

TEST REPORT

Reference No. : TRHZ1410362

Date : Oct. 16, 2014

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Client : Guangdong Bester household products Ltd
Address : Room 1513, Tower 3 of Aoyuan Square, No 341 Fude Road, Panyu District, Guangzhou, China, 511400

The following merchandise was (were) submitted and identified by the client as:

Name of Product : Electrical kettles
Test Model : KL1803
Client Reference Information : Please refer to next page(s).
Sample Received : Oct. 09, 2014
Test Period : Oct. 09, 2014 – Oct. 16, 2014
Test Request : In accordance with German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31, (Article 3) in EU Regulation No. 1935/2004 and Technical Guide on Metals and Alloys used in food contact materials and articles of the 1st edition in 2013.
1) Sensorial examination odour and taste test.
2) For material: PP - Overall Migration test.
3) For material: PP - Color migration.
4) For material: PP - Soluble Heavy Metals.
5) For material: PP - Specific migration of primary aromatic amine (PAA).
6) For material: PP - Total lead and Cadmium content.
7) For material: PP - Total Polynuclear Aromatic Hydrocarbons (PAHs).
8) For material: Stainless steel - Extractable Heavy Metals.
Test Method : Please refer to next page(s).
Test Result : Please refer to next page(s).
Conclusion : When tested as specified, the test results of the submitted sample **do not exceed** the permissible safety limit as specified in German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31, Technical Guide on Metals and Alloys used in food contact materials and articles of the 1st edition in 2013.
Hence, the test results of the submitted sample **do not exceed** The General Requirement (Article 3) in EU Regulation No. 1935/2004.

Issued by:



TÜV NORD (Hangzhou)
Green Product Service Centre
Technical Manager

TÜV NORD (Hangzhou) CO., LTD.

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TEST RESULTS:

1) Sensorial examination odour and taste test

Test method: Robinson's test with reference to DIN 10955:1983 (2004)

Test condition: 100°C 0.5h

Test media: Distilled water

No. of panelist: 6

Test Items	Test Results	Maximum Permissible Limit
Sensorial examination odour (Point scale)	0	2.5
Sensorial examination taste (Point scale)	0	2.5

Scale evaluation:

- 0: No perceptible odour
- 1: Odour just perceptible (still difficult to define)
- 2: Moderate odour
- 3: Moderately strong odour
- 4: Strong odour

2) Overall migration

Test method: With reference to EN1186-1:2002 for selection of conditions and test methods;
EN1186-3:2002 aqueous food simulants by total immersion method;

Simulant used	Test condition	Overall Migration (mg/dm ²)	Maximum permissible Limit (mg/dm ²)
		#1	
Deionized Water	0.5h at 100°C	<3.0	10

3) Color migration

Test method: As per Italian Ministerial Decree 21/3/1973, title II heading I - Articles made of plastic, migration test on the submitted sample was carried out at specified time and temperature and the test solutions were then measured for transmittance between 400nm and 750nm using UV/Vis Spectrophotometer.

Simulant used	Test condition	Test Result (transmittance, %)	Maximum permissible Limit (%)
		#1	
3% Acetic Acid (W/V) Aqueous Solution	0.5h at 100°C	<3	5

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4) Soluble heavy metals

Test method: Sample preparation in 3% Acetic acid at 100°C for 0.5h, followed by analysis using Inductively Coupled Argon Plasma Spectrometer.

Test Items	Test Results (mg/kg)	Maximum Permissible Limit (mg/kg)
	#1	
Soluble Barium	<0.25	1
Soluble Cobalt	<0.01	0.05
Soluble Copper	<0.25	5
Soluble Iron	<0.25	48
Soluble Lithium	<0.5	0.6
Soluble Manganese	<0.25	0.6
Soluble Zinc	<0.5	25

5) Specific Migration of PAA

Test method: Sample preparation with reference to EN 1186-1,-3:2002, followed by analysis with reference to DIN 55610:1986.

Test Item	Test Result (mg/kg)	Maximum Permissible Limit (mg/kg)
	#1	
Specific migration of PAA in 3% acetic acid at 40°C, 30minutes	<0.01	0.01

6) Total lead and Cadmium content

Test Method: Acid digestion, followed by analysis using Inductively Coupled Argon Plasma Spectrometer.

Test Items	Test Results (mg/kg)	Maximum Permissible Limit (mg/kg)
	#1	
Total Lead	<5	40
Total Cadmium	<5	20

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7) Total Polynuclear Aromatic Hydrocarbons(PAHs)

No.	Test Item(s)	CAS No	MDL (mg/kg)	Test Results (mg/kg)
				#1
1	Naphthalene	91-20-3	0.2	N.D.
2	Acenaphthylene	208-96-8	0.2	N.D.
3	Acenaphthene	83-32-9	0.2	N.D.
4	Fluorene	86-73-7	0.2	N.D.
5	Phenanthrene	85-01-8	0.2	N.D.
6	Anthracene	120-12-7	0.2	N.D.
7	Fluoranthene	206-44-0	0.2	N.D.
8	Pyrene	129-00-0	0.2	N.D.
9	Chrysene	218-01-9	0.2	N.D.
10	Benzo[a]anthracene	56-55-3	0.2	N.D.
11	Benzo[b]fluoranthene	205-99-2	0.2	N.D.
12	Benzo[k]fluoranthene	207-08-9	0.2	N.D.
13	Benzo[a]pyrene	50-32-8	0.2	N.D.
14	Indeno[1,2,3-cd]pyren	193-39-5	0.2	N.D.
15	Dibenzo[a,h]anthracene	53-70-3	0.2	N.D.
16	Benzo[g,h,i]perylene	191-24-2	0.2	N.D.
17	Benzo[j]fluoranthene	192-97-2	0.2	N.D.
18	Benzo[e]pyrene	205-82-3	0.2	N.D.
Sum of 18 PAHs		---	---	N.D.

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LIMITS FOR PAH IN PRODUCTS:

Parameter	Category 1	Category 2	Category 3
---	Food contact materials or children under the age of three will be placed in the mouth of the goods and toys	Plastic often and skin contact parts, contact time exceeds 30 seconds components, and toys category 1 not standardized	Plastic occasionally