ACCEPTANCE OF METALLIC MATERIALS USED FOR PRODUCTS IN CONTACT WITH DRINKING WATER

4MSI Common Approach

Part A – Methodologies for testing and accepting compositions to be included in the Positive list of compositions for metallic materials

Part B – Positive list of compositions for metallic materials

Part C – Procedure and methods for testing and accepting final materials as used in a product made from compositions on the Positive List

Adopted by the 4MSI Joint Management Committee

24th Revision

10 August 2026

France, Germany, the Netherlands, the United Kingdom and Denmark work together in the framework of the 4MSI Common Approach as laid down in the Declaration of Intent (January 2011). This common approach aims for convergence of the respective national approval schemes for materials and products in contact with drinking water.

The 4MSI have adopted Part A of this document as a common basis for implementing the concept of accepting metallic compositions. The document is subject to revisions agreed by the 4MSI.

Part B of this document includes a Positive List of metallic compositions accepted in all of the Member States of the 4MSI following the procedure described in Part A.

Part C includes the procedure and methods for accepting metallic products or components.

The structure of this document (Part A, B, C) follows the different implementing acts as described in the new article 11 paragraph 2 (a), (b), (c) of the European Drinking Water Directive.

Further information may be obtained from any of the competent authorities of the 4MSI.

Bundesministerium für Gesundheit (Deutschland)

Ministère du Travail, de l'Emploi et de la Santé (France)

Ministerie van Infrastructuur en Milieu (Nederland)

Department for Environment, Food and Rural Affairs (United Kingdom)

The Danish Transport, Construction and Housing Authority and Ministry of Environment (Denmark)

Denmark joined the 4MSI after the development of this common approach, and has therefore not assessed the content of the approach.

Part B – Positive List of compositions for metallic materials

1 Structure of the Positive List (see Part A 2)

The European Positive List contains different categories of metallic compositions.

A Category is defined as:

> a group of compositions with the same characteristics in respect of their field of application, behaviour in contact with drinking water and restrictions with regard to water composition and/or surface area.

The European Positive List contains the categories' range of compositions. A composition falling within a category has to be tested individually for its acceptance on the list.

Each category has one reference composition.

A Reference Material is defined as:

> a composition falling within a category for which the characteristics of metal release into drinking water are known and reproducible, the composition is strictly controlled and the elements of interest will be at or near the upper limit of acceptability. Possible effects of some constituents to inhibit the metal release have to be taken into account.

Under each category commercially available metallic compositions accepted for use in PDW will be listed. The compositions may only be used for certain products due to the restrictions with respect to the surface area (Table 3).

Table 1 Product groups for metallic compositions

Product Group	Examples of products or parts of products	Assumed contact surface "a"
A	Pipes in buildings installation Uncoated pipelines in water supply systems	100%
B	Fittings, ancillaries in buildings installations (e.g. pump bodies, valve bodies, water meter bodies used in buildings installations)	10%
C	1. Components of products of product group B (e.g. the spindle of a pump or the moving parts in water meter in building installations). The sum of the surfaces in contact with drinking water of all these components has to be less than 10% of the total wetted surface of the product.	1%

	2. Fittings, ancillaries in water mains and water treatment works with permanent flow (e.g. pumps bodies, valves bodies used in water supply systems)	
D	Components of fittings and ancillaries in water mains in water treatment works (C2)	

3 4MSI Positive List

I Copper alloys

1 Copper-zinc alloys

Category

Constituents (% (m/m)):

Cu	Zn
≥ 57.0%	Remainder

Impurities (% (m/m)):

Al	Fe	Ni	P	Pb	Si	Sn
≤ 0.1%	≤ 0.5%	≤ 0.2%	≤ 0.10%	≤ 0.2%	≤ 0.10%	≤ 0.5%

Each other impurity < 0.02%

1.2 Reference Material

Constituents (% (m/m)):

Cu	Zn
57.0% - 59.0%	Remainder

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Sn
≤ 0.05%	≤ 0.3%	0.15% - 0.25%	0.15% - 0.25%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

1.3 Accepted Alloys

1.3.1

Notation	Product Group
CW501L-DW* (CuZn10)	C and D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
89.0% - 91.0%	Remainder

Impurities (% (m/m)):

Fe	Ni*	Pb	Sn
≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.1%

Each other impurity < 0.02%

1.3.2

Notation	Product Group
CW502L-DW* (CuZn15)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
84.0% - 86.0%	Remainder

Impurities (% (m/m)):

Fe	Ni*	Pb	Sn
≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (21 July 2021)

1.3.3

Notation	Product Group
CW503L-DW* (CuZn20)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
79.0% - 81.0%	Remainder

Impurities (% (m/m)):

Fe	Ni*	Pb	Sn
≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (21 July 2021)

1.3.4

Notation	Product Group
CW506L* (CuZn33)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
66.0% - 68.0%	Remainder

Impurities (% (m/m)):

Fe	Ni*	Pb	Sn
≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.1%

Each other impurity < 0.02%

1.3.5

Notation	Product Group
CW507L-DW* (CuZn36)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
63.5% - 65.5%	Remainder

Impurities (% (m/m)):

Fe	Ni*	Pb*	Sn
≤ 0.05%	≤ 0.2%	≤ 0.1%	≤ 0.1%

Each other impurity < 0.02%

1.3.6

Notation	Product Group
CW508L-DW* (CuZn37)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
62.0% - 64.0%	Remainder

Impurities (% (m/m)):

Al	Fe	Ni*	Pb	Sn
≤ 0.05%	≤ 0.1%	≤ 0.2%	≤ 0.1%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance

UBA opinion (13 March 2016)

1.3.7

Notation	Product groups
CW509L-DW* (CuZn40)	B – D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
59.5% - 61.5%	Remainder

Impurities (% (m/m)):

Al	Fe	Ni*	P*	Pb	Si*	Sn
≤ 0.05%	≤ 0.2%	≤ 0.2%	≤ 0.10%	≤ 0.2%	≤ 0.10%	≤ 0.2%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (23 Nov 2011)
UBA opinion (25 March 2013)
UBA opinion (21 Feb 2024)

1.3.8

Notation	Product Group
CW510L-DW* (CuZn42)	B – D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn
57.0% - 59.0%	Remainder

Impurities (% (m/m)):

Al	Fe	Ni*	P*	Pb	Si*	Sn
≤ 0.05%	≤ 0.3%	≤ 0.2%	≤ 0.10%	≤ 0.2%	≤ 0.10%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (23 Nov 2011)
UBA opinion (25 March 2013)
UBA opinion (21 Feb 2024)

2 Copper-zinc-aluminum alloys

2.1 Category

Constituents (% (m/m)):

Cu	Zn	Al
≥ 57.0%	Remainder	0.1% - 0.9%

Impurities (% (m/m)):

Fe	Ni	Pb	Si	Sn
≤ 0.3%	≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.3%

Each other impurity < 0.02%

2.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Al
57.0% - 59.0%	Remainder	0.1% - 0.2%

Impurities (% (m/m)):

Fe	Ni	Pb	Si	Sn
≤ 0.3%	0.03% - 0.05%	0.15% - 0.25%	≤ 0.05%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

2.3 Accepted Alloys

2.3.1

Notation	Product groups
CC773S (CuZn42Al)	B - D

Constituents (% (m/m))

Cu	Zn	Al
57.0% - 59.0%	Remainder	0.1% - 0.3%

Impurities (% (m/m))

