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Dresden, 2020-05-05  
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## Test Report Order no. 2520125-6

**Client:** Hemel  
Emprenye Sanayi ve Ticaret A.S.  
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Vakum Cad. No:25  
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34957 Istanbul  
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**Date of order:** 2020-03-19

**Order:** Determination of the migration behavior of heavy metals according to DIN EN 71-3: 2019-08 (category III, table 1) in Prime Parke Verniği

**Contractor:** EPH – Laboratory Chemical Testing

**Engineer in charge:** Dr. Christiane Swaboda



Dipl.-Ing. M. Broege  
Head of Laboratory Chemical Testing

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## 1 Assignment

Determination of the migration behaviour of heavy metals according to DIN EN 71-3: 2019-08 (Category III according to Table 1) in 1 liquid sample

## 2 Sample material

The client handed over the following sample:

Table 1: sampling information

2520125 – P7          Prime Parke Verniği

Sample receipt in the EPH: 24 March 2020

## 3 Performed tests

Tabelle 2 performed tests

Pos.	Performed tests	Testing period
1	Determination of heavy metals according to DIN EN 71-3: 2019-08	2020-04-01/03
2	Determination of Chrome VI according to DIN EN 71-3: 2019-08	2020-04-14/17

Pos 2: The investigation was carried out by the accredited test institute Hansecontrol GmbH

### 3.1 Determination of heavy metals according to DIN EN 71-3: 2019-08

sample quantities:          ca. 0.5 g  
solvent:                      25 mL 0.07 n hydrochloric acid  
method:                      Elution over 2 h in a water bath at 37 °C  
Quantification:              with ICP-OES  
Determination:              double determination

The following elements were to be determined according to DIN EN 71-3:2019-08:

Aluminum (Al), Antimony (Sb), Arsenic (As), Barium (Ba), Boron (B), Cadmium (Cd), Cobalt (Co), Chrome (Cr), Copper (Cu), Mercury (Hg), Manganese (Mn), Nickel (Ni), Lead (Pb), Selenium (Se), Tin (Sn), Strontium (Sr), Zinc (Zn)

Table 3: Limit of quantification of different elements

Element	Al	As	B	Ba	Cd	Co	Cr total.	Cr VI	Cu	Hg	Mn	Ni	Pb	Sb	Se	Sn	Sr	Zn
LOQ [mg/kg]	3	1.5	3	0.1	0.05	0.05	0.02	0.005	0.1	0.05	0.05	0.25	1.5	1.5	1.5	0.05	0.05	1.5

LOQ Limit of quantification [mg/kg]

## 4 Results

Table 4 Result overview of the tested material

[mg/kg]	Al	As	B	Ba	Cd	Co	Cr total	Cr (III) <sup>1</sup>	Cr (VI) <sup>2</sup>	Cu	Hg	Mn	Ni	Pb	Sb	Se	Sn	Organo- tin <sup>3</sup>	Sr	Zn
Limit Value Category III	70000	47	15000	18750	17	130	460	460	0.2/0.053	7700	94	15000	930	23	560	460	180000	12	56000	46000
Measured Values	< LOQ	< LOQ	< LOQ	0.2	< LOQ	< LOQ	< LOQ	< LOQ	n.d.	0.2	0.1	0.1	< LOQ	< LOQ	< LOQ	< LOQ	0.1	n.d.	< LOQ	< LOQ
comply with limit value	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

n.d. not determined

<sup>1</sup> The chromium (III) content corresponds to the total chromium content minus the chromium (VI) content<sup>2</sup> The migration limit for chromium (VI) for category III toy material (scraped toy material) has been changed by Commission Directive (EU) 2018/725. The new limit value (0.053 mg / kg) applies from 2019-11-18. Before this date, the limit is 0.2 mg / kg. Chromium (VI) was only determined for samples in which the total chromium content exceeded the limit value for chromium (VI).<sup>3</sup> The organotin content was only determined for samples in which the tin content exceeded the limit value for organotin.

## 5 Evaluation of results\*

The limit values for the migration of heavy metals were met by the sample.

\* Statements on conformity assessment/classification were made based on the measurement results obtained. Measurement uncertainties were not included in the assessment (ILAC G8 03/2009 "Guidelines on the Reporting of Compliance with Specification" Section 2.



Dr. rer. nat. Ch. Swaboda  
Chemist in Charge