

# DIN EN 14944-4:2025-09 (E)

## Influence of cement based products on water intended for human consumption - Test methods - Part 4: Migration of substances from site-applied cement based materials and associated non-cement based products/materials

---

<b>Contents</b>		<b>Page</b>
European foreword .....		6
1	Scope .....	7
2	Normative references .....	7
3	Terms and definitions .....	7
4	Principle .....	9
5	Reagents .....	10
5.1	Sodium hypochlorite solution .....	10
5.2	Waters to be used for testing .....	10
5.3	Cleaning liquids for apparatus .....	11
6	Apparatus .....	11
6.1	General .....	11
6.2	Apparatus and materials for test piece preparation (see Annexes A, B and C) .....	11
6.3	Apparatus and materials for preconditioning and migration procedure .....	12
7	Samples and test pieces .....	12
7.1	Sampling, transport and storage of samples .....	12
7.2	Preparation of test pieces .....	13
7.3	Surface area to volume ratio (S/V) for use in the test procedure .....	13
8	Pre-treatment of samples (curing and preconditioning) .....	13
8.1	General .....	13
8.2	Preconditioning .....	14
9	Test procedure .....	14
9.1	General .....	14
9.2	Preparation of migration water for analysis of substances .....	14
9.3	Control samples (procedural blank test) .....	15
10	Analysis .....	15
11	Calculation of test results .....	15
11.1	General .....	15
11.2	Calculation of the concentration of the substances in the migration water .....	15
11.3	Calculation of the migration rate of the measured substances .....	16
11.4	Calculation of the mean migration rate .....	16
12	Test report .....	16
12.1	Introduction .....	16
12.2	General information .....	16
12.3	Information on the product .....	17
12.4	Information on reference concrete mixes and test pieces .....	17
12.5	Information on the test procedure .....	17
12.6	Test results (see Table 2) .....	18

<b>Annex A (normative) Testing and assessing migration of substances from the constituents of concretes .....</b>	<b>19</b>
A.1 General .....	19
A.2 Method .....	19
A.3 Normative references .....	20
A.4 Terms and definitions .....	20
A.5 Principle .....	20
A.6 Reagents .....	21
A.7 Apparatus .....	21
A.8 Reference (or control) concrete .....	21
A.9 Sampling of constituents .....	22
A.10 Control mix, test mixes and test pieces .....	22
A.11 Concrete mixing and compacting procedure .....	24
A.12 Curing and preconditioning of test pieces .....	25
A.13 Surface area to volume (S/V) ratio .....	25
A.14 Test procedure .....	25
A.15 Test arrangement .....	25
A.16 Assessment of unapproved constituents .....	26
A.17 Analysis .....	26
A.18 Calculation of test results .....	27
A.19 Test report .....	28
<b>Annex B (normative) Testing and assessing migration of substances from the constituents of mortars .....</b>	<b>29</b>
B.1 General .....	29
B.2 Method .....	29
B.3 Normative references .....	30
B.4 Terms and definitions .....	30
B.5 Principle .....	30
B.6 Reagents .....	31
B.7 Apparatus .....	31
B.8 Reference (or control) mortar .....	31
B.9 Sampling of constituents .....	32
B.10 Control mix, test mix and test pieces .....	32
B.11 Mortar mixing and compacting procedure .....	34
B.12 Curing and preconditioning of test pieces .....	34
B.13 Surface area to volume (S/V) ratio .....	34
B.14 Test procedure .....	34
B.15 Test arrangement .....	34
B.16 Assessment of unapproved constituents .....	35
B.17 Analysis .....	35
B.18 Calculation of test results .....	36
B.19 Test report .....	37
<b>Annex C (normative) Testing and assessing migration of substances from associated non-cement based products/materials .....</b>	<b>38</b>
C.1 Introduction .....	38
C.2 Method .....	38
C.3 Normative references .....	39
C.4 Terms and definitions .....	39
C.5 Principle .....	39
C.6 Reagents .....	39
C.7 Apparatus .....	39
C.8 Reference (or control) concrete/mortar .....	39
C.9 Sampling of constituents and unapproved products .....	39
C.10 Control mix, test mix and test pieces .....	40
C.11 Concrete/mortar mixing and compacting procedure .....	40
C.12 Curing and preconditioning of test pieces .....	40

C.13	Surface area to volume (S/V) ratio .....	41
C.14	Test procedure .....	41
C.15	Test arrangement .....	41
C.16	Assessment of unapproved products .....	41
C.17	Analysis .....	41
C.18	Calculation of test results .....	41
C.19	Test report .....	42
<b>Annex D (informative) Examples of typical test pieces and test conditions as a function of S/V ratio</b> .....		<b>43</b>
<b>Annex E (informative) Test arrangements for site-applied cement based materials and associated non-cement based products/materials</b> .....		<b>44</b>
<b>Annex F (normative) Additional procedures for testing site-applied cement based products at elevated temperature</b> .....		<b>46</b>
F.1	General .....	46
F.2	Test procedure at elevated temperature .....	46
F.3	Control samples (blank test) .....	46
F.4	Expression of results .....	46
F.5	Reporting .....	46
<b>Annex G (informative) Discrimination between porous and non-porous coating on site applied cement based products</b> .....		<b>47</b>
G.1	Principle .....	47
G.2	Apparatus .....	47
G.3	Materials and reagents .....	47
G.4	Test procedure .....	47
G.5	Determination of pH .....	48
G.6	Expression of results .....	48
G.7	Classification criteria .....	48
<b>Annex H (informative) Schematic description of the test procedure</b> .....		<b>49</b>
H.1	Preconditioning .....	49
H.2	Production of migration water at 23 °C .....	49
H.3	Typical schedule .....	51
<b>Annex I (informative) Procedural tests using standard additions (positive control)</b> .....		<b>52</b>
<b>Bibliography</b> .....		<b>53</b>