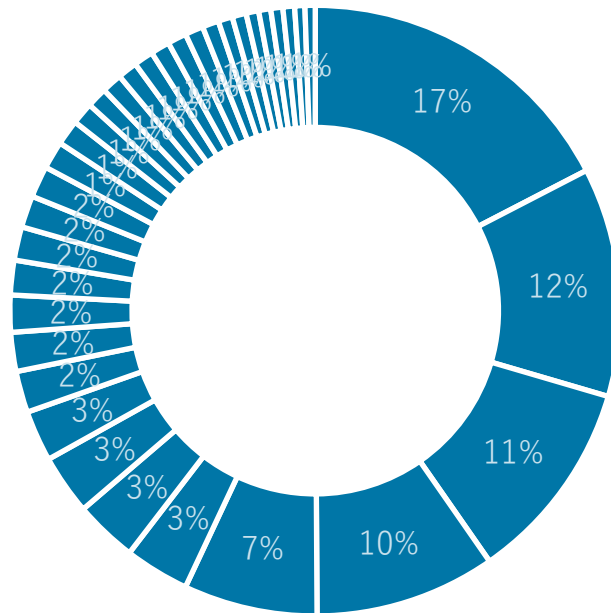
Märkte

	Hamburg	Pirdop
Deutschland	29 %	Bulgarien 31 %
Europa	52 %	Türkei 34 %
Übersee	19 %	SE Europa 35 %
		Übersee 0 %

# Sehr gutes diversifiziertes Kundenportfolio

Aurubis Schwefelsäure Verkauf KJ 2021

Top 28 customers > 85 % volume

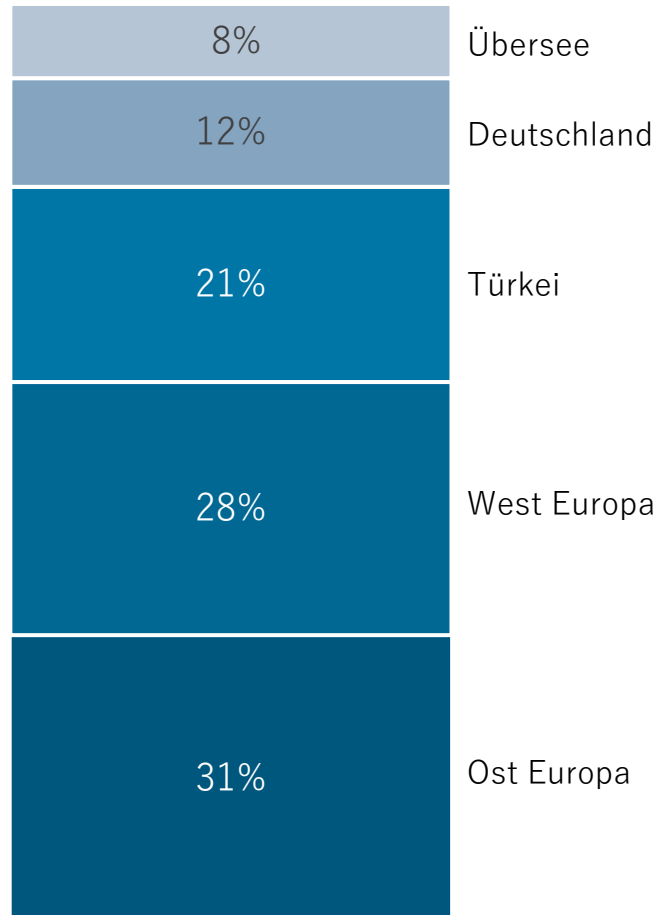


- Top 10 Key Accounts > 67 % des Verkaufsvolumens
- In 2021 haben wir an 117 Kunden in über 20 Länder weltweit geliefert
- In Süd-Europa beliefern wir die Top Kunden mit der größten Schwefelsäurenachfrage
- 80 % der produzierten Mengen in Pirdop sind deshalb langfristig gesichert

» Ein diversifiziertes Kundenportfolio mit über 117 Kunden bietet ein langfristig gesichertes Absatzpotential.

# Globale Schwefelsäure Präsenz stellt Absatz sicher

## Regionale Verkaufsstruktur Schwefelsäure in KJ 2021



- Europa ist für Aurubis mit 1,2 Mio. t der größte Absatzmarkt
- Türkei ist mit aktuell 500kt. der größte Wachstumsmarkt
- Deutschland ist ein stabiler hochpreisiger Markt mit hohem Anteil an Kunden in der chemischen Industrie
- Langfristige Verträge für Schwefelsäure sich den Absatz in Übersee mit Vertragsstrukturen von >1 bis 5 Jahre