



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:

- **SAFETY AND RELIABILITY**
- **HYGIENE**
- **HEALTH AND WELL-BEING**
- **ECOLOGY**

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 ³	8.3
Electrical conductivity	m/(Ω · mm ²)	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 _m	700 MPa
Yield strength R _{0.2}	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.



Risk Disclosure

The tests took place under the test conditions mentioned here. In these tests, selected properties of the alloy can be investigated. The test results are based on the test setup shown, which has specific laboratory conditions. Deviating conditions in the field may have significant effects. Aspects which play a decisive role include, in particular, but not exhaustively, the design of the components, the further processing of the alloy, the processing of the finished parts made with the alloy, transport and storage, the manner and location of use, the installation and the installation situation.

When it comes to properties, the corrosion resistance of the material is a key factor. The DIN standard DIN EN ISO 8044 (formerly DIN 50900) defines corrosion as a reaction of a metallic material with its environment that causes a measurable change in the material and can impair the function of a metal component or an entire system. From a technical point of view, corrosion is a reaction of a material with its environment that causes a measurable change in the material. Corrosion can impair the function of a component or system. Corrosion, as a complex system of interactions, depends on a large number of factors which, in their multifactoriality, cannot be fully reproduced under test conditions. The type of corrosion known as dezincification, which occurs with zinc-containing copper alloys that are in contact with drinking water, is familiar to the broad expert public.

The purchaser of the alloy is responsible for determining and testing the design, further processing, application areas of products made from the alloy, and any other relevant factors. This is also applicable when determining the dezincification depth that is considered reasonable for the selected area of application. Diehl cannot accept any liability for this, but solely for the information contained in the enclosed product data sheet.

You can also find the information [here](#) on our website.

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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