Fe	Pb	Sn
≤ 0.3%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (16 March 2015)

2.3.2

Notation	Product groups
CuZn39Al-C	B - D

Constituents (% (m/m))

Cu	Zn	Al
58.0% - 63.0%	Remainder	0.3% - 0.9%

Impurities (% (m/m))

Fe	Ni	Pb	Si	Sn
≤ 0.3%	≤ 0.05%	≤ 0.1%	≤ 0.05%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (12 August 2025)

3 Copper-zinc-aluminum-tin alloys

3.1 Category

Constituents (% (m/m)):

Cu	Zn	Al	Sn
≥ 62.0%	Remainder	0.5% - 2.0%	0.3% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Pb	Si
≤ 0.5%	≤ 0.1%	≤ 0.3%	≤ 0.2%	≤ 0.2%

Each other impurity < 0.02%

3.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Al	Sn
64.0% - 66.0%	Remainder	1.40% - 1.50%	0.66% - 0.70%

Impurities (% (m/m)):

Fe	Mn	Ni	Pb	Si
≤ 0.10%	≤ 0.10%	0.06% - 0.10%	0.15% - 0.25%	≤ 0.2%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

3.3 Accepted Alloys

3.3.1

Notation	Product groups
CuZn35Al1.5Sn	B - D

Constituents (% (m/m))

Cu	Zn	Al	Sn
64.0% - 66.0%	Remainder	1.40% - 1.60%	0.50% - 0.70%

Impurities (% (m/m))

Fe	Mn	Ni	Pb	Si
≤ 0.10%	≤ 0.10%	≤ 0.10%	≤ 0.2%	≤ 0.2%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (24 Feb 2017)

4 Copper-zinc-aluminum-silicon-iron alloys

4.1 Category

Constituents (% (m/m)):

Cu	Zn	Al	Si	Fe
≥ 62.0%	Rem.	0.5% - 0.9%	0.5% - 0.9%	0.04% - 0.2%

Impurities (% (m/m)):

Ni	Pb	Sn
≤ 0.1%	≤ 0.2%	≤ 0.1%

Each other impurity < 0.02%

4.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Al	Si	Fe
62.5% - 64.5%	Rem.	0.5% - 0.68%	0.5% - 0.68%	0.12% - 0.15%

Impurities (% (m/m)):

Ni	Pb	Sn
0.05% - 0.09%	0.09% - 0.15%	≤ 0.1%

Each other impurity < 0.02 %

Elements for consideration in the migration water:
Cu, Zn, Al, Fe, Ni, Pb

Most critical test water:
Test water 1 according to EN 15564-2

4.3 Accepted Alloys

4.3.1

Notation	Product groups
CuZn35AlSiFe	B - D

Constituents (% (m/m))

Cu	Zn	Al	Si	Fe
62.5% - 64.5%	Rem.	0.5% - 0.85%	0.5% - 0.8%	0.04% - 0.1%

Impurities (% (m/m))

Ni	Pb	Sn
≤ 0.09%	≤ 0.15%	≤ 0.1%

Each other impurity < 0.02 %

Basis for acceptance
UBA opinion (02 April 2019)

5 Copper-zinc-arsenic alloys

5.1 Category

Constituents (% (m/m)):

Cu	Zn	As
≥ 61.0%	Remainder	0.02% - 0.15%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn
≤ 0.1%	≤ 0.5%	≤ 0.1%	≤ 0.3%	≤ 0.2%	≤ 0.5%

Each other impurity < 0.02%

5.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	As
61.5% - 63.5%	Remainder	0.10% - 0.15%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn
≤ 0.1%	≤ 0.1%	≤ 0.1%	0.21% - 0.35%	0.15% - 0.25%	≤ 0.1%

Each other impurity < 0.02%

Elements for consideration in the migration water:
As, Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

5.3 Accepted Alloys

5.3.1

Notation	Product groups
CW511L-DW* (CuZn38As)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	As
61.5% - 63.5%	Remainder	0.02% - 0.15%

Impurities (% (m/m)):

Al	Fe	Mn*	Ni	Pb	Sn
≤ 0.05%	≤ 0.1%	≤ 0.1%	≤ 0.3%	≤ 0.2%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (28 March 2013)

5.3.2

Notation	Product groups
CW511L-DW* (CuZn38As)(low lead)	B – D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	As*
61.5% - 63.5%	Remainder	0.02% - 0.10%

Impurities (% (m/m)):

Al	Fe	Mn*	Ni*	Pb*	Sn
≤ 0.05%	≤ 0.1%	≤ 0.1%	≤ 0.10%	≤ 0.10%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance

UBA opinion (25 July 2024)

Denmark did not contribute to the evaluation.

5.3.3

Notation	Product groups
CW707R (CuZn30As)	B - D

Constituents (% (m/m)):

Cu	Zn	As
69.0% - 71.0%	Remainder	0.02% - 0.06%

Impurities (% (m/m)):

Fe	Mn	Pb	Sn
≤ 0.05%	≤ 0.1%	≤ 0.07%	≤ 0.05%

Each other impurity < 0.02%

Basis for acceptance

UBA opinion (02 April 2019)

6 Copper-zinc-arsenic-aluminium alloys

6.1 Category

Constituents (% (m/m)):

Cu	Zn	As	Al
≥ 61.0%	Remainder	0.02% - 0.15%	0.2% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Pb	Sn
≤ 0.5%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

6.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	As	Al
63.0% - 64.5%	Remainder	0.11% - 0.14%	0.2% - 0,4%

Impurities (% (m/m)):

Fe	Mn	Pb	Sn
≤ 0.3%	≤ 0.1%	0.15% - 0.25%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, As, Cu, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

6.3 Accepted Alloys

6.3.1

Notation	Product groups
CuZn35Al-C	B - D

Constituents (% (m/m)):

Cu	Zn	As	Al
63.0% - 64.5%	Remainder	0.04% - 0.14%	0.2% - 0.7%

Impurities (% (m/m)):

Fe	Mn	Pb	Sn
≤ 0.3%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (29 July 2014)

7 Copper-zinc-arsenic-antimony-aluminum alloys

7.1 Category

Constituents (% (m/m)):

Cu	Zn	As	Sb	Al
≥ 60.0%	Remainder	0.02% - 0.10%	0.02% - 0.10%	0.02% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Pb	Sn
≤ 0.5%	≤ 0.1%	≤ 0.2%	≤ 0.2%	≤ 0.5%

Each other impurity < 0.02%

7.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	As	Sb	Al
62.0% - 65.0%	Remainder	0.03% - 0.04%	0.04% - 0.05%	0.45% - 0.58%

Impurities (% (m/m)):

Fe	Mn	Ni	Pb	Sn
≤ 0.2%	≤ 0.1%	0.12% - 0.20%	0.15% - 0.25%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, As, Cu, Ni, Pb, Sb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

7.3 Accepted Alloys

7.3.1

Notation	Product groups
CC771S (CuZn38AsSb-C)	B - D

Constituents (% (m/m))

Cu	Zn	As	Sb	Al
62.0% - 65.0%	Remainder	0.02% - 0.04%	0.02% - 0.05%	0.45% - 0.7%

Impurities (% (m/m))

Fe	Mn	Ni	Pb	Sn
≤ 0.2%	≤ 0.1%	≤ 0.20%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (10 July 2015)

