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Accred. No. 1002
Testing
ISO/IEC 17025

Koskisen Oy
Timo Eskelinen
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Otavantie 395
52550 Hirvensalmi
Finland

Migration of certain elements determined according to EN 71-3

(1 appendix)

Product type

Six plywood sheets with six different thicknesses were delivered by the customer.

Sample identifications:	1. Koskiply 0.4 mm 3 ply exterior glued
	2. Koskiply 0.4 mm 3 ply interior glued
	3. KoskiFlex 0.4 mm 2 ply
	4. KoskiPly 12 mm 24 ply exterior glued
	5. KoskiFlex 12 mm 24 ply
	6. KoskiPly 12 mm 24 ply interior glued
Date of arrival at SP:	2016-12-15
Date of testing:	Week 2-3, 2017

Assignment and method

Test according to the European standard EN 71-3:2013+A1:2014. Safety of toys - Part 3: Migration of certain elements. Test according to EN 71-3 was required by the customer even though the products are outside the scoop of EN 71-3.
All the elements except chromium (VI) and organic tin were determined by inductively coupled plasma-optical emission spectrometry (ICP-OES).

Organic tin was determined by inductively coupled plasma-optical mass spectrometry (ICP-MS). The method is not accredited.

Chromium (VI) was separated from other chromium species as the 1,5-Diphenycarbazide complex and determined by inductively coupled plasma-mass spectrometry (ICP-MS). Chromium (VI) was determined in the sample parts where the migration of total chromium was higher than 0.1 mg/kg. The method is not accredited.

Results

Element (mg/kg)	Sample 1	Sample 2	Sample 3	Migration limits Category III (mg/kg)
Aluminium, Al	<15	<15	<15	70000
Antimony, Sb	<5	<5	<5	560
Arsenic, As	<5	<5	<5	47
Barium, Ba	<15	<15	<15	18750
Boron, B	<50	<50	<50	15000
Cadmium, Cd	<5	<5	<5	17
Chromium (III), Cr (III)	<5	<5	<5	460
Chromium (VI), Cr (VI)	<0.05	<0.05	<0.05	0.2
Cobalt, Co	<5	<5	<5	130
Copper, Cu	<10	<10	<10	7700
Lead, Pb	<10	<10	<10	160
Manganese, Mn	<100	<100	<100	15000
Mercury, Hg	<5	<5	<5	94
Nickel, Ni	<10	<10	<10	930
Selenium, Se	<25	<25	<25	460
Strontium, Sr	<15	<15	<15	56000
Tin, Sn	<15	<15	<15	180000
Organic tin, Sn	<2	<2	<2	12
Zinc, Zn	<15	<15	<15	46000

Results (seq.)

Element (mg/kg)	Sample 4	Sample 5	Sample 6	Migration limits Category III (mg/kg)
Aluminium, Al	<15	<15	<15	70000
Antimony, Sb	<5	<5	<5	560
Arsenic, As	<5	<5	<5	47
Barium, Ba	<15	<15	<15	18750
Boron, B	<50	<50	<50	15000
Cadmium, Cd	<5	<5	<5	17
Chromium (III), Cr (III)	<5	<5	<5	460
Chromium (VI), Cr (VI)	<0.05	<0.05	<0.05	0.2
Cobalt, Co	<5	<5	<5	130
Copper, Cu	<10	<10	<10	7700
Lead, Pb	<10	<10	<10	160
Manganese, Mn	<100	<100	<100	15000
Mercury, Hg	<5	<5	<5	94
Nickel, Ni	<10	<10	<10	930
Selenium, Se	<25	<25	<25	460
Strontium, Sr	<15	<15	<15	56000
Tin, Sn	<15	<15	<15	180000
Organic tin, Sn	<2	<2	<2	12
Zinc, Zn	<15	<15	<15	46000

The results only apply to the tested items.

The tested samples fulfil the requirements according to EN 71-3:2013+A1:2014.

The revision concerns the correction of a spelling error.

SP Technical Research Institute of Sweden
Chemistry, Materials and Surfaces - Chemistry

Performed by

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Appendix: Measurement Uncertainty