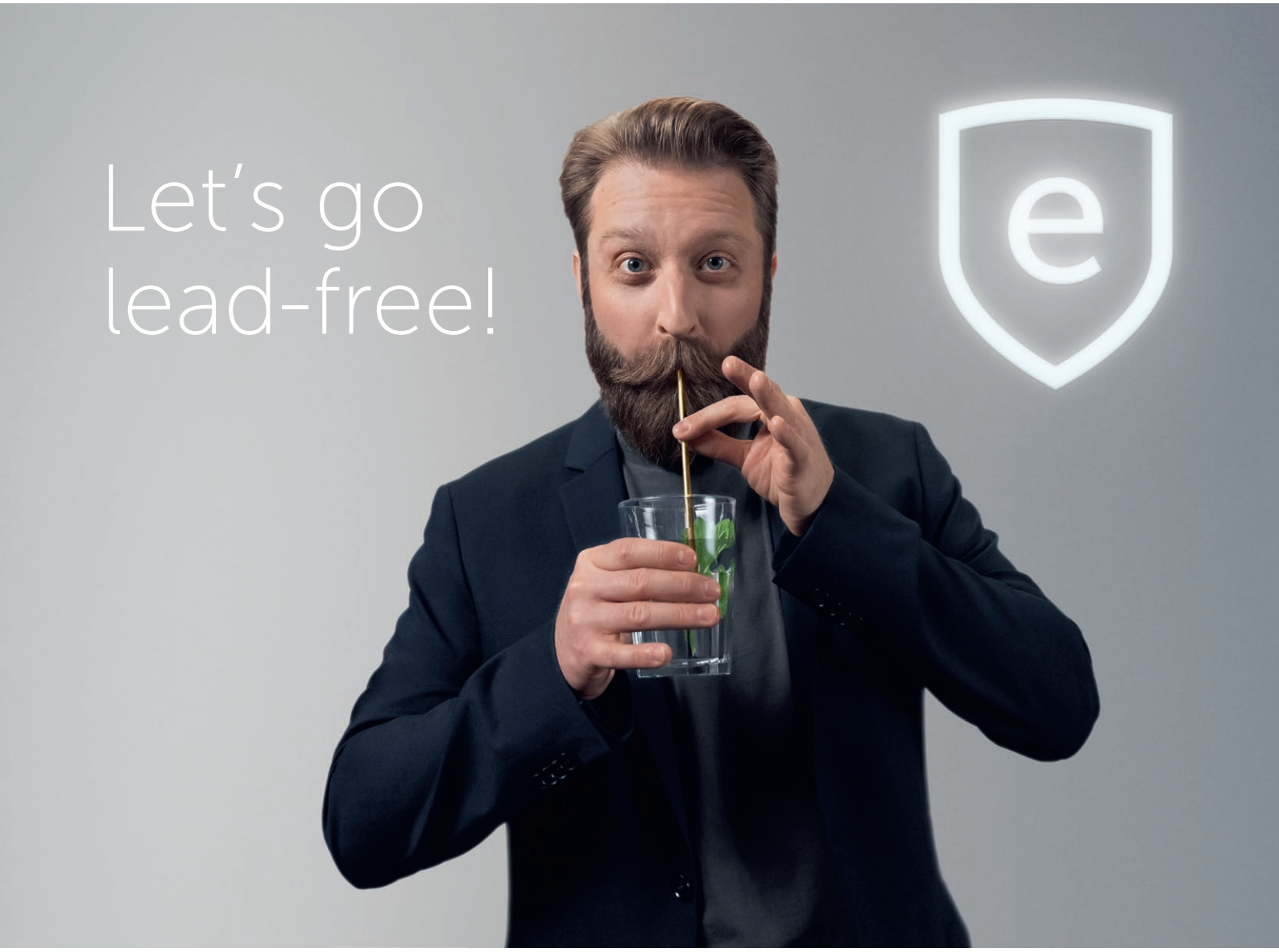
wieland

ecoline®

For drinking water installation



Copper alloys
for drinking water installations

Drinking water is our most important nutrient. The quality of the drinking water must be such that lifelong consumption is possible without restrictions. Therefore, the materials which are in contact with drinking water must meet increasingly stringent requirements worldwide. The choice of suitable materials and products for drinking water applications is essential, with technical, economic and particularly hygienic and health aspects playing a key role.

Copper alloys have proven their worth worldwide billions of times, both technically and hygienically, and therefore continue to be the basis for clean drinking water. Aspects of hygiene and health have caused legislators world-wide to limit the maximum allowable concentrations of substances in drinking water, thus following the recommendations of the WHO.

Legislative framework

Drinking Water Directive
In Europe, **Directive (EU) 2020/2184 of 16 December 2020 (new version of the DWD)** regulates the quality of water intended for human consumption. Annex I Part B of this directive defines limit values for certain elements. For lead, it stipulates that the parameter value of 5 µg/l must be complied with by 12 January 2036 at the latest. Until this date, the parametric value for lead is 10 µg/l.