8 Copper-zinc-tin-phosphorus alloys

8.1 Category

Constituents (% (m/m)):

Cu	Zn	Sn	P
≥ 57.0%	Remainder	0.3% - 1.0%	0.05% - 0.2%

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Si
≤ 0.1%	≤ 0.2%	≤ 0.1%	≤ 0.1%	≤ 0.10%

Each other impurity < 0.02%

8.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Sn	P
63.5% - 65.0%	Remainder	0.5% - 1.0%	0.05% - 0.10%

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Si
≤ 0.05%	≤ 0.10%	0.06% - 0.10%	0.06% - 0.10%	≤ 0.10%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

8.3 Accepted Alloys

8.3.1

Notation	Product groups
CW727R-DW (CuZn35Sn1P)	B - D

Constituents (% (m/m))

Cu	Zn	Sn	P
63.5% - 65.0%	Remainder	0.5% - 1.0%	0.05% - 0.15%

Impurities (% (m/m))

Al	Fe	Ni	Pb	Si
≤ 0.05%	≤ 0.10%	≤ 0.10%	≤ 0.10%	≤ 0.10%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (14 July 2023)
Denmark did not contribute to the evaluation.

8.3.2

Notation	Product groups
CW730R-DW* (CuZn41Sn1P)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m))

Cu	Zn	Sn	P
57.0% - 59.0%	Remainder	0.3% - 1.0%	0.05% - 0.1%

Impurities (% (m/m))

Al	Fe	Ni*	Pb	Si
≤ 0.05%	≤ 0.2%	≤ 0.03%	≤ 0.10%	≤ 0.10%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (27 March 2026)
Denmark did not contribute to the evaluation.

9 Copper-zinc-magnesium alloys

9.1 Category

Constituents (% (m/m)):

Cu	Zn	Mg
56.0% - 66.0%	Remainder	0.1% - 1.5%

Impurities (% (m/m)):

Al	Fe	Ni	Pb
≤ 0.3%	≤ 0.5%	≤ 0.2%	≤ 0.10%

Each other impurity < 0.02%

9.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Mg
57.0% - 60.0%	Remainder	0.4% - 0.5%

Impurities (% (m/m)):

Al	Fe	Ni	Pb
≤ 0.1%	≤ 0.3%	0.15% - 0.25%	0.06% - 0.10%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 and 2 according to EN 15664-2

9.3 Accepted Alloys

9.3.1

Notation	Product groups
CuZn41Mg	B - D

Constituents (% (m/m)):

Cu	Zn	Mg
57.0% - 60.0%	Remainder	0.1% - 0.5%

Impurities (% (m/m)):

Al	Fe	Ni	Pb
≤ 0.1%	≤ 0.3%	≤ 0.2%	≤ 0.10%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (22 Nov 2024)
Denmark did not contribute to the evaluation.

10 Copper-zinc-lead alloys

10.1 Category

Constituents (% (m/m)):

Cu	Zn	Pb
≥ 57.0%	Remainder	0.2% - 3.5%

Impurities (% (m/m)):

Al	Fe	Ni	Si	Sn
≤ 0.3%	≤ 0.5%	≤ 0.2%	≤ 0.2%	≤ 0.5%

Each other impurity < 0.02%

10.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Pb
57.0% - 59.0%	Remainder	1.9% - 2.2%

Impurities (% (m/m)):

Al	Fe	Ni	Si	Sn
≤ 0.2%	≤ 0.3%	0.05% - 0.15%	≤ 0.03%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

10.3 Accepted Alloys

10.3.1

Notation	Product groups
CW617N-DW* (CuZn40Pb2) **CW612N-DW* (CuZn39Pb2)**	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	Pb*
57.0% - 60.0%	Remainder	1.6% - 2.2%

Impurities (% (m/m)):

Al	Fe	Ni*	Si	Sn
≤ 0.05%	≤ 0.3%	≤ 0.1%	≤ 0.03%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
German Co-normative Research Report RG_CPDW_01_074
Dossier John Nuttall (March 2006)

10.3.2

Notation	Product groups
CW614N-DW* (CuZn39Pb3) **CW603N-DW* (CuZn36Pb3)**	C and D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	Pb
57.0% - 62.0%	Remainder	2.5% - 3.5%

Impurities (% (m/m)):

Al	Fe	Ni*	Si	Sn
≤ 0.05%	≤ 0.3%	≤ 0.2%	≤ 0.03%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
German Co-normative Research Report RG_CPDW_01_074
Dossier John Nuttall (March 2006)

11 Copper-zinc-lead-aluminium alloys

11.1 Category

Constituents (% (m/m)):

Cu	Zn	Pb	Al
≥ 57.0%	Remainder	0.2% - 1.5%	0.2% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Si	Sn
≤ 0.3%	≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.5%

Each other impurity < 0.02%

11.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Pb	Al
58.0% - 63.0%	Remainder	1.2% - 1.4%	0.3% - 0.6%

Impurities (% (m/m)):

Fe	Mn	Ni	Si	Sn
≤ 0.3%	≤ 0.05%	0.15% - 0.25%	≤ 0.05%	≤ 0.5%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, Cu, Ni, Pb, Zn

Most critical test waters:
Test water 1 and 2 according to EN 15664-2

11.3 Accepted Alloys

11.3.1

Notation	Product groups
CC757S(CuZn39Pb1Al-C)	B - D

Constituents (% (m/m)):

Cu	Zn	Pb	Al
58.0% - 63.0%	Remainder	0.2% - 1.4%	0.3% - 0.9%

Impurities (% (m/m)):

Fe	Mn	Ni	Si	Sn
≤ 0.3%	≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.5%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (29 Aug 2014)

12 Copper-zinc-lead-arsenic-aluminium alloys

12.1 Category

Constituents (% (m/m)):

Cu	Zn	Pb	As	Al
≥ 61.0%	Remainder	0.2% - 2.2%	0.02% - 0.15%	0.02% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.5%	≤ 0.1%	≤ 0.2%	≤ 0.5%

Each other impurity < 0.02%

12.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Pb	As	Al
61.0% - 63.0%	Remainder	1.4% - 1.6%	0.09% - 0.13%	0.5% - 0.7%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.3%	≤ 0.1%	0.15% - 0.25%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, As, Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

12.3 Accepted Alloys

12.3.1

Notation	Product groups
CC770S* (CuZn36Pb-C)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	Pb*	As	Al
62.0% - 64.0%	Remainder	0.2% - 1.6%	0.04% - 0.14%	0.5% - 0.7%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.3%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (29 Jan 2014)

12.3.2

Notation	Product groups
CW626N-DW (CuZn33Pb1.5AlAs)	B - D

Constituents (% (m/m)):

Cu	Zn	Pb	As	Al
64.0% - 66.0%	Remainder	1.2% - 1.7%	0.02% - 0.15%	0.8% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.3%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (02 April 2013)

12.3.3

Notation	Product groups
CW625N-DW (CuZn35Pb1.5AlAs)	B - D

Constituents (% (m/m)):

Cu	Zn	Pb	As	Al
62.0% - 64.0%	Remainder	1.2% - 1.6%	0.02% - 0.15%	0.5% - 0.7%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.3%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (29 Jan 2014)

13 Copper-zinc-lead-arsenic-antimony-aluminum alloys

13.1 Category

Constituents (% (m/m)):

