

HEMEL Emrenye
San. ve Tic. A.Ş. İstanbul Deri Organize Sanayi Bölgesi
Vakum Cad. No:25
B-1 Özel Parsel
Aydınlı-Orhanlı Mevkii
Tuzla

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Dresden, January 13th, 2014
50-Dr.Swab

Test report Order-No. 2513587

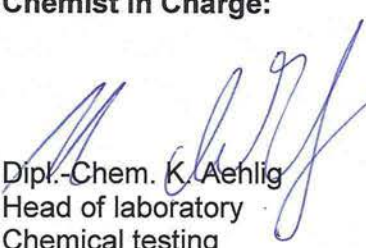
Client: HEMEL Emrenye
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34957 İstanbul

Order dated: December 13th, 2013

Order: Determination of the migration behaviour of heavy metals according to DIN EN ISO 71-3 in 1 sample

Contractor: EPH – Laboratory chemical testing

Chemist in Charge: Dr. Ch. Swaboda


Dipl.-Chem. K. Aehlig
Head of laboratory
Chemical testing

The test report contains 4 pages. Duplication in part requires in every case a permission of EPH. The test results are only related to the tested material.

1 Task

Determination of the migration behaviour of heavy metals according to DIN EN ISO 71-3.

2 Sample material

The client handed over the following sample:

P 1 Hemel Interior Varnish

Sample receipt in the EPH: December 13th, 2013

3 Investigations carried out

3.1 Migration behaviour of heavy metals acc. to DIN EN ISO 71-3: 2013- 07

According to the new version of DIN EN ISO 71-3 from July 2013 the following elements were to be determined:

Aluminium (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)

About 1 g of the milled sample (grain size below 1.5 mm) were added with 50 ml of 0.07 mol HCl, stirred for 15 minutes at 37°C and then left for 2 hours. Afterwards the liquid was separated by centrifugation. The resulting pH - value of the solutions was 1.5.

The quantitative determination of the heavy metals was carried out with the methods and detection limits indicated in table 1.

The results are average values from a double determination.

The evaluation of the results followed the limit values for category III according to pt. 7.4.3.1 for uncolored or imbued materials like wood, wood based materials, bones ore leather.

Table 1 - Detection limits [mg/ kg]

Element	Al	As	Ba	B	Cd	Co	Cr	Cu
method	MP-AES	GTA	MP-AES	MP-AES	GTA	MP-AES	GTA	MP-AES
DL [mg/kg]	2,5	0,5	2,5	2,5	0,3	2,5	0,05	2,5

Continuation of table 1

Element	Hg	Mn	Ni	Pb	Sb	Se	Sn	Sr	Zn
method	MP-AES with Hydrid-forming agents	MP-AES	MP-AES	MP-AES	GTA	GTA	GTA	MP-AES	MP-AES
DL [mg/kg]	0,15	2,5	2,5	2,5	0,4	0,6	0,4	2,5	2,5

GTA = graphite tube atom absorption spectrometry
 MP-AES = microwave plasma induced atom emission spectrometry
 DL = detection limit

4 Results

Table 2 Content of heavy metals after extraction acc. to DIN EN ISO 71-3 in mg/kg

Sample	Al	As	Ba	B	Cd	Co	Cr	Cu
P12	1686	< DL	< DL	< DL	0,4	3,55	< DL	< DL

Continuation of table 2

Sample	Hg	Mn	Ni	Pb	Sb	Se	Sn	Sr	Zn
P12	< DL	< DL	< DL	< DL	< DL	< DL	< DL	< DL	3,7

DL = Detection limit

5. Evaluation

The following limit values of heavy metals may not be exceeded according to DIN EN 71 – 3

Table 6 Limit values for heavy metals according to DIN EN 71-3

Element	Al	As	Ba	B	Cd	Co	Cr	Cu
Limit value category III [mg/kg]	70000	47	18750	15000	17	130	460 0,2*	7700

Continuation of table 6

Element	Hg	Mn	Ni	Pb	Sb	Se	Sn	Sr	Zn
Limit value category III [mg/kg]]	94	15000	930	160	560	460	180000 12**	56000	46000

* = limit value of Cr VI

** = limit value of Organotin

The product Hemel Interior Varnish meets the requirements of DIN EN ISO 71-3 (2013:07).

5 Miscellaneous

The product sample will be stored in the EPH for 3 months as a retained sample.



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