Article 11 of the new EU Drinking Water Directive introduces the first Europe-wide harmonized standards for materials and products in drinking water installations. The European Chemicals Agency (ECHA) will assume responsibility for the assessment and authorization of these materials, which was previously regulated differently in each EU member state.

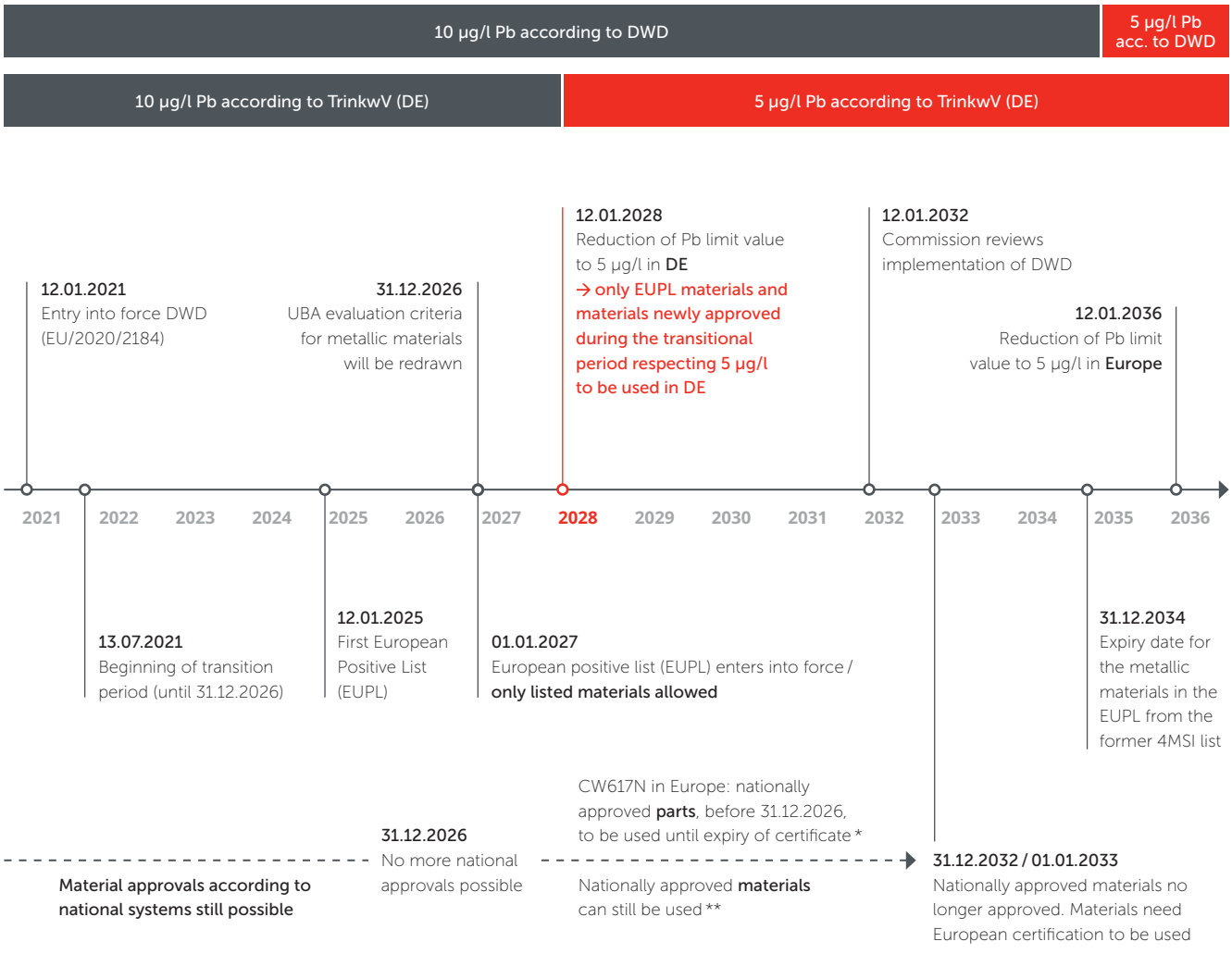
During this, the ECHA has taken over the creation of a European positive list (EUPL) for hygienically authorized materials. This list will become valid on 1 January 2027 and the Federal Environment Agency's assessment basis (Evaluation criteria for metallic materials of the UBA = UBA list) will no longer be updated from then on. The 4MSI list will then also be replaced by the European positive list.

The free exchange of goods within the EU is to be facilitated by the standardized regulation, while at the same time fulfilling the high hygiene requirements.

Because of the new version, materials containing lead that have been usable up to now will be excluded from further use in drinking water after a transitional period. These lead-containing materials will not be included in the EUPL.
In Germany, the national Drinking Water Ordinance (TrinkwV) stipulates that components made from these lead-containing materials may only be used until 12 January 2028. In other EU countries, components made from lead-containing alloys with an existing national certificate of conformity may be used until 31 December 2032.

