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OneFoot AS
Neuberggt 3A
NO-0367 Oslo
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Migration of certain elements according to SS-EN 71-3 (1 appendix)

Product type

Two oneFoot-miniskis delivered by the client.

Sample identification:

Orange miniski

Blue miniski

Date of arrival at SP-KMk:

2012-12-05

Date of testing:

Week 2-3, 2013

Assignment and method

Test according to European standard SS-EN 71-3. Toys - Safety regulations - Part 3: Migration of certain elements. After leaching the elements were determined by inductively coupled plasma-optical emission spectrometry (ICP-OES). Test according to SS-EN 71-3 was required by the client even though the samples are outside the scope of SS-EN 71.

The following individual samples from the miniskis were leached, see also photo:

A = Blue plastic, ski

B = Blue plastic, buckle

C = Orange plastic, ski

D = Orange plastic, buckle

E = White plastic

F = Black plastic

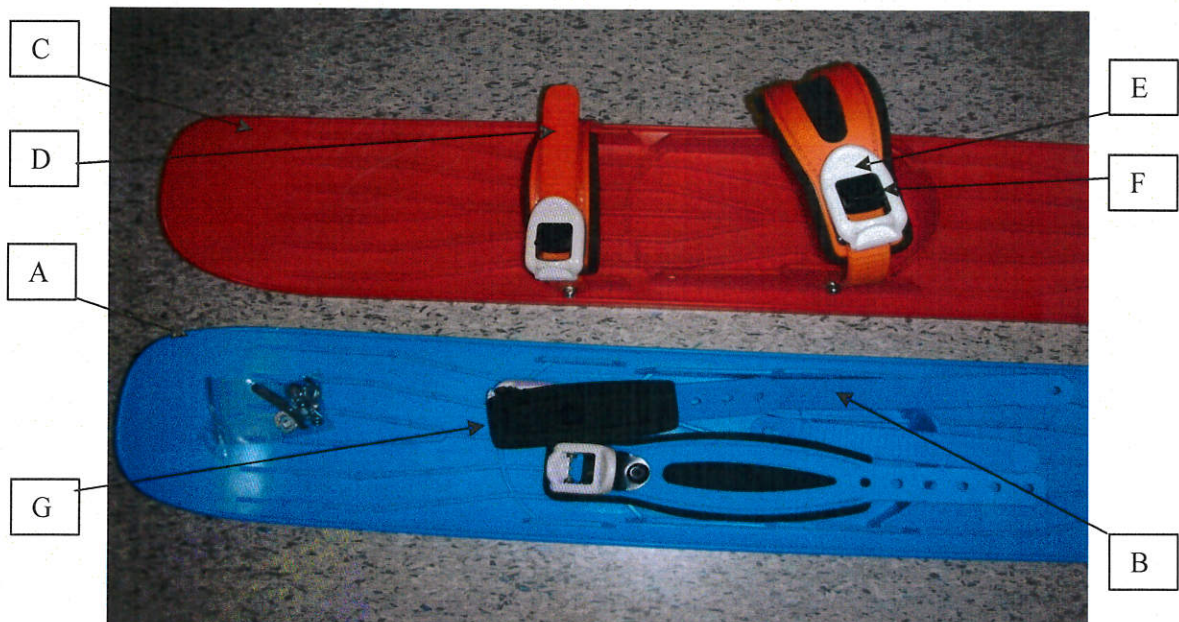
G = Black soft plastic

H = Black metal screw, buckle

I = Metal spring

J = Black metal sheet, buckle

K = Other metal details



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Results

The results are expressed as mg soluble element per kg material after analytical correction according to SS-EN 71-3 section 4.2 (Interpretation of results).

	A	B	C	D	E	F	G	H	I	J	K	Limit value
Antimony, Sb	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60
Arsenic, As	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	25
Barium, Ba	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	1000
Cadmium, Cd	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	75
Chromium, Cr	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60
Lead, Pb	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	90
Mercury, Hg	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60
Selenium, Se	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	500

The tested specimens fulfil the requirements according to SS-EN 71-3.