Cu	Zn	Pb	As	Sb	Al
≥ 60.0%	Remainder	0.2% - 1.1%	0.02% - 0.10%	0.02% - 0.10%	0.02% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.5%	≤ 0.1%	≤ 0.2%	≤ 0.5%

Each other impurity < 0.02%

13.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Pb	As	Sb	Al
62.0% - 65.0%	Remainder	0.9% - 1.1%	0.03% - 0.04%	0.05% - 0.06%	0.45% - 0.58%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.2%	≤ 0.1%	0.15% - 0.25%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, As, Cu, Ni, Pb, Sb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

13.3 Accepted Alloys

13.3.1

Notation	Product groups
CC772S (CuZn36Pb1.5AsSbAl-C)	B - D

Constituents (% (m/m))

Cu	Zn	Pb	As	Sb	Al
62.0% - 65.0%	Remainder	0.2% - 1.1%	0.02% - 0.04%	0.03% - 0.06%	0.45% - 0.7%

Impurities (% (m/m))

Fe	Mn	Ni	Sn
≤ 0.2%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (29 Aug 2014)

14 Copper-zinc-lead-arsenic-aluminium-silicon alloys

14.1 Category

Constituents (% (m/m)):

Cu	Zn	Pb	As	Al	Si
≥ 61.0%	Remainder	0.2% - 1.0%	0.02% - 0.10%	0.02% - 1.0%	0.02% - 0.5%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.5%	≤ 0.1%	≤ 0.2%	≤ 0.5%

Each other impurity < 0.02%

14.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Pb	As	Al	Si
64.0% - 67.0%	Remainder	0.60% - 0.65%	0.07% - 0.08%	0.1% - 0.25%	0.1% - 0.2%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.3%	≤ 0.1%	0.15% - 0.25%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, As, Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 and 2 according to EN 15664-2

14.3 Accepted Alloys

14.3.1

Notation	Product groups
CW725R-DW*(CuZn33Pb1AlSiAs)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	Pb*	As	Al	Si
64.0% - 67.0%	Remainder	0.4% - 0.6%	0.04% - 0.08%	0.1% - 0.4%	0.1% - 0.3%

Impurities (% (m/m)):

Fe	Mn	Ni	Sn
≤ 0.3%	≤ 0.1%	≤ 0.2%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (27 July 2014)

15 Copper-zinc-bismuth-aluminum alloys

15.1 Category

Constituents (% (m/m)):

Cu	Zn	Bi	Al
≥ 58.0%	Remainder	0.2% - 1.6%	0.2% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	Pb	Si	Sn
≤ 0.5%	≤ 0.1%	≤ 0.05%	≤ 0.1%	≤ 0.1%	≤ 0.5%

Each other impurity < 0.02%

15.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Bi	Al
58.0% - 63.0%	Remainder	1.3% - -1.6%	0.3% - 0.6%

Impurities (% (m/m))

Fe	Mn	Ni	Pb	Si	Sn
≤ 0.3%	≤ 0.05%	0.03% - 0.05%	0.09% - 0.15%	≤ 0.05%	≤ 0.5%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Zn, Bi, Al, Ni, Pb

Most critical test water:
Test water 1 and 2 according to EN 15564-2

15.3 Accepted Alloys

15.3.1

Notation	Product Groups
CuZn38Bi1Al-C	B – D

Constituents (% (m/m))

Cu	Zn	Bi	Al
58.0% - 63.0%	Remainder	0.3% - 1.6%	0.3% - 0.9%

Impurities (% (m/m))

Fe	Mn	Ni	Pb	Si	Sn
≤ 0.3%	≤ 0.05%	≤ 0.05%	≤ 0.1%	≤ 0.05%	≤ 0.5%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (15 April 2025)
Denmark did not contribute to the evaluation.

16 Copper-tin-zinc-lead-nickel alloys

16.1 Category

Constituents (% (m/m)):

Cu	Sn	Zn	Pb	Ni
Remainder	4.0% - 13.0%	4.0% - 6.5%	0.2% - 3.0%	0.1% - 0.6%

Impurities (% (m/m)):

Fe	P	S	Sb
≤ 0.30%	≤ 0.04%	≤ 0.04%	≤ 0.10%

Each other impurity < 0.02%

16.2 Reference Material

Constituents (% (m/m)):

Cu	Sn	Zn	Pb	Ni
Remainder	4.0% - 4.2%	5.7% - 6.0%	2.8% - 3.0%	0.5% - 0.6%

Impurities (% (m/m)):

Fe	P	S	Sb
≤ 0.30%	≤ 0.04%	≤ 0.04%	0.09% - 0.15%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Sb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

16.3 Accepted Alloys

16.3.1

Notation	Product groups
CC499K (CuSn5Zn5Pb2-C)	B - D

Constituents (% (m/m)):

Cu	Sn	Zn	Pb	Ni
84.0% - 88.0%	4.0% - 6.0%	4.0% - 6.0%	0.2% - 3.0%	0.1% - 0.60%

Impurities (% (m/m)):

Fe	P	S	Sb
≤ 0.30%	≤ 0.04%	≤ 0.04%	≤ 0.10%

Each other impurity < 0.02%

Basis for acceptance
German Co-normative Research Report RG_CPDW_01_074
Dossier John Nuttall (March 2006)

17 Copper-tin-zinc-phosphorus-sulphur alloys

17.1 Category

Constituents (% (m/m)):

Cu	Sn	Zn	P	S
Remainder	3.0% - 9.0%	1.0% - 5.0%	0.01% - 1.0%	0.2% - 0.7%

Impurities (% (m/m)):

Fe	Ni	Pb	Sb
≤ 0.3%	≤ 0.3%	≤ 0.2%	≤ 0.1%

Each other impurity < 0.02%

17.2 Reference Material

Constituents (% (m/m)):

Cu	Sn	Zn	P	S
Remainder	4.6% - 5.0%	1.0% - 3.0%	0.01% - 0.06%	0.52% - 0.65%

Impurities (% (m/m)):

Fe	Ni	Pb	Sb
≤ 0.3%	0.21% - 0.35%	0.15% - 0.25%	0.09% - 0,15%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Sb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

17.3 Accepted Alloys

17.3.1

Notation	Product groups
CC470K (CuSn4Zn2PS)	B - D

Constituents (% (m/m)):

Cu	Sn	Zn	P	S
90.0% - 96.0%	3.0% - 5.0%	1.0% - 3.0%	0.01% - 0.1%	0.2% - 0.6%

Impurities (% (m/m)):

Fe	Ni	Pb	Sb
≤ 0.3%	≤ 0.3%	≤ 0.2%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (13 Feb 2017)

18 Copper-zinc-silicon alloys

18.1 Category

Constituents (% (m/m)):

Cu	Zn	Si
80.0% - 90.0%	Remainder	1.0 - 5.0%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	P	Pb	Sb	Sn
≤ 0.1%	≤ 0.2%	≤ 0.05%	≤ 0.1%	≤ 0.05%	≤ 0.1%	≤ 0.05%	≤ 0.3%

Each other impurity < 0.02%

18.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Si
81.0% - 83.0%	Remainder	3.0% - 3.75%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	P	Pb	Sb	Sn
≤ 0.1%	≤ 0.2%	≤ 0.04%	0.09% - 0.15%	≤ 0.03%	0.09% - 0.15%	0.03% - 0.05%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Sb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

18.3 Accepted Alloys

18.3.1

Notation	Product groups
CC761S* (CuZn16Si4-C)	B - D

Constituents (% (m/m)):

Cu*	Zn	Si*
81.0% - 83.0%	Remainder	3.0% - 4.5%

Impurities (% (m/m)):

Al	Fe	Mn	Ni*	P	Pb*	Sb	Sn
≤ 0.1%	≤ 0.2%	≤ 0.04%	≤ 0.1%	≤ 0.03%	≤ 0.1%	≤ 0.05%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (09 Dec 2024)
Denmark did not contribute to the evaluation.

