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Hemel
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Dresden, 2021-01-25
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Test Report Order no. 2520589-2

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
Turkey

Date of order: 2021-01-12

Order: Determination of the migration behavior of heavy metals according to DIN EN 71-3: 2019-08 (category III, table 1) in a liquid colour sample "Hemel Invisible"

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

Hemel Invisible

Sample receipt in the EPH: 04 January 2021

3 Performed tests

Table 2: Performed tests

Pos.	Performed tests	Testing period
1	Determination of heavy metals according to DIN EN 71-3: 2019-08	2021-01-015

Sample quantity: 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
LOQ [mg/kg]	3	1.5	3	0.1	0.05	0.05	0.02	0.005	0.1	0.05

Element	Mn	Ni	Pb	Sb	Se	Sn	Sr	Zn
LOQ [mg/kg]	0.05	0.25	1.5	1.5	1.5	0.05	0.05	1.5

LOQ = Limit of quantification [mg/kg]

4 Results and Evaluation

Table 4: Result overview of the tested material

Element	Limit Value Category III	Measured Values [mg/kg]	Evaluation according to DIN EN 71-3: 2019-08 comply with limit value*
Sample	[mg/kg]		
Al	70000	< LOQ	Yes
As	47	< LOQ	Yes
B	15000	6.8	Yes
Ba	18750	< LOQ	Yes
Cd	17	< LOQ	Yes
Co	130	< LOQ	Yes
Cr total	460	< LOQ	Yes
Cr (III) ¹	460	< LOQ	Yes
Cr (VI) ²	0.053	n.d.	Yes
Cu	7700	< LOQ	Yes
Hg	94	< LOQ	Yes
Mn	15000	< LOQ	Yes
Ni	930	< LOQ	Yes
Pb	23	< LOQ	Yes
Sb	560	< LOQ	Yes
Se	460	< LOQ	Yes
Sn	180000	0,5	Yes
Organotin ³	12	n.d.	Yes
Sr	56000	< LOQ	Yes
Zn	46000	< LOQ	Yes

n.d. not determined

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

² Chromium (VI) was only determined for samples where 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.

* Statements on conformity assessment/classification have been 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).

The sample completely meets the limit values for the migration of heavy metals.



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