

ISE Furrengasse 21, 6004 Luzern Switzerland

Zaharoni PC
Mr. Dan Zaharoni
6543 S. Las vegas Blvd
89119 Las Vegas

United States

Lucerne, 23 October 2025

**Analysis Report of copper powder for chemical purity and determination of particle shape and size.
Your order dated 13 October 2025.**

Analysis report No. ISE-A20258426

In accordance with the above-mentioned order, a sample of the customer's goods was taken taken by the Inspector of ISE AG on 15 of October 2025 and sent to ISE/IMG laboratory for the chemical purity and determination of particle form and size.

The sample was designated as:

Copper Powder
Lot No. No. 43145
Sample ID: ISE-ST2025463
Total Quantity: 500 kg (customer information)

According to the attached analytical report, the chemical purity grade of the copper powder is:

Cu (Remainder) = 99,999789% according to TU 24.44.21-002-75815004-2022.

Cu (Remainder) = 99,994289 % (Metal Basis).

The majority of the particles (>95%) are fine roundish, with sizes ranging from 0,5 to 1,2 µm.

The impurities contents of copper powder for prescribed impurities (page 3) are no more than 2,11 ppm. It was calculated as difference between 100 % and sum of impurities. The impurities list and grade have been determined according to the technical standard TU 24.44.21-002-75815004-2022.

The analytical reports are attached to this letter.

If you have questions about the results, please feel free to contact us.

Signed:



Institute for Rare Earths and Metals
Arndt Uhlendorff



Customer: Zaharoni PC

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Dipl.-Ing. Peter Glörfeld
Dr. Myint Myint Sein
Geschäftsführer
ISE AG/ELMASPECS GmbH
Willich, 23.10.2025

Analysis certificate No. ISE-A20258426

GD-MS Analysis according to ISO/TS 15338:2009

Your order dated: 13 October 2025

Your order ID: ISE-A20258426

Material as provided by customer: Copper Powder
99.99x%

Your Sample ID: ISE-ST2025463

Date of sample input: 15 October 2025

IMG-Laboratory ID: 2025-105527

Results of the analysis on page 3

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GD/MS Analytical Report

Customer: Zaharoni PC

Analytic ID: ISE-A20258426

Date: 23 October 2025

Sample ID: ISE-ST2025463

Element	µg/g	Element	µg/g	Element	µg/g	Element	µg/g
Li	<0,005	Mn	0,02	Ag	12	Tm	<0,005
Be	<0,005	Fe	1,5	Cd	0,02	Yb	<0,005
B	<0,005	Co	<0,005	In	0,006	Lu	<0,005
C	n.b.	Ni	0,05	Sn	0,15	Hf	<0,005
N	n.b.	Cu	Matrix	Sb	1,66	Ta	<0,005
O	n.b.	Zn	0,23	Te	0,20	W	<0,005
F	0,017	Ga	<0,005	I	0,012	Re	<0,005
Na	3,06	Ge	0,013	Cs	<0,005	Os	<0,005
Mg	0,07	As	4,03	Ba	<0,005	Ir	<0,005
Al	0,16	Se	0,26	La	<0,005	Pt	<0,005
Si	1,9	Br	<0,008	Ce	<0,005	Au	0,018
P	<0,03	Rb	<0,005	Pr	<0,005	Hg	0,7
S	19	Sr	<0,005	Nd	<0,005	Tl	<0,005
Cl	8	Y	<0,005	Sm	<0,005	Pb	1,5
K	0,11	Zr	<0,005	Eu	<0,005	Bi	0,104
Ca	0,11	Nb	<0,005	Gd	<0,005	Th	<0,005
Sc	<0,005	Mo	0,015	Tb	<0,005	U	<0,005
Ti	2	Ru	<0,005	Dy	<0,005		
V	<0,005	Rh	<0,02	Ho	<0,005		
Cr	0,06	Pd	<0,005	Er	<0,005		

n.b. = not determined.

Bold elements: Calibrated measurement against certified reference samples. All other elements: Evaluation using standard RSFs (tolerance factor max. $\pm 2,5$). Values below the detection limit are included at 50% in the sum calculation.