19 Copper-zinc-silicon-phosphorus alloys

19.1 Category

Constituents (% (m/m)):

Cu	Zn	Si	P
58.0% - 80.0%	Remainder	0.10% - 5.5%	0.01% - 0.3%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn
≤ 0.1%	≤ 0.5%	≤ 0.05%	≤ 0.2%	≤ 0.1%	≤ 0.2%

Each other impurity < 0.02%

19.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Si	P
75.0% - 77.0%	Remainder	2.7% - 3.0%	0.02% - 0.06%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn
≤ 0.05%	≤ 0.3%	≤ 0.05%	0.15% - 0.25%	0.09% - 0.15%	≤ 0.2%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

19.3 Accepted Alloys

19.3.1

Notation	Product groups
CW724R-DW* (CuZn21Si3P)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	Si	P
75.0% - 77.0%	Remainder	2.7% - 3.5%	0.02% - 0.10%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn*
≤ 0.05%	≤ 0.3%	≤ 0.05%	≤ 0.2%	≤ 0.1%	≤ 0.2%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (24 Feb 2012)

19.3.2

Notation	Product groups
CC768S* (CuZn21Si3P-C)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Zn	Si	P
75.0% - 77.0%	Remainder	2.7% - 3.5%	0.02% - 0.10%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn*
≤ 0.05%	≤ 0.3%	≤ 0.05%	≤ 0.2%	≤ 0.1%	≤ 0.2%

Each other impurity < 0.02%

The content of boron and zirconium has to be less than 0.02%.

Basis for acceptance
UBA opinion (09 Jan 2014)

19.3.3

Notation	Product groups
CuZn40SiP (CW728R-DW)	B - D

Constituents (% (m/m)):

Cu	Zn	Si	P
58.5% - 60.5%	Remainder	0.10% - 0.3%	0.10% - 0.20%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb	Sn
≤ 0.05%	≤ 0.2%	≤ 0.05%	≤ 0.10%	≤ 0.10%	≤ 0.2%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (12 Aug 2025)

20 Copper-zinc-silicon-tin-phosphorus alloys

20.1 Category

Constituents (% (m/m)):

Cu	Zn	Si	Sn	P
58.0% - 80.0%	Remainder	0.10% - 5.5%	0.2 % - 0.5%	0.01% - 0.3%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb
≤ 0.1%	≤ 0.5%	≤ 0.05%	≤ 0.2%	≤ 0.1%

Each other impurity < 0.02%

20.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Si	Sn	P
68.5% - 70.5%	Remainder	1.30% - 1.43%	0.15%-0.35%	0.10%-0.15%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb
≤ 0.05%	≤ 0.1%	≤ 0.05%	0.06% - 0.10%	0.06% - 0.10%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

20.3 Accepted Alloys

20.3.1

Notation	Product groups
CW729R-DW (CuZn29Si1SnP)	B - D

Constituents (% (m/m)):

Cu	Zn	Si	Sn	P
68.5% - 70.5%	Remainder	1.30% - 1.55%	0.15% - 0.35%	0.10% - 0.20%

Impurities (% (m/m)):

Al	Fe	Mn	Ni	Pb
≤ 0.05%	≤ 0.1%	≤ 0.05%	≤ 0.10%	≤ 0.10%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (15 Aug 2025)

21 Copper-zinc-manganese-silicon-tin-aluminum alloys

21.1 Category

Constituents (% (m/m)):

Cu	Zn	Mn	Si	Sn	Al
≥ 58.0%	Remainder	0.2% - 2.0%	0.2 % - 2.0%	0.4% - 1.5%	0.02% - 1.0%

Impurities (% (m/m)):

Fe	Ni	P	Pb
≤ 0.3%	≤ 0.2%	≤ 0.3%	≤ 0.1%

Each other impurity < 0.02%

21.2 Reference Material

Constituents (% (m/m)):

Cu	Zn	Mn	Si	Sn	Al
58.0% - 63.0%	Remainder	1.6% - 2.0%	0.2 % - 1.1%	0.4%-1.5%	0.02%-0.46%

Impurities (% (m/m)):

Fe	Ni	P	Pb
≤ 0.3%	0.09% - 0.15%	≤ 0.3%	0.09% - 0.15%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Al, Cu, Mn, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

21.3 Accepted Alloys

21.3.1

Notation	Product groups
CuZn36Mn1Si1Sn1Al-C	B - D

Constituents (% (m/m)):

Cu	Zn	Mn	Si	Sn	Al
58.0% - 63.0%	Remainder	0.2% - 2.0%	0.2% - 2.0%	0.4% - 1.5%	0.02% - 0.9%

Impurities (% (m/m)):

Fe	Ni	P	Pb
≤ 0.3%	≤ 0.1%	≤ 0.3%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (13 Aug 2025)

22 Copper-silicon-zinc-manganese-phosphorus alloys

22.1 Category

Constituents (% (m/m)):

Cu	Si	Zn	Mn	P
≥ 80.0%	0.5% - 5.5%	Remainder	0.01% - 0.2%	0.01% - 0.3%

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Sn
≤ 0.3%	≤ 0.3%	≤ 0.1%	≤ 0.1%	≤ 0.5%

Each other impurity < 0.02%

22.2 Reference Material

Constituents (% (m/m)):

Cu	Si	Zn	Mn	P
Remainder	2.5% - 3.5%	8.0% - 10.0%	0.03% - 0.09%	0.05% - 0.10%

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Sn
≤ 0.3%	≤ 0.3%	0.06% - 0.10%	0.06% - 0.10%	≤ 0.3%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Mn, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

22.3 Accepted Alloys

22.3.1

Notation	Product groups
CC245E (CuSi4Zn4MnP-C)	B - D

Constituents (% (m/m)):

Cu	Si	Zn	Mn	P
Remainder	2.5% - 4.5%	1.0% - 7.0%	0.03% - 0.09%	0.05% - 0.15%

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Sn
≤ 0.3%	≤ 0.3%	≤ 0.10%	≤ 0.10%	≤ 0.3%

Each other impurity < 0.02%

22.3.2

Notation	Product groups
CC246E (CuSi4Zn9MnP-C)	B - D

Constituents (% (m/m)):

Cu	Si	Zn	Mn	P
Remainder	2.5% - 4.5%	7.0% - 11.0%	0.03% - 0.09%	0.05% - 0.15%

Impurities (% (m/m)):

Al	Fe	Ni	Pb	Sn
≤ 0.3%	≤ 0.3%	≤ 0.10%	≤ 0.10%	≤ 0.3%

Each other impurity < 0.02%

22.3.3

Notation	Product groups
CW245E-DW* (CuSi4Zn4MnP)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Si	Zn	Mn	P
Remainder	2.5% - 4.5%	1.0% - 7.0%	0.01% - 0.09%	0.05% - 0.15%

Impurities (% (m/m)):

