For our Environment

Version of 21 March 2024, taking into account the 3rd amendment

BASIS FOR ASSESSMENT

Assessment Guideline for enamels and ceramic materials in contact with drinking water (Enamel and Ceramics Assessment Guideline)[1,2]

The announcement of the assessment basis for enamels and ceramic materials in contact with drinking water of 5 August 2019 (BAnz AT 12.9.2019 B8), as last amended by the second amendment of the assessment basis for enamels and ceramic materials in contact with drinking water of 17 October 2023 (BAnz AT 24.10.2023 B5), is amended:

[1] Notified under Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17 September 2015, p. 1).'.

[2] Notified under xxxx

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Amendments

The following amendments are to be made:

I. Table 1 in point 6.1.1 is amended as follows:

Table 1: Positive list of possible ingredients of enamels and other glass-like materials

Substance	Content in %		Substance	Content in %		Substance	Content in %	
	Min.	Max.		Min.	Max.		Min.	Max.
SiO_2	25	100	K_2O	0	10	P_2O_5	0	5.0
Na_2O	0	30	Li_2O	0	10	SnO_2	0	5.0
ZrO_2	0	30	ZnO	0	10	SrO	0	5.0
B_2O_3	0	20	Al_2O_3	0	5.0	Cr_2O_3	0	3.0
TiO_2	0	16	CoO	0	5.0	CuO	0	3.0
BaO	0	15	Fe_2O_3	0	5.0	NiO	0	3.0
CeO_2	0	15	MgO	0	5.0	Sb_2O_3	0	1.0
CaO	0	10	MnO_2	0	5.0	HfO_2	0	0.1
F	0	10	MoO_3	0	5.0			

Inorganic sulphur species as impurities with a total content of up to 0.5 % may be neglected.

II. In point 6.2.1, Table 5 is amended as follows:

Table 2: Positive list of permitted ingredients of hard ferrite ceramics

Substance	Content in %		Substance	Content in %	
	Min.	Max.		Min.	Max.
FeO/Fe_2O_3	80	95	Cr_2O_3	0	0.2
BaO	0	12	CuO	0	0.1
SrO	0	12	Li_2O	0	0.1
SiO_2	0	5.0	MgO	0	0.1
Al_2O_3	0	3.0	Na_2O	0	0.1
CaO	0	3.0	NiO	0	0.1
MnO	0	3.0	Pd	0	0.1
La_2O_3	0	2.0	P_2O_5	0	0.1
B_2O_3	0	1.0	TiO_2	0	0.1
CoO	0	0.8	WoO_3	0	0.1
Bi_2O_3	0	0.4	ZnO	0	0.1

III. In point 7.3, Table 11 is amended as follows:

Table 3: Criterions (PW) for different elements

Element	Reference value for the criterion	Criterion as a proportion of the limit/guidance value	Criterion in µg/l
Aluminium	TrinkwV	50 %	100
Antimony	TrinkwV	10 %	0.5
Barium	UBA	10 %	70
Bismuth	UBA		0.1
Lead	TrinkwV	5 %	0.5
Boron	TrinkwV	10 %	100
Cadmium	TrinkwV	5 %	0.15
Cer	UBA	50 %	20
Chromium	TrinkwV	10 %	5
Hafnium	UBA		0.1
Cobalt	UBA	90 %	9
Copper	TrinkwV	10 %	200
Lanthanum	UBA	90%	2.7
Manganese	TrinkwV	50 %	25
Molybdenum	WHO	10 %	7
Nickel	TrinkwV	10 %	2
Palladium	UBA		0.1
Praseodymium	UBA		0.1
Strontium	UBA	10 %	210
Titanium	UBA	50 %	70
Tungsten	UBA		0.1
Yttrium	UBA	10%	3.5
Zirconium	UBA	50 %	5.0

IV. In point 8.2.1, the following is added in the third sentence after firstly:

‘2. define the elements to be assessed in the migration water, and’

V. In point 8.3.3, the tenth and eleventh sentences are exchanged as follows:

‘Figure 2 shows a test setup where funnels containing the migration water are pressed against the enamel plates. However, other structures are also possible for testing.’

VI. Footnote 4 is updated:

‘The test specimens conform to the samples according to DIN 4753-3: 2017-08.’

VII. Point 8.3.4 is recast:

‘Annex 1 shows the migration waters of the respective migration periods, which are to be taken for analysis for cold water testing. Annex 2 shall designate the migratory waters for analysis for warm and hot water testing. The migration waters are immediately to be acidified with concentrated HNO_3 for the determination of the elements (not for PAH determination) to 2 % (v/v) acidity.

Enamels/other glass-like materials

Elements of enamel/other glass-like materials with a criterion in accordance with Table 11 shall be determined. The lead and cadmium content of the migration water quantities being analysed should also be determined. The analysis shall be performed by means of an appropriate measurement method, e.g. ICP-MS in accordance with DIN EN ISO 17294-1.

Borosilicate glass

Elements of borosilicate glass with a criterion in accordance with Table 11 shall be determined. The lead and cadmium content of the migration water quantities being analysed should also be determined. The analysis shall be performed by means of an appropriate measurement method, e.g. ICP-MS in accordance with DIN EN ISO 17294-1.

Ceramic materials

Elements of the ceramic material with a criterion in accordance with Table 11 shall be determined. The lead and cadmium content of the migration water quantities being analysed should also be determined. The analysis shall be performed by means of an appropriate measurement method, e.g. ICP-MS in accordance with DIN EN ISO 17294-1.

Ceramic materials made of carbon

For the testing of carbon-containing ceramic materials, the PAHs shall be determined in the migration waters to be analysed in accordance with Table 12.

Mixed metal oxide (MMO) coatings

If the mixed metal oxide coatings are manufactured as described in Chapter 6.3, migration tests are not necessary.’

VIII. In point 8.3.5, the following is added at the end:

‘NOTE:

There is an increasing trend in the measured criteria if, for example, the following conditions are met at the same time:

- the measured concentration in the assessment-relevant migration period is above 1/10 of the migration restriction; and
- the measured concentration during the assessment-relevant migration period has significantly doubled compared to the lowest measured concentration (higher than measurement uncertainty); and
- the measured concentration in the assessment-relevant migration period is the highest measured value of the migration series.’