Safe Drinking Water Act
In the USA, the 'Safe Drinking Water Act' regulates the quality of drinking water. Special attention is given to certain elements that are in the components of the installation line. In contrast to Europe, the USA regulates the proportion of lead in the material used in the drinking water installation. This is done through the 'Reduction of Lead in Drinking Water Act', which became mandatory for all states of the USA by January 2014. The lead content in the weighted average in pipes, fittings, taps and other components must not exceed 0.25 %. In practice this means the lead content of components used to convey or dispense drinking water is limited to a maximum of 0.25 %.

Timeline of implementation



* CW617N in Germany not to be used after 12.01.2028

** Provided that the parameter value of 5 µg/l for lead (Pb) is not exceeded at the tap

Status as of 01.2025, no legally binding information, this document is not subject to revision.

We set new standards

Our formula for a lead-free future

With its ecoline® alloys Wieland is the driving force in lead-free materials, recycling, and sustainability. We ensure that there is clean drinking water, lead-free electronics, and products free from pollutants. Wieland ecoline® is the ideal choice for ensuring your business's future success. However, our lead-free machining brass is not the only factor that sets us apart. Our team of experts brings invaluable knowledge and personal dedication to guide you through the transition to lead-free alloys. We'll support you every step of the way, ensuring everything runs smoothly, and in the future.
In short: Wieland ecoline® – Let's go lead-free!

Highly economical and recyclable

In addition to the excellent machining properties of our ecoline® family, the balanced ratio of copper and zinc ensures reduced metal price components and high economic efficiency. Within the CuZnSiP alloy family, some mixtures of chips and scrap are permitted, and the machine does not need to be cleaned extensively when changing alloys. Chips and scrap can be reworked into new bars without any loss of quality, just like their lead-containing counterparts. Our ecoline® products therefore provide an important contribution to climate-neutral and circular metal recovery.

ecoline® made to measure for your application

Not all lead-free is the same, and one alloy for everything cannot always fulfil your specific requirements. That is why we at Wieland have developed different lead-free products which are suitable for industry and customer-specific requirements. Our ecoline® alloys fulfil the highest demands that are made of machinability and formability - in compliance with the relevant regulations and guidelines. We offer customized ecoline® variants for a wide range of industries.

Lead-free copper alloys

Lead-free copper materials have a lead content of less than 0.1 % and will therefore continue to fulfil all hygiene requirements worldwide. Wieland recognized the trend towards environmentally friendly, lead-free alloys at a very early stage and took on a pioneering role in Europe with the introduction of ecobrass®. This approach has proven to be forward-looking and future orientated. ecobrass® is predestined for use in drinking water components. The special brass combines excellent workability with high corrosion resistance. ecobrass® is our premium material and is available as machining rods and hot forging stock.

Our drinking water portfolio is complemented by further materials from our ecoline® family, which together with ecobrass®, cover the wide range of copper materials in sanitary applications.

Leaded copper alloys

Our product portfolio still includes the proven material CuZn40Pb2-CW617N, our Z41/Z48.
It will, however, not be included in the European positive list due to its lead content. Its further use after 12 January 2028 is no longer permissible in Germany; EU-wide, components with an existing national certificate of conformity may still be used until 31 December 2032 at the latest.

Outstanding characteristics

Thanks to unique copper expertise

ecoline® for drinking water installation

Material	Lead-free (Pb max. 0.1 %)				Low-lead (Pb max. 0.2 %)
ISO	CuZn21Si3P	CuZn40SiP	CuZn42	CuZn40	CuZn38As
EN	CW724R		CW510L	CW509L	CW511L
UNS	C69305	C68330	C28500	C27450	C27450
	C69300				
	ecobrass SW4	**eco SZ3**	**eco SZ4**	**eco SZ5**	**M41**
	eco SW1				
Processing Properties					
Machinability [%] (CuZn39Pb3: 100 %)	90	90	85	75	50
Cold forming properties	good	poor	poor	fair	good
Hot forming properties	very good	very good	very good	good	fair
Mechanical properties (reference values in the range 15–40 mm)					
Tensile strength Rm [MPa]	500–700	530	500	480	400
Yield strength Rp0.2 [MPa]	300–400	360	330	300	250
Elongation [%]	20–30	15	20	20	25
Hardness HB	130–200	150	150	140	120
Hardness HB					
Stress corrosion resistance	good	yes, with special measures	yes, with special measures	yes, with special measures	yes, with special measures
Dezincification resistance	ISO 6509	no	no	no	ISO 6509
Hygienic approval					
Region	Europe and USA	Europe* and USA	Europe** and USA	Europe** and USA	Europe and USA

* intended for inclusion in the 6th amendment of Evaluation criteria for metallic materials of the UBA
** Acceptance of Metallic Materials Used for Products in Contact with Drinking Water 21st revision 27 November 2024

Talk to our experts!

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