Al	Fe	Ni*	Pb	Sn
≤ 0.3%	≤ 0.3%	≤ 0.10%	≤ 0.10%	≤ 0.3%

Each other impurity < 0.02%

22.3.4

Notation	Product groups
CW246E-DW* (CuSi4Zn9MnP)	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Si	Zn	Mn	P
Remainder	2.5% - 4.5%	7.0% - 11.0%	0.01% - 0.09%	0.05% - 0.15%

Impurities (% (m/m)):

Al	Fe	Ni*	Pb	Sn
≤ 0.3%	≤ 0.3%	≤ 0.10%	≤ 0.10%	≤ 0.3%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (08 Jan 2016)

23 Copper-silicon-zinc-iron-manganese-phosphorus-alloys

23.1 Category

Constituents (% (m/m)):

Cu	Si	Zn	Fe	Mn	P
≥ 80.0%	2.0% - 5.0%	Remainder	0.3% - 1.0%	0.02% - 0.2%	0.01% - 0.03%

Impurities (% (m/m)):

Al	Ni	Pb	Sn
≤ 0.2%	≤ 0.05%	≤ 0.05%	≤ 0.2%

Each other impurity < 0.02%

23.2 Reference Material

Constituents (% (m/m)):

Cu	Si	Zn	Fe	Mn	P
80.0% - 88.0%	2.4% - 3.5%	Remainder	0.46% - 0.55%	0.18% - 0.25%	0.01% - 0.02%

Impurities (% (m/m)):

Al	Ni	Pb	Sn
≤ 0.2%	0.03% - 0.05%	0.03% - 0.05%	≤ 0.2%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Fe, Mn, Ni, Pb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

23.3 Accepted Alloys

23.3.1

Notation	Product groups
CuSi3Zn12FeMnP	B - D

Constituents (% (m/m)):

Cu	Si	Zn	Fe	Mn	P
80.0% - 88.0%	2.4% - 4.1%	Remainder	0.3% - 0.5%	0.1% - 0.2%	0.01% - 0.03%

Impurities (% (m/m)):

Al	Ni	Pb	Sn
≤ 0.2%	≤ 0.05%	≤ 0.05%	≤ 0.2%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (12 Apr 2022)

24 Copper-tin-phosphorus alloys

24.1 Category

Constituents (% (m/m)):

Cu	Sn	P
Remainder	1.5% - 9.0%	0.02% - 0.4%

Impurities (% (m/m)):

Fe	Ni	Zn
≤ 0.1%	≤ 0.2%	≤ 0.2%

Each other impurity < 0.02%

24.2 Reference Material

CW453K (CuSn 8) was accepted only for product group C on basis of a scientific dossier. For the acceptance of this composition or another composition belonging to this category for product group A or B a complete test according to EN 15664-1 with all three test waters according to EN 15664-2 is required. A reference material will be defined when a composition is accepted for product group A or B.

24.3 Accepted Alloys

Notation	Product group
CW453K* (CuSn8)	C and D

*Contents of certain elements are further restricted (see below)

Constituents (% (m/m))

Cu	Sn	P*
Remainder	7.5% - 8.5%	0.02% - 0.4%

Impurities (% (m/m))

Fe	Ni	Zn
≤ 0.1%	≤ 0.2%	≤ 0.2%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (31 Aug 2017)
UBA opinion (19 March 2019)

25 Copper-tin-lead-phosphorus alloys

25.1 Category

Constituents (% (m/m)):

Cu	Sn	Pb	P
Remainder	9.0% - 13.0%	0.2% - 1.0%	0.01% - 1.0%

Impurities (% (m/m)):

Fe	Mn	Ni	S	Sb	Zn
≤ 0.2%	≤ 0.2%	≤ 0.2%	≤ 0.05%	≤ 0.1%	≤ 0.5%

Each other impurity < 0.02%

25.2 Reference Material

Constituents (% (m/m)):

Cu	Sn	Pb	P
Remainder	10.6% - 11.0%	0.84% - 1.0%	0.01% - 0.10%

Impurities (% (m/m)):

Fe	Mn	Ni	S	Sb	Zn
≤ 0.2%	≤ 0.1%	0.15% - 0.25%	≤ 0.05%	0.09% - 0.15%	≤ 0.5%

Each other impurity < 0.02%

Elements for consideration in the migration water:
Cu, Ni, Pb, Sb, Zn

Most critical test water:
Test water 1 according to EN 15664-2

25.3 Accepted Alloys

25.3.1

Notation	Product groups
CuSn10-C*	B - D

* Contents of certain elements are further restricted (see below)

Constituents (% (m/m)):

Cu	Sn	Pb	P
88.0% - 90.0%	9.0% - 11.0%	0.2% - 1.0%	0.01% - 0.2%

Impurities (% (m/m)):

Fe	Mn	Ni*	S	Sb*	Zn
≤ 0.2%	≤ 0.10%	≤ 0.2%	≤ 0.05%	≤ 0.1%	≤ 0.5%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (13 Feb 2017)

26 Copper alloys for product group D

In addition to the compositions listed for the Product Groups A, B and C for components of the Product Group D further copper alloys can be used.

The copper alloys have to comply with:

- Cu, Zn, Si, Sn, P: no restrictions
- Al, Fe, Mn: max. 3.0% (m/m)
- Pb: max. 3.5% (m/m)
- Ni: max. 3.0% (m/m)
- As, Sb: max: 0.25% (m/m)

All other: max. 0.1% (m/m)

II Coppers

1 Copper

1.1 Category

Constituents (% (m/m)):

Cu	P
≥ 99.9%	≤ 0.04%

Impurities (% (m/m)):

Others total
≤ 0.1%

Each impurity < 0.02%

1.2 Reference Material

CW024A (CU-DHP)

Elements for consideration in the migration water:

None: No need for comparative testing

1.3 Accepted Alloys

1.3.1

Notation	Product groups
CW024A (Cu-DHP)	A - D

Constituents (% (m/m)):

Cu	P
≥ 99.9%	0.015% - 0.04%

1.3.2

Notation	Product group
Cu-ETP (CW004A)	C and D

Constituents (% (m/m)):

Cu	O*
≥ 99.90%	≤ 0.040%

** Oxygen has a technological function in the composition, it is not possible to specify a minimum content*

1.3.3

Notation	Product groups
Cu-OF (CW008A)	B - D

Constituents (% (m/m)):

Cu
≥ 99.95%

1.3.4

Notation	Product groups
Cu-PHC (CW020A)	B - D

Constituents (% (m/m)):

Cu	P
≥ 99.95%	0.001% - 0.006%

1.3.5

Notation	Product groups
Cu-HCP (CW021A)	B - D

Constituents (% (m/m)):

Cu	P
≥ 99.95%	0.002% - 0.007%

1.3.6

Notation	Product groups
Cu-DLP (CW023A)	B - D

Constituents (% (m/m)):

Cu	P
≥ 99.90%	0.005% - 0.013%

Basis for acceptance
UBA opinion (15 May 2017)

Restrictions for the use of metallic materials with respect to water composition (health based)

The formation of the copper compounds on the surface of copper pipes and consequently the dissolution is strongly influenced by minor components of the water composition. In some water compositions, the rate of leaching of copper may be unacceptably high. Member States may need to offer guidance to the water industry and to suppliers and installers of copper pipe on restrictions that may need to be introduced on use of copper pipe in water compositions where excessive leaching of copper might occur.

Further research into the compatibility of copper with certain compositions of water needs to be carried out using harmonised procedures for investigation and evaluation.

