

# eco SZ3®

CuZn40SiP | lead-free brass according to RoHS

## Material designation

EN not standardized

UNS not standardized

## Chemical composition\*

Cu 59.5 %

Pb max. 0.100 %

Si 0.2 %

P 0.15 %

Zn balance

\*Reference values in % by weight

## Physical properties\*

Electrical conductivity MS/m 13.2  
%IACS 23

Thermal conductivity W/(m·K) 104

Thermal expansion coefficient (0–300 °C) 10<sup>-6</sup>/K 21.7

Density g/cm<sup>3</sup> 8.21

Modulus of elasticity GPa 107

\*Reference values at room temperature

## Corrosion resistance

Machining brass is generally quite resistant against organic substances as well as neutral or alkaline compounds.

Stress corrosion cracking should be taken into account, especially in an ammoniacal atmosphere and whilst under mechanical stress.

Dezincification in warm, acidic waters should also be taken into consideration.

## Product standards

no EN standard yet

## Material properties and typical applications

eco SZ3® is a material with good machinability despite being lead-free. It can therefore be used as a replacement for conventional leaded free-cutting brasses if a lead content of max. 0.1 % is required.

Its mechanical properties and corrosion resistance are comparable to those of leaded brasses such as CuZn39Pb3 or CuZn40Pb2.

The material is lead-free in accordance with RoHS and ELV.

Hygienic approval for drinking water applications is being sought.

## Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

## Fabrication properties

### Forming

Machinability 95 %  
(CuZn39Pb3 = 100 %)

Capacity for being cold worked poor

Capacity for being hot worked excellent

### Surface treatment

Polishing	mechanical	good
	electrolytic	poor

Electroplating		excellent
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## Joining

Resistance welding (butt weld) fair

Inert gas shielded arc welding fair

Gas welding poor

Hard soldering good

Soft soldering excellent

## Heat treatment

Melting range 870 - 900 °C

Hot working 550 - 650 °C

Soft annealing 450 - 500 °C,  
2 - 3 h

Thermal stress-relieving 200 - 300 °C,  
1 - 3 h

## Trademarks

**wieland ecoline**

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## Dimensions and mechanical properties according to standards

### Round rods / polygonal rods

Temper	Diameter		Width across flat		Tensile strength	Yield strength		Elongation		
					R <sub>m</sub>	R <sub>p0.2</sub>		A100	A11.3	A
	mm	mm	mm	mm	MPa	MPa		%	%	%
	from	to	from	to	min.	min.	max.	min.	min.	min.
M	all		all		as manufactured					
W-R400*	6	80	5	60	400	–	360	–	15	20
W-R460*	2	40	2	35	460	240	–	4	6	10
W-R520*	2	16	2	10	520	380	–	–	2	4

\*factory standard, intended for standardization