Cu (Remainder) = 99,994289% (Metal Basis).

Total impurity without C, N and O: **57,1 µg/g.**

Sum of impurities of (Li, Be, Ti, V, Cr, Co, Rb, Mo, Pd, Cd) is 0,000211 %,

Cu (Remainder) = 99,999789% according to TU 24.44.21-002-75815004-2022.

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Particle analysis by scanning electron microscopy (SEM)



The client submitted a sample of copper powder for semi-quantitative visualisation of the grain size and grain structure using a scanning electron microscope (SEM).

The sample has the following designation: **2025-105527 (7002)**

A portion of the copper powder from the sample bag was transferred to a carbon pad and examined in the SEM at magnifications of up to 3000x.

The grain size was analysed using circular radius measurements for round particles and distance measurements for elongated particles. The evaluation of grain size and grain structure is summarised in the following table:

2025-105527 (7002)	Roundish particles	Elongated particles
	fine	dendritic structure
Share, %	> 95%	< 5%
Size, μm	0,5 – 1,2 μm	13- 26 μm

Conclusion

The majority of the particles (>95%) are fine roundish, with sizes ranging from 0,5 to 1,2 μm , while less than 5% of particles possess the size of 13 - 26 μm .

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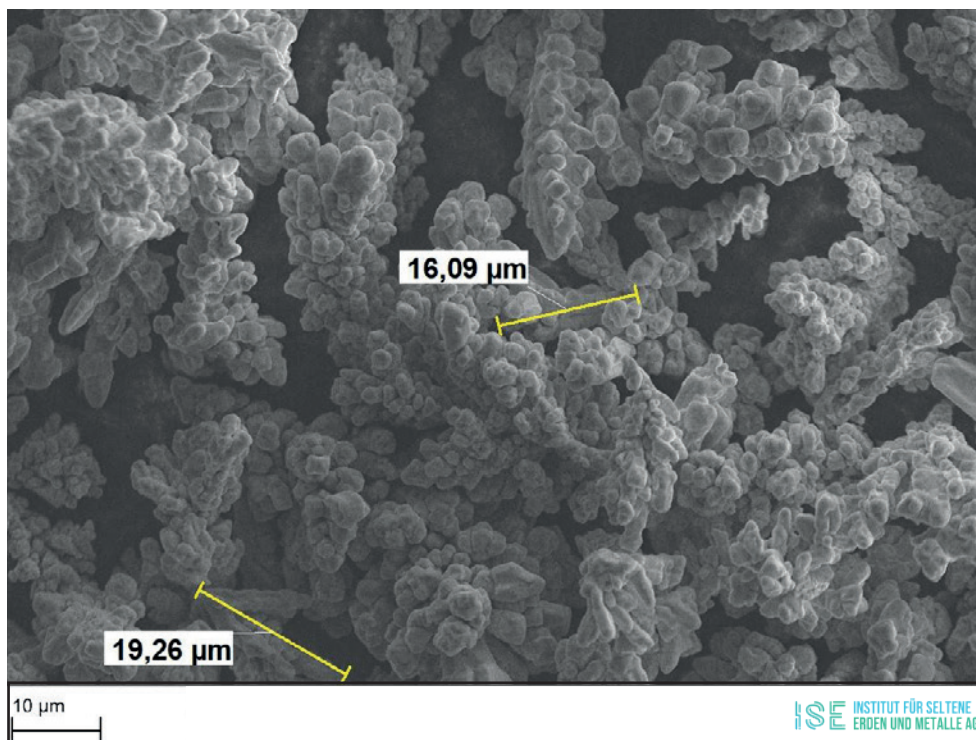


Figure 1: 2025-105527 (7002), overview of area 1
elongated dendritic structures approx. 16- 19 µm