Basis for acceptance

Research results and practical experience in several Member States are needed to characterise the conditions for safe use.

Note

The contamination of drinking water by copper pipes depends on several characteristics of water composition. There is no consensus view on their combined action and interaction at this time. In particular, there is inadequate information on the range of compositions of drinking water where non-compliance with the DWD is likely to occur.

2 Tinned copper pipes and tinned copper fittings

For tinned copper tubes and tinned copper fittings as base composition copper according to 1 is used. On this substrate composition a tin layer is deposited by different processes. By diffusion of copper ions into the tin layer the formation of an increasing intermetallic phase consisting of tin and copper (η-phase = Cu_6Sn_5) is formed.

2.1 Category

Constituents of the tin layer (% (m/m)):

Sn + Cu
≥ 99.90%

Impurities of the tin layer (% (m/m)):

As	Bi	Cd	Cr	Ni	Pb	Sb
≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%

Each other impurity < 0.02%

2.2 Reference Material

CW024A (CU-DHP)

2.3 Accepted Alloys

Notation	Product groups
CW024A (Cu-DHP) with a tin layer thickness of 1 µm	A - D

Constituents of the tin layer (% (m/m)):

Sn	Cu
> 90%	< 10%

Impurities of the tin layer (% (m/m)):

As	Bi	Cd	Cr	Ni	Pb	Sb
≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%	≤ 0.01%

Each other impurity < 0.02%

Basis for acceptance

1. Leaching tests:
   a. Rig tests in representative German drinking waters, published: A. Baukloh, S. Priggemeyer, U. Reiter, B. Winkler, Chemically inner tinned Copper Pipes, Less Copper in Corrosive Drinking Waters, Metall 10-11 (1998) 592 - 600.
   b. Rig tests according to DIN 50931 (rig test): Technical report DVGW/TZW, 2000
2. Already existing approvals without restrictions in drinking waters
   a. Netherlands: according to BRL-K19005,
   b. Germany: according to DIN 50930, T6 and DVGW GW 392
   c. Denmark: ETA

III Steel / Iron

1 Galvanised steel

1.1 Category

Constituents of the zinc coating (% (m/m)):

Zn

Impurities of the zinc coating (% (m/m)):

As	Bi	Cd	Cr	Pb	Sb
≤ 0.02%	≤ 0.01%	≤ 0.01%	≤ 0.02%	≤ 0.05%	≤ 0.01%

Each other impurity < 0.02%

1.2 Reference Material

Not defined

1.3 Accepted Alloys

Notation	Product groups
Galvanised steel	A - D

Constituents of the zinc coating (% (m/m)):

Zn

Impurities of the zinc coating (% (m/m)):

As	Bi	Cd	Cr	Pb	Sb
≤ 0.02%	≤ 0.01%	≤ 0.01%	≤ 0.02%	≤ 0.05%	≤ 0.01%

Each other impurity < 0.02%

Guidance on restrictions for the use of metallic compositions with respect to water composition

The following formula is proposed as a means identifying water compositions where corrosion rates for galvanised steel is acceptable.

pH ≥ 7.5 or free CO_2 ≤ 0.25 mmol/L
AND Alkalinity ≥ 1.5 mmol/L
AND S_1 < 2 (*definition of S_1 below*)
AND Calcium ≥ 0.5 mmol/L
AND Conductivity ≤ 600 µS/cm at 25 °C
AND S_2 <1 or S_2>3 (*definition of S_2 below*)

$$S_1 = \frac{c(Cl^-) + c(NO_3^-) + 2\,c(SO_4^{2-})}{c(HCO_3^-)}$$ concentrations in mmol/L

$$S_2 = \frac{c(Cl^-) + 2\,c(SO_4^{2-})}{c(NO_3^-)}$$ concentrations in mmol/L

Basis for acceptance

There are regulations with respect to water composition in France (DTU 60.1 / NF P 40-201) and in Germany (DIN 50930-3). These limits are based on practical experience but are expressed in different ways. The proposal covers mainly the same water compositions as both regulations. The proposal takes into account available results from research in Germany and co-normative research.

The proposal incorporates also the recommendations given EN 12502-3 with regard to the risk of localised corrosion. This localised corrosion frequently leads to deterioration in water quality as a result of corrosion products of iron.

The proposal is based on results that have been obtained with galvanised steel pipes with lead concentrations between 1.0% and 0.6% in the zinc layer, assuming a similar behaviour of pipes with lower lead concentrations.

2 Carbon steel

Carbon Steel for pipes and tanks

Carbon steel without permanent protective layers is not suitable for use in contact with drinking water.

Carbon Steel for ancillaries

Unprotected carbon steel can be used for specific applications (e.g. pumps, valves) and only for small surface in contact with water.

2.1 Category

Not defined

2.2 Reference Material

Not defined

2.3 Accepted Alloys

Notation	Product groups
Carbon Steel according to EN 10025 / EN 10213 / EN 10222	C2

Constituents (% (m/m)):

Fe	C	Cr	Mo	Mn	Ni
	0.02% - 0.25%	0.02% - 0.30%	0.02% - 0.12%	0.02% - 1.65%	0.02% - 0.50%

Impurities (% (m/m)):

Al	Cu	Nb	P	S	Si	Ti	V
≤ 0.05%	≤ 0.55%	≤ 0.05%	≤ 0.03%	≤ 0.03%	≤ 0.6%	≤ 0.05%	≤ 0.12%

Each other impurity < 0.02%

Basis for acceptance
Draft Italian Regulation
Calculation of possible impact on DW
UBA opinion (21 April 2017)

3 Cast iron

Cast iron for pipes and tanks

Cast iron without permanent protective layers is not suitable for pipes and fittings in contact with drinking water.

Cast iron for ancillaries

Unprotected cast iron can be used for specific applications (e.g. pumps, valves) and only for very small surface in contact with water. Their composition needs to be regulated.

3.1 Category

Not defined

3.2 Reference Material

Not defined

3.3 Accepted Alloys

Notation	Product groups
Cast Iron according to EN 1561 / EN 1563	C2

Constituents (% (m/m)):

Fe	C	Cu	Cr	Mo	Mn	Ni	Si
	0.02% - 4.0%	0.02% - 1.0%	0.02% - 1.0%	0.02% - 1.0%	0.02% - 1.0%	0.02% - 1.0%[1]	1.5% - 3.5%

Impurities (% (m/m)):

As	Mg	P	S	Sn	V
≤ 0.05%	≤ 0.1%	≤ 0.15%	≤ 0.1%	≤ 0.1%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
Draft Italian Regulation
French regulation
Calculation of possible impact on DW
UBA opinion (21 April 2017)

[1]For some special products (e.g. pumps for the backwash of filters, pumps which draw raw water in river with possible high rates of suspended matters, pumps for lime milk), if it is justified, this content can be higher (up to max. 6.0% (m/m)) in order to resist the abrasion or for some steps of water treatment

4 Stainless steel

Stainless steels according to EN 10088 and EN 10283 can be applied for all product groups (A-D)

Restrictions:

Some stainless steels show a higher probability of occurrence of local corrosion (e.g. pitting or crevice corrosion) caused by the contact with certain drinking waters or in case of disinfection with high chlorine concentrations. For this purpose, EN 16056 can be used to compare the passivity behaviour of the different stainless steel grades.

