

DIN EN 71-3:2018-08 (E)

Safety of toys - Part 3: Migration of certain elements (includes Amendment A3:2018)

Contents		Page
European foreword		5
Introduction		7
1	Scope	7
2	Normative references	7
3	Terms and definitions	8
4	Requirements	9
4.1	Toy material categories (see H.4)	9
4.2	Specific requirements	9
5	Principle	10
6	Reagents and apparatus	11
6.1	Reagents	11
6.2	Apparatus	11
7	Sampling and sample preparation	12
7.1	Selection of test portions	12
7.2	Standards preparation	12
7.3	Sample preparation	12
7.3.1	General	12
7.3.2	Category I: Dry, brittle, powder like or pliable and Category II: Liquid or sticky	12
7.3.3	Category III: Scraped-off	13
7.4	Migration procedure	14
7.4.1	General	14
7.4.2	Category I: Dry, brittle, powder like or pliable and Category II: Liquid or sticky	14
7.4.3	Category III: Scraped-off	15
8	Methods of analysis	17
9	Calculation of results	17
9.1	General elements	17
9.1.1	Calibration curve	17
9.1.2	Calculation of migration	18
9.1.3	Interpretation of results	18
9.2	Chromium (III) and Chromium (VI)	18
9.2.1	Calibration curve	18
9.2.2	Calculation of migration	18
9.2.3	Interpretation of results	19
9.3	Organic tin	19
9.3.1	Calibration curves	19
9.3.2	Calculation of migration of single organic tin compound	19
9.3.3	Calculation of migration of organic tin	20
9.3.4	Interpretation of results	20
10	Test report	20

Annex A (informative) Significant technical changes between this European Standard and the previous version	21
Annex B (informative) Method performance	23
B.1 Method performance	23
B.2 Use of measurement uncertainty in compliance assessment	23
B.3 Information on round robin test	23
Annex C (normative) Sieve requirements	25
Annex D (informative) Preparation and analysis of test portion	26
Annex E (informative) Method of analysis for general elements	27
E.1 Principle	27
E.2 Working solutions	27
E.3 Procedure	29
E.4 Analysis	29
Annex F (informative) Methods of analysis for speciation of Chromium (III) and (VI)	32
F.1 Principle	32
F.2 Reagents	32
F.3 Apparatus	33
F.4 Procedure	34
F.5 Analysis	34
Annex G (informative) Method of analysis for organic tin (see H.10)	37
G.1 Principle	37
G.2 Terms and definitions	38
G.3 Reagents	38
G.4 Apparatus	41
G.5 Procedure	41
G.6 Analysis	42
Annex H (informative) Rationale	47
H.1 General	47
H.2 Mouthing behaviour of children (Scope)	47
H.3 Skin contact (Scope)	47
H.4 Toy categories (4.1)	48
H.5 Test portions (7.1, 7.3.3.2, 7.3.3.3, 7.3.3.6)	48
H.6 Size of test pieces (7.3.3.2, 7.3.3.3, 7.3.3.4)	48
H.7 Textile threads	48
H.8 Chromium (VI) migration (7.4)	48
H.9 Filtration of migration solutions (7.4.2.1, 7.4.2.2, 7.4.3.1, 7.4.3.3, 7.4.3.5)	49
H.10 Organic tin (9.3)	49
H.11 pH value	49
H.12 De-waxing (see 7.3.2)	50
Annex I (informative) Conformity assessment	51
I.1 General	51
I.2 Chromium VI	51
Annex J (informative) List of other organic tin compounds	52
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/48/EC aimed to be covered	53
Bibliography	54