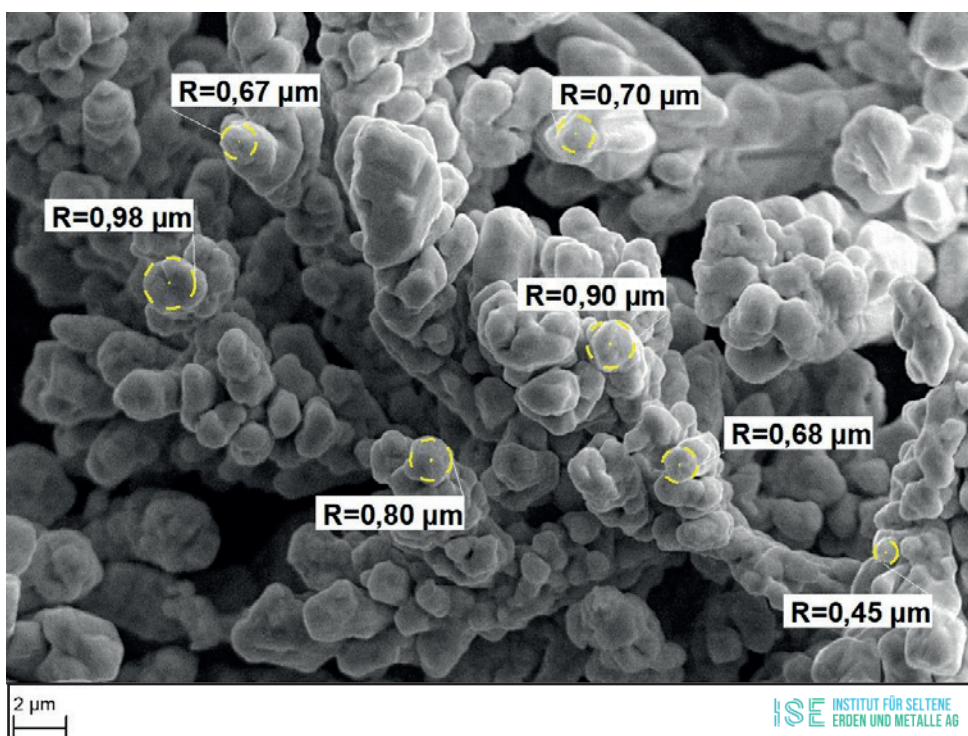


Figure 2: 2025-105527 (7002), detail from area 1
fine roundish structures approx. 0,5 – 1,0 µm

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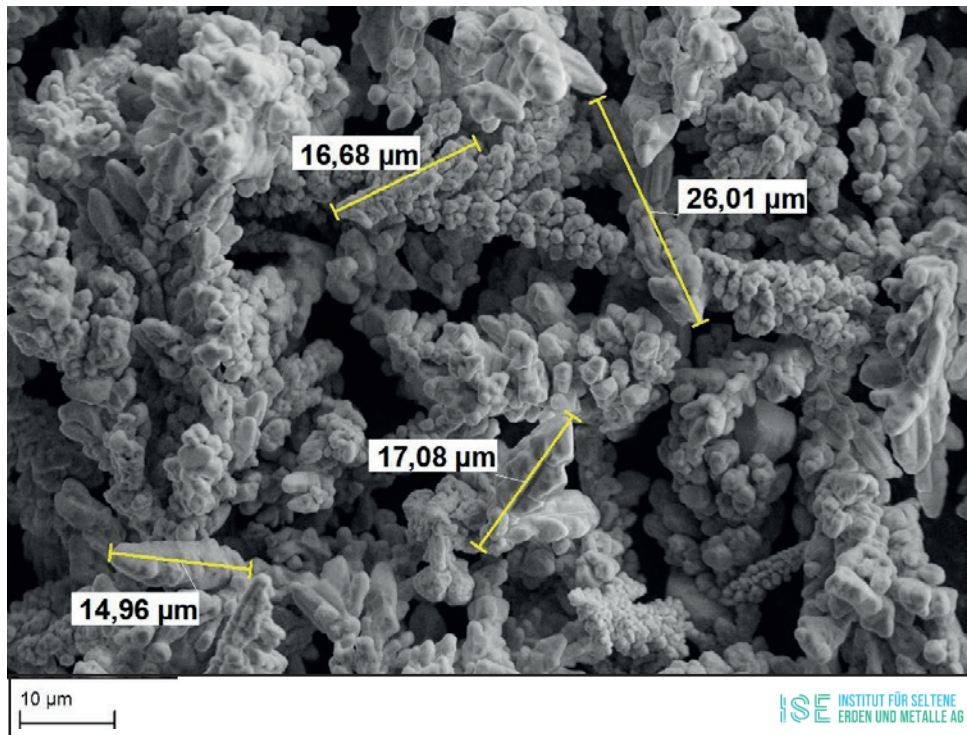


