

SCHLENK - A COMPANY WITH VALUES AND VISIONS

With approx. 900 employees worldwide, SCHLENK is a leading international manufacturer of metal powders, metallic pigments and metal foils.

SCHLENK produces metal effect pigments, technical aluminum and copper or copper alloy powders, as well as metal foils and strips for a wide range of industries.

COMPANY POLICY - CUSTOMER INTIMACY, QUALITY AND TECHNOLOGY

SCHLENK is a sustainable- and future-oriented technology company. Our international clientele manufactures high-quality end products using our technically high-performance materials that are easy to process.

Through our application-oriented service and our distinctive culture of innovation, we ensure the quality of our services now and in the future.

ENVIRONMENT, ENERGY AND SUSTAINABILITY

The location of our factories in ecologically valuable areas requires a site-specific environmental and energy policy in harmony with our economic interests. Accordingly, we assume responsibility for preserving and protecting the environment. For us, the ever more economical use of resources is a matter of course.

This applies to our manufacturing processes as well as to our products. In every process we make sure that energy and environmentally relevant aspects are clarified and taken into account as far as possible.

Data in this publication is based on careful investigations and is intended for information only. All information shall not be binding, shall carry no warranty as to certain ingredients, as to the fitting for a special purpose, as to the merchantability, or as to the industrial property rights of third parties. Any and all users are obliged to carry out tests on their own authority as well as to check the suitability and the danger of the respective product for a particular application. SCHLENK assumes no liability in this regard; neither to the exactness nor to the completeness of the data. We apply our General Sales Conditions to be found on our website:

www.schlenk.com

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SCHLENK 

Product Information

SCHLENK 

ROGAL[®] SELECT SERIES

Copper Powders for Additive Manufacturing



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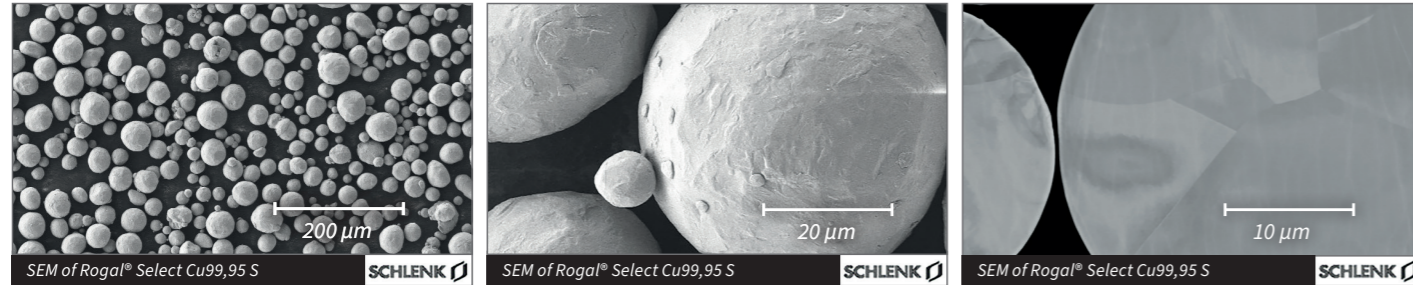
Also available as e-paper