IV Platings

1 Tin plating applied by a galvanic process on the external surface

Components made of copper alloys (Chapter I) corresponding to the European Positive List can be plated galvanically with a layer composition of copper and tin.

Restrictions:

- Bulk composition of components to be tinned:
  - Copper alloys corresponding to the European Positive List: I Copper alloys
- Layer composition: 1.) Cu 2.) Sn
- applied process: galvanic tin plating
- Purity of the used anodes: ≥ 99.90%

Additional requirement:

For the respective production process, it has to be proven that the manufactured products are not contaminated with organic substances used in the galvanic process baths. This can be demonstrated by a migration test according to EN 12873-1. The evidence can be provided in the course of an approval/certification process of respective plated products. In this process a test of the metal release is not required. Additionally, a quality assurance scheme for the production process is required. In UK additional product tests might be necessary.

Basis for acceptance

UBA opinion (12 Aug 2015)
Anses opinion (6 July 2018)

2 Sn/Ni platings applied by a galvanic process on the external surface

Components made of copper alloys (Chapter I) corresponding the 4MSI Composition List can be plated galvanically with a plating of tin and nickel.

Restrictions:

- Bulk composition of components to be plated:
  - Copper alloys corresponding 4MSI Composition List: I Copper alloys
- composition of the plating: Sn (66 ± 1%) and Ni (34 ± 1%) (molar ratio 1:1)
- applied process: galvanic plating
- purity of the used nickel-anodes: 99.90%

Additional requirement:

For the respective production process, it has to be proven that the manufactured products are not contaminated with organic and inorganic substances used in the galvanic process baths. This can be demonstrated by a migration test according to EN 12873-1. The evidence can be provided in the course of an approval/certification process of respective plated products. In this process a test of the metal release is not required. Additionally, a quality assurance scheme for the production process is required. In UK additional product tests might be necessary.

Basis for acceptance
UBA opinion (1 July 2020)

3 Cu/Sn platings applied by a galvanic process on the external surface

Components made of copper alloys (Chapter I) corresponding the 4MSI Composition List can be plated galvanically with a plating of copper and tin.

Restrictions:

- Bulk composition of components to be plated:
  - Copper alloys corresponding 4MSI Composition List: I Copper alloys
- composition of the plating: Cu 62 (± 1) % and Sn 38 (± 1) % (molar ratio 1:1)
- Purity of the used anodes: ≥ 99.90%
- applied process: galvanic plating

Additional requirement:

For the respective production process, it has to be proven that the manufactured products are not contaminated with organic or inorganic substances used in the galvanic process baths. This can be demonstrated by a migration test according to EN 12873-1.
Evidence can be provided in the course of an approval/certification process of respective plated products. In this process a test of the metal release is not required. Additionally, a quality assurance scheme for the production process is required. In UK additional product tests might be necessary.

Basis for acceptance
UBA opinion (13 Sep 2023)
Denmark did not contribute to the evaluation.

V Passive compositions

1 Category

Not defined

2 Reference Material

Not defined

3 Accepted Alloys

3.1

Notation	Product groups
NiCr7030	B - D

Constituents (% (m/m)):

Ni	Cr	Si
≥ 60.0%	29.0% - 32.0%	0.50% - 2.0%

Impurities (% (m/m)):

Al	C	Co	Cu	Fe	Mn	P	S
≤ 0.30%	≤ 0.10%	≤ 1.5%	≤ 0.50%	≤ 5.0%	≤ 1.00%	≤ 0.020%	≤ 0.015%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (22 Feb 2018)

3.2

Notation	Product groups
NiCr8020	B - D

Constituents (% (m/m)):

Ni	Cr	Si
≥ 75.0%	19.0% - 21.0%	0.50% - 2.0%

Impurities (% (m/m)):

Al	C	Co	Cu	Fe	Mn	P	S	Ti
≤ 0.30%	≤ 0.15%	≤ 1.5%	≤ 0.50%	≤ 1.0%	≤ 1.00%	≤ 0.020%	≤ 0.015%	≤ 0.1%

Each other impurity < 0.02%

Basis for acceptance
UBA opinion (17 Feb 2023)
Denmark did not contribute to the evaluation.

3.3

Notation	Product groups
Ni55Ti45	C and D

Constituents (% (m/m)):

Ni	Ti
54.0% - 56.0%	Remainder

Each impurity < 0.02%

Basis for acceptance
UBA opinion (16 Jan 2019)

3.4

Notation	Product groups
Titanium Grade 1 according to ASTM B265	B - D

Constituents (% (m/m)):

Ti
Remainder

Impurities (% (m/m)):

C	O	N	H	Fe
≤ 0.08%	≤ 0.18%	≤ 0.03%	≤ 0.015%	≤ 0.20%

Each other impurity < 0.1%, Other impurity in total < 0.4%

3.5

Notation	Product groups
Titanium Grade 2 according to ASTM B265	B - D

Constituents (% (m/m)):

Ti
Remainder

Impurities (% (m/m)):

C	O	N	H	Fe
≤ 0.08%	≤ 0.25%	≤ 0.03%	≤ 0.015%	≤ 0.30%

Each other impurity < 0.1%
Other impurity in total < 0.4%

3.6

Notation	Product groups
Titanium Grade 3 according to ASTM B265	B - D

Constituents (% (m/m)):

Ti
Remainder

Impurities (% (m/m)):

C	O	N	H	Fe
≤ 0.08%	≤ 0.35%	≤ 0.05%	≤ 0.015%	≤ 0.30%

Each other impurity < 0.1%
Other impurity in total < 0.4%

3.7

Notation	Product groups
Titanium Grade 4 according to ASTM B265	B - D

Constituents (% (m/m)):

Ti
Remainder

Impurities (% (m/m)):

C	O	N	H	Fe
≤ 0.08%	≤ 0.40%	≤ 0.05%	≤ 0.015%	≤ 0.50%

Each other impurity < 0.1%
Other impurity in total < 0.4%

3.8

Notation	Product groups
Titanium Grade 5 according to ASTM B265	B - D

Constituents (% (m/m)):

Ti	Al	V
Remainder	5.5% - 6.75%	3.5% - 4.5%

Impurities (% (m/m)):

C	O	N	H	Fe
≤ 0.08%	≤ 0.20%	≤ 0.05%	≤ 0.015%	≤ 0.4%

Each other impurity < 0.1%
Other impurity in total < 0.4%

Basis for acceptance
Kiwa opinion (06 Jan 2020)
Denmark is in the process of reviewing the assessment.

3.9

Notation	Product groups
TaCr	C - D

Constituents (% (m/m)):

Ta	Cr
74.7% - 80.7%	19.3% - 25.3%

Basis for acceptance
UBA opinion (03 July 2020)
Denmark did not contribute to the evaluation.

3.10

Notation	Product groups
NiCr21Mo	C - D

Constituents (% (m/m)):

Ni	Cr	Mo	Fe	Cu	Ti
38.0% - 46.0%	19.5% - 23.5%	2.5% - 3.5%	Rem	1.5% - 3.0%	0.60% - 1.20%

Impurities (% (m/m)):

Al	C	Co	Mn	P	S	Si
≤ 0.20%	≤ 0.025%	≤ 1.00%	≤ 1.00%	≤ 0.020%	≤ 0.015%	≤ 0.50%

Each other impurity < 0.02%

4 Further passive metallic compositions for product group D

For product group D further passive metallic compositions can be used in contact with drinking water. These compositions do not need to be listed in this European Positive List.