DIEHL
Brass Solutions

ECOMERICA – LOW-LEAD BRASS ALLOYS

LOW-LEAD BRASS ALLOYS FOR DRINKING WATER INSTALLATIONS

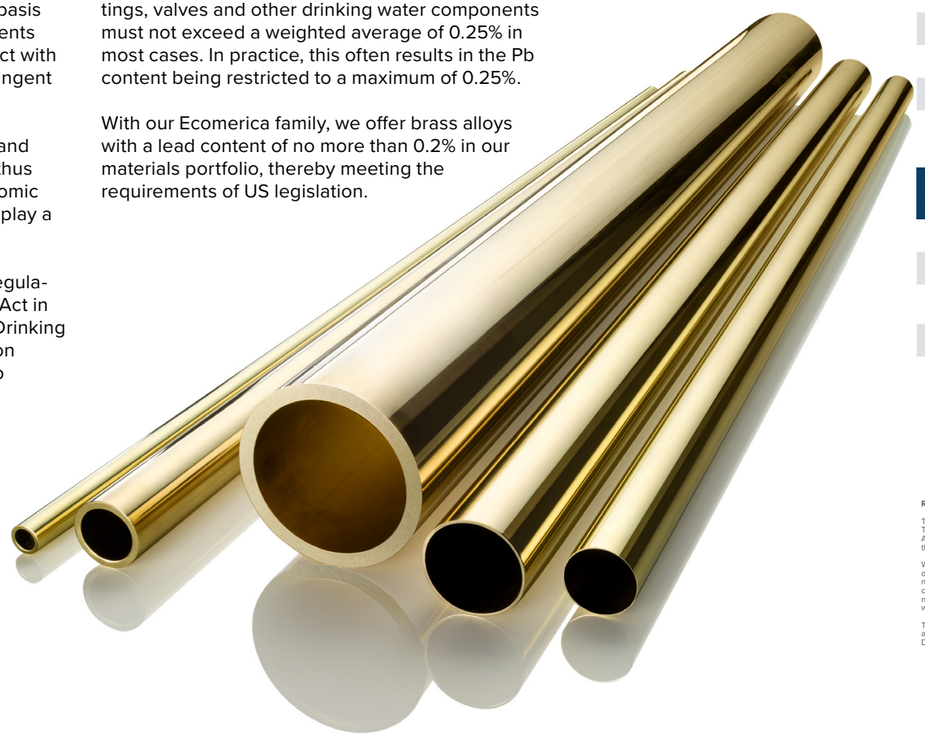
Drinking water is our most important essential nutrient – our source of life – and thus the basis of our health. For this reason, the requirements relating to materials which come into contact with drinking water are becoming ever more stringent worldwide.

The correct selection of suitable materials and products for drinking water installations is thus extremely important. Here, technical, economic and especially hygienic and heath aspects play a major role.

In the United States of America, all this is regulated nationwide by the Safe Drinking Water Act in conjunction with the Reduction of Lead in Drinking Water Act. Here, the requirements placed on materials and components which come into contact with drinking water are defined.

For example, the proportion of lead in pipes, fittings, valves and other drinking water components must not exceed a weighted average of 0.25% in most cases. In practice, this often results in the Pb content being restricted to a maximum of 0.25%.

With our Ecomerica family, we offer brass alloys with a lead content of no more than 0.2% in our materials portfolio, thereby meeting the requirements of US legislation.



ECOMERICA®
PURE DRINKING WATER

Composition (mass percentage, reference values)			
	ECOMERICA® 062	**ECOMERICA® 057**	**CUPHIN® 430**
Cu	63.3	58	76.0
Pb	< 0.2	< 0.2	≤ 0.09
Zn	remainder	remainder	remainder
Other elements	As = 0.09	-	P = 0.05, Si = 3.0

Material Designation			
Diehl Metall	**ECOMERICA® 062**	**ECOMERICA® 057**	**CUPHIN® 430**
DIN EN Symbol	CuZn38As	CuZn42	CuZn21Si3P
DIN EN	CW511L	CW510L	CW724R
UNS	C24453	-	C69300

Mechanical Properties: (reference values)			
	ECOMERICA® 062	**ECOMERICA® 057**	**CUPHIN® 430**
Tensile strength R_m	400 MPa	500 MPa	700 MPa
Yield strength $R_{p0.2}$	250 MPa	330 MPa	410 MPa
Elongation A5	30%	20%	25%
Brinell hardness	120 HB	150 HB	180 HB

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 multiformity, 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.

Corrosion Resistance

	ECOMERICA® 062	ECOMERICA® 057	CUPHIN® 430
Dezincification-resistance1)[1)]	yes	no	yes
SCC resistance1[1)]	yes, with special measures	yes, with special measures	yes

[1)] values are based on the relevant test standards.

Processing Properties

	ECOMERICA® 062	ECOMERICA® 057	CUPHIN® 430
Machinability	50	70	80
Hot workability	fair	very good	very good
Cold workability	good	less good	fair
Polishing mechanical	very good	very good	good
Polishing electrochemical	good	good	good
Electroplating	very good	very good	good

The table provides an overview of the most important properties of our lead-free materials. For further support, please feel free to contact our experts.

ECOLOGICAL ASPECTS

ECOMERICA alloys can be integrated into existing recycling systems. From an economic standpoint, however, they should be recycled separately.

In the long term, this is the only way to avoid having to resort to expensive primary metals in the manufacturing process.

Besides the low-lead **ECOMERICA®** materials, our range also includes **CUPHIN®,** which even surpasses the requirements of US legislation and limits lead content to a maximum of 0.1%.

CUPHIN® also combines a number of other important properties for drinking water applications.
For example, good machinability can be combined with good dezincification resistance. High strength combined with high elongation allows greater design freedom, which can be used, for example, to optimize design space.
CUPHIN® should be recycled separately.

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.

Your Contact Partner:

Diehl Brass Solutions
Stiftung & Co. KG

Phone +49 911 5704-0
Fax +49 911 5704-245
Email: dbs-sales@diehl.com

www.diehl.com/metall

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