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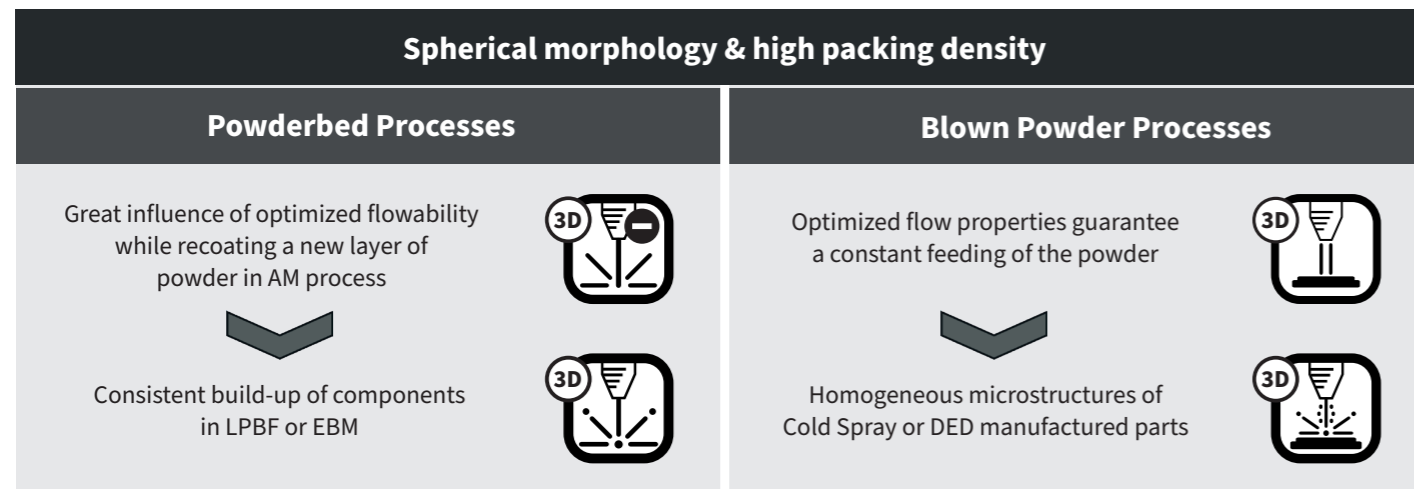
ROGAL® SELECT COPPER POWDERS

Rogal® Select Copper Powders are inert gas atomized powders which combine spherical morphology, a high metallurgical purity, and a very low oxygen content.

These properties guarantee homogeneous microstructures in the additive manufactured components including an excellent electrical & thermal conductivity. Due to the customizable powder characteristics, the powders are suitable for a wide range of Additive Manufacturing (AM) technologies such as LPBF, Cold Spray & DED.



KEY FEATURES ROGAL® SELECT



TYPICAL BRANCHES & APPLICATIONS:

- **Engineering**, e.g. heat exchangers, coolers, custom connectors & fittings
- **Energy**, e.g. inductive coils, busbars, structural power components
- **Automotive**, e.g. busbars, heat sinks, sensor housings, battery connectors
- **Aerospace**, e.g. rocket engines, RF/waveguide components, injector heads

ROGAL® SELECT SERIES - AVAILABLE POWDERS - CHEMICAL COMPOSITION (WT%)

PURE COPPER	Cu	O
Rogal® Select Cu 99.95 S*	≥ 99.95	≤ 0.04

* Raw material chemical composition of Cu99,95 according to CW008A / C10200

COPPER ALLOYS	Cu	Cr	Zr	Fe	Si	Ni	Sn	Al	Mn	Zn
Rogal® Select CuSn8 S*	Bal.						7.0 - 9.0			
Rogal® Select CuNi2SiCr S*	Bal.	0.2 - 0.7		≤ 0.2	0.4 - 0.8	1.8 - 3.0			≤ 0.2	
Rogal® Select CuCr1Zr S*	Bal.	0.5 - 1.2	0.03 - 0.3	≤ 0.1	≤ 0.1					
Rogal® Select CuAl10Ni5Fe4 S*	Bal.			3.0 - 5.0	≤ 0.2	4.0 - 6.0	≤ 0.1	8.5 - 11.0	≤ 1.0	≤ 0.4

It is also possible to develop customized copper alloys on demand.

