COPPER CATHIDE ACCORDING TO THE EUROPEAN STANDARD

Designation Cu-CATH-2

The designation Cu-CATH-2 refers to a standardized class of copper cathodes according to the European standard EN 1978:2022. It represents the second quality category of cathodes, which differs from Cu-CATH-1 in terms of permissible impurity levels and intended use.

What does Cu-CATH-2 mean?

- **Standard:** EN 1978:2022 (European standard for copper cathodes).
- **Categories:** There are two main designations:
  - **Cu-CATH-1 (CR001A):** high-purity cathode, suitable for electrotechnical applications (e.g., cables, conductors).
  - **Cu-CATH-2 (CR002A):** cathode with slightly higher permissible impurity content, intended for industrial processes where extreme purity is not critical.

Key differences between Cu-CATH-1 and Cu-CATH-2

Designation	Application	Copper Purity	Permissible Impurities
Cu-CATH-1	Electrical industry (cables, conductors, electronics)	≥ 99.99%	Strictly limited (Ag, As, Bi, Pb, S, etc.) – London Metal Exchange
Cu-CATH-2	General industrial use (alloys, casting, chemical processing)	Lower than Cu-CATH-1, but still high	Higher thresholds of impurities, but in line with EN 1978

Why is it important to distinguish the designations?

- **Trade and contracts:** LME (London Metal Exchange) and other exchanges use these designations to precisely define cathode quality in contracts.
- **Technical application:** For electrical applications, cathodes must be Cu-CATH-1. For industrial processes where copper is further processed, Cu-CATH-2 is sufficient.
- **Price:** Cu-CATH-1 cathodes are more expensive due to stricter purity requirements.

Conclusion

Cu-CATH-2 is the standard designation for copper cathodes under EN 1978:2022, representing the second quality class with higher permissible impurity levels compared to Cu-CATH-1. It is used in industrial processes where maximum electrical conductivity is not required.

Detailed specification – EN 1978:2022

The EN 1978 standard defines two cathode classes:

- **Cu-CATH-1 (CR001A):** high-purity cathode, suitable for electrotechnical applications.
- **Cu-CATH-2 (CR002A):** cathode with higher impurity thresholds, intended for industrial processes (alloys, casting, chemical processing).

Typical impurity limits (Cu-CATH-1 vs. Cu-CATH-2)

Although EN 1978:2022 clearly defines both classes, publicly available data is detailed for Cu-CATH-1 (LME Grade A). For Cu-CATH-2, thresholds are higher but based on the same elements.

Element	Cu-CATH-1 (max %)	Cu-CATH-2 (max %) – higher thresholds
Ag (Silver)	0.0025	>0.0025 (higher allowed)
As (Arsenic)	0.0005	higher threshold
Bi (Bismuth)	0.00020	higher threshold
Fe (Iron)	0.0010	higher threshold
Pb (Lead)	0.0005	higher threshold
S (Sulfur)	0.0015	higher threshold
Sb (Antimony)	0.0004	higher threshold
Se (Selenium)	0.00020	higher threshold
Te (Tellurium)	0.00020	higher threshold
Total impurities	≤0.0065	higher allowed

Note: EN 1978 does not publicly disclose all exact limits for Cu-CATH-2, as they are used in industrial specifications and commercial contracts. The essential difference is that Cu-CATH-2 has higher permissible impurity thresholds, while still being considered suitable for industrial processing.

Practical implications

- **Cu-CATH-1:** used in cable, conductor, and electronic component production where maximum conductivity is required.
- **Cu-CATH-2:** used in metallurgy, alloying, and chemical industry, where copper is further processed and extreme purity is not essential.
- **Price:** Cu-CATH-1 is more expensive due to stricter purity requirements.

Final note

Cu-CATH-2 is an industrial-grade copper cathode with higher permissible impurity levels compared to Cu-CATH-1. When preparing contracts or technical specifications, it is essential to

state that the material is Cu-CATH-2 (CR002A) according to EN 1978:2022, as this clearly defines quality and application.