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

Performed by

Elham Azadmehr

Examined by

Marcus Vestergren

Appendix: Measurement Uncertainty

Mätosäkerhet

Mätosäkerhet för ackrediterade metoder beräknade från kontrollprov och valideringsdata enligt Handbook for calculation of measurement uncertainty in environmental laboratories. Nordtest Technical Report 537.

Measurement uncertainty for accredited methods determined from control samples and validation data according to Handbook for calculation of measurement uncertainty in environmental laboratories. Nordtest Technical Report 537.

Standard/ SP-metod	Parameter	Mätosäkerhet
SP 0653	S	0,0007% (abs)
	0,003 – 0,007%	0,0008% (abs)
	0,007 – 0,04%	0,0037% (abs)
	0,04 – 0,3%	
	C	0,0033% (abs)
	0,003 – 0,02%	0,0036% (abs)
SP 0658	S	7% (rel)
	i cement	9% (rel)
	i askor	8% (rel)
	i betong	
EN 196-2, 7-8	Glödförlust	11% rel
EN 196-2, 9	Olöslig rest	0,16% (abs)
SP 0665	Klorid	12% (rel)
SP 0670	B	10% (rel)
	Cr	10% (rel)
	Cu	10% (rel)
SP 0671	As	10% (rel)
	B	20% (rel)
	Cr	10% (rel)
	Cu	10% (rel)
	P	10% (rel)
SS-EN 71-3	As	50% (rel)
	Ba	25% (rel)
	Cd	55% (rel)
	Cr	30% (rel)
	Hg	50% (rel)
	Pb	40% (rel)
	Sb	55% (rel)
	Se	25% (rel)

Standard/ SP-metod	Parameter	Mätosäkerhet
SP 1494	Al, Si, P, S	
	Ti, V, Cr, Mn	
	Co, Ni, Cu, As	
	Zr, Nb, Mo, Sn	
	Sb, Ta, W, Pb	
	(För samtliga: 0,01 – 0,02%	40% (rel)
>0,02 – 0,05 %	30% (rel)	
>0,05 – 0,2%	20% (rel)	
>0,2–1%	10% (rel)	
>1%	5% (rel)	
ISO 29581-2	Na ₂ O	
	0,1 – 0,29 vikt-%	0,03%(abs)
	0,30 – 1 vikt-%	10%(rel)
	MgO	0,2% (abs)
	Al ₂ O ₃	0,3% (abs)
	SiO ₂	0,9% (abs)
	K ₂ O	
	0,05 – 1,20 vikt-%	0,06% (abs)
	1,21 – 2 vikt-%	5% (rel)
	CaO	0,9% (abs)
	TiO ₂	0,06% (abs)
	MnO	
	0,03 – 0,2 vikt-%	0,01% (abs)
	0,21 – 1 vikt-%	5% (rel)
	Fe ₂ O ₃	
	0,1 – 2 vikt-%	0,1% (abs)
	2,01 – 7 vikt-%	5% (rel)
SrO		
0,01 – 0,10 vikt-%	0,005% (abs)	
0,11 – 0,5 vikt-%	5% (rel)	
P ₂ O ₅		
0,02 – 0,20 vikt-%	0,01% (abs)	
0,21 – 0,5 vikt-%	5% (rel)	

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Standard/ SP-metod	Parameter	Mätosäkerhet
DS 1020	Vattenlöslig kromat <2 mg/kg >2 mg/kg	0,4 mg/kg (abs) 20% (rel)
NT ENVIR 003	As Pb Cd Co Cu Cr Ni Sn V Zn	18% (rel) 14% (rel) 11% (rel) 15% (rel) 23% (rel) 21% (rel) 15% (rel) 22% (rel) 11% (rel) 13% (rel)
SS-EN 1811	Ni	0,02µg/cm2/vecka
SS-EN 1744-1	Cl-	22% (rel)

Den angivna mätosäkerheten är beräknad med täckningsfaktor 2, vilket ger en konfidensnivå på cirka 95%.

The reported uncertainty is calculated with a coverage factor of 2, which gives a level of confidence of approximately 95%.

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