PARTICLE SIZE DISTRIBUTION & POWDER PROPERTIES

Standard Powder specifications of Rogal® Select Series are designed & suitable for common Additive Manufacturing processes:

TYPICAL PSDs	PSD WITH LASER GRANULOMETRY ^I			APPARENT DENSITY ^{II}	FLOWABILITY ^{III}
	D10 [μm]	D50 [μm]	D90 [μm]	[g/cm ³]	[s/50g]
0 / 15	2 - 8	7 - 15	12 - 20	≥ 3.6	Not flowable
0 / 20	3 - 10	10 - 18	15 - 25	≥ 3.6	Not flowable
15 / 45	10 - 22	25 - 35	35 - 48	4.6 - 5.5	≤ 14
20 / 63	18 - 30	35 - 46	50 - 66	4.6 - 5.5	≤ 14
45 / 105	40 - 50	60 - 78	80 - 110	4.6 - 5.5	≤ 16
63 / 160	50 - 75	80 - 110	120 - 155	4.6 - 5.5	≤ 16

Exemplary values for Rogal® Select Cu99,95 S.

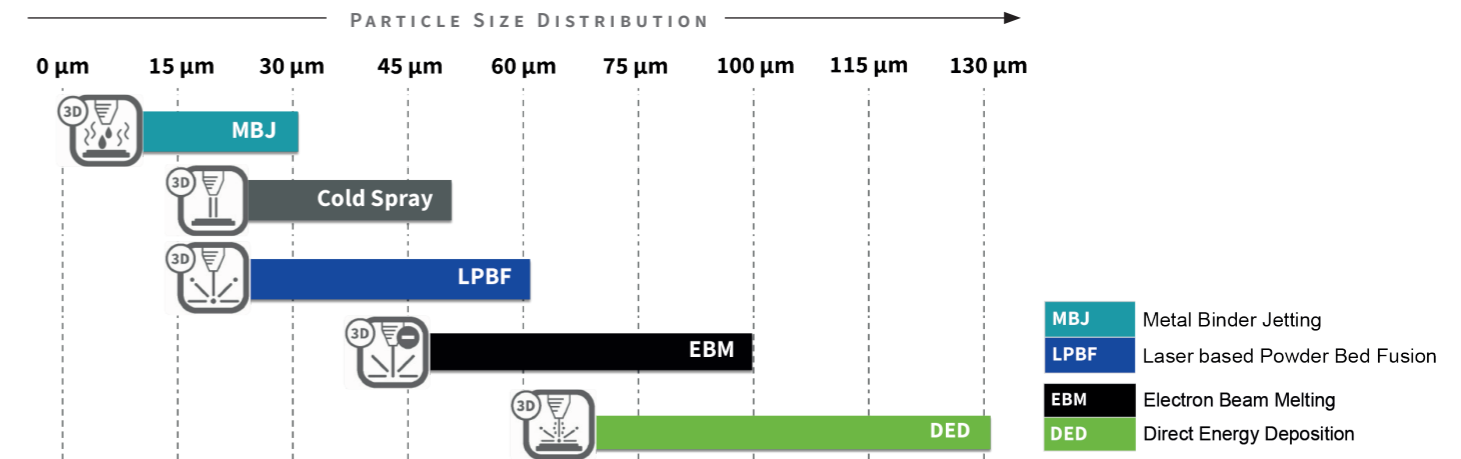
^I Sympatec Helos

^{II} Apparent density acc. to DIN EN ISO 3923 part 1

^{III} Flowability acc. to DIN EN ISO 4490

It is also possible to fulfill individual requirements of the customer's end application or AM technology. Contact us to discuss customized powder specifications.

APPLICATION OF ROGAL® SELECT POWDERS IN DIFFERENT AM-TECHNOLOGIES



PRODUCTION, QUALITY CONTROL & SCHLENK LAB SERVICE

- **Ensuring an oxygen-free production line:** complete atomization and downstream processes like classifying, screening & packaging in an inert gas atmosphere.
- **Production-escorted quality control:** we screen the powder characteristics in our company own material lab.
- **Certificate of Analysis for every Rogal® Select batch:** containing information on chemical composition and PSD. Information on other powder characteristics is available on request.
- **Packaging** between 1 and 15 kg incl. inertgas overlaying, desiccant bags & sealed antistatic inliner.