

A close-up photograph of a modern, polished brass faucet. The faucet handle is a smooth, curved bar. Below it, the faucet body is visible, with a hexagonal nut and a small O-ring. A clear stream of water is flowing from the spout. The background is a soft, out-of-focus light gray.

**DIEHL**  
Brass Solutions

**CUPHIN – THE LEAD-FREE  
MATERIAL FOR VALVES  
AND FITTINGS**

# CUPHIN FOR DRINKING WATER INSTALLATIONS

OUR MATERIAL IS SPECIALLY DESIGNED TO MEET THE REQUIREMENTS OF DRINKING WATER INSTALLATIONS AND STANDS FOR:



When it comes to drinking water installations, one of the most important considerations is the selection of suitable materials. The materials and products must not only meet a wide range of technical and mechanical requirements but, most importantly, they also need to be hygienically safe.

**CUPHIN** was specially designed for meeting the requirements of drinking water installations. With this material, current legal requirements as well as safety, hygiene and health aspects are all taken into account.



# MATERIAL AND PROPERTIES

## Chemical Composition

Composition  
(mass percentage, reference values)

Cu	76.0
Si	3.0
P	0.05
Zn	remainder

## Physical Properties

Physical Properties

Density	g/cm <sup>3</sup>	8.3
Electrical conductivity	m/(Ω · mm <sup>2</sup> )	5.3
Thermal conductivity	RT	W/(m · K) 28.0
	200 °C	W/(m · K) 44.4
Young's modulus	GPa	106.0

## Corrosion Properties

Based on the relevant standardized test methods, **CUPHIN** demonstrates both stress corrosion cracking resistance (SCCR) as well as dezincification resistance (DZR). Hardly any other material in drinking water installations can offer these properties in combination.

Due to its mechanical and corrosion properties, **CUPHIN** is a future-oriented alternative for drinking water installations.

## Mechanical Properties

**CUPHIN** is characterized by outstanding mechanical properties that were previously unattainable in conventional materials for pipe connectors, valves and fittings. The high strength combined with high elongation is otherwise only known from some steel grades.

Mechanical Properties:

(reference values apply to rods with a diameter of approx. 20 mm)

Tensile strength R <sub>m</sub>	700 MPa
Yield strength R <sub>0.2</sub>	480 MPa
Elongation A5	20%
Brinell hardness	180 HB



# HEALTH

## Health and Well-Being

Drinking water is our most important essential nutrient. Therefore, it needs to be free of pathogens, fit for human consumption and pure.

**CUPHIN** is free of lead and other substances of concern, making it particularly suitable for use in drinking water installations.

This gives the consumer reassurance when preparing food. In addition, with regard to lead regulation, CUPHIN can be sold on all markets worldwide, as the complete absence of lead as an alloying element means that all known legislation on lead limitation are complied with.



# ECOLOGICAL ASPECTS

As a typical copper material, CUPHIN conserves our scarce resources. Furthermore, CUPHIN can be completely recycled, since an outstanding recycling system is already in place.

Recycling not only conserves raw materials, but also helps to save energy. After all, recycling copper means that the energy associated with ore mining as well as with preparation and transport to the processing sites is rendered unnecessary.

For example, the energy input for melting down the scrap material is only a fraction of what is required for metal extraction from ores.

Thus, **CUPHIN** has the favorable energy balance typical of copper materials.

## Support us!

Contribute to the positive energy balance of **CUPHIN**. Ensure that this material is sorted and separated at every stage of the recycling system (from dismantling to raw material recycling).

## For the sake of the environment!



Based on the intended application, you can download all relevant specifications from our website. In our material specifications you will find a list of the physical, thermal, mechanical as well as resistance properties. If you have any questions on the materials and the processing thereof, please feel free to call our experts or send us your inquiry directly.

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