Figure 3: 2025-105527 (7002), overview of area 2,
elongated dendritic structures approx. 15- 26 µm

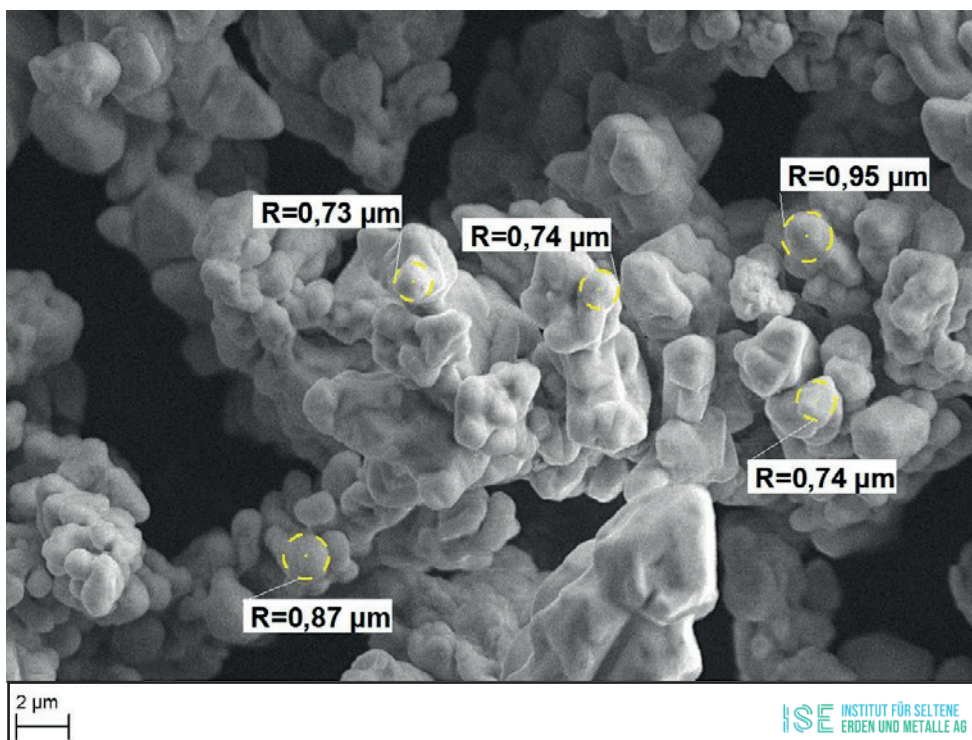


Figure 4: 2025-105527 (7002), detail from area 2
fine roundish structures approx. 0,7 – 1,0 µm

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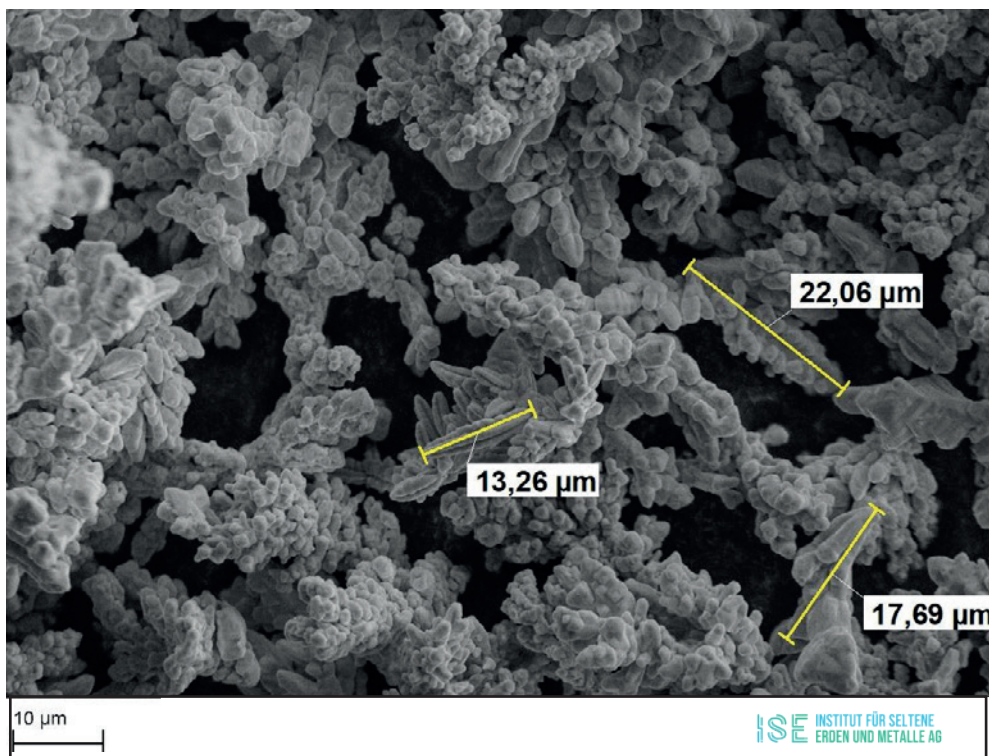


Figure 5: 2025-105527 (7002), overview of area 3
elongated dendritic structures approx. 13- 22 µm

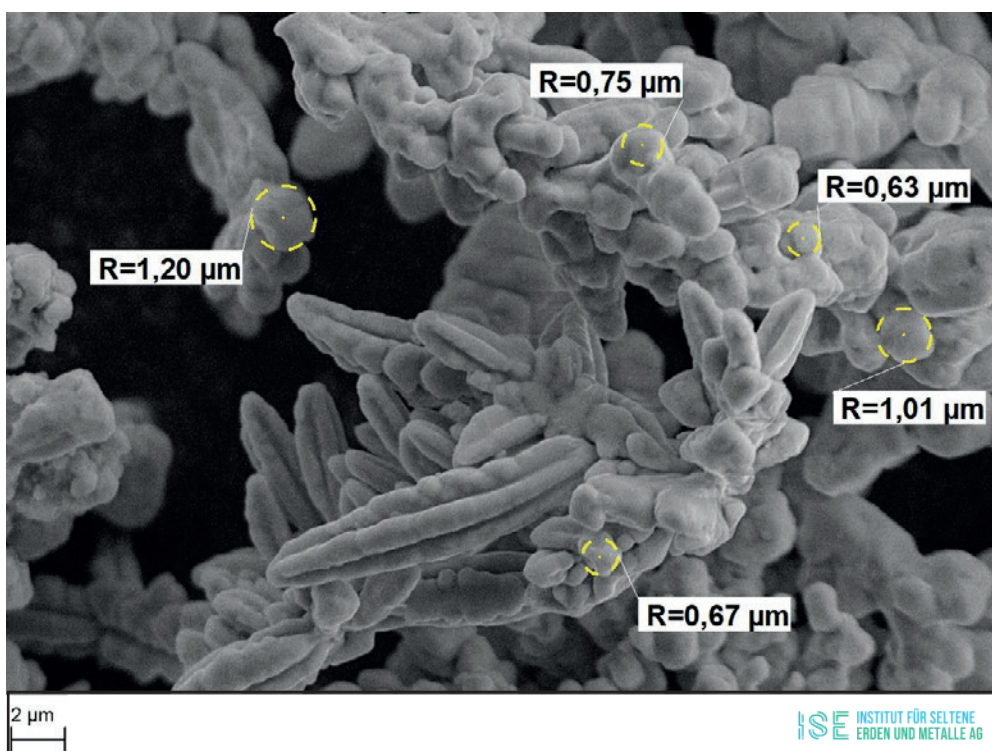


Figure 6: 2025-105527 (7002), detail from area 3
fine roundish structures approx. 0,6 – 1,2 µm

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