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Dresden, 2020-05-05
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Test Report Order no. 2520125-12

Client: Hemel
Emprenye Sanayi ve Ticaret A.S.
Istanbul Deri Organize Sanayi Bölgesi
Vakum Cad. No:25
B-1 Özel Parsel, Aydinli-Orhanli Mevkii, Tuzla
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 HEMEL Marine Teak Protector

Contractor: EPH – Laboratory Chemical Testing

Engineer in charge: Dr. Christiane Swaboda



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

The test report contains 4 pages. Any duplication, even in part, requires written permission of EPH.

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 – P13 HEMEL Marine Teak Protector

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) ¹	Cr (VI) ²	Cu	Hg	Mn	Ni	Pb	Sb	Se	Sn	Organo- tin ³	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	13.6	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	n.d.	0.3	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	< LOQ	n.d.	0.1	< 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

¹ The chromium (III) content corresponds to the total chromium content minus the chromium (VI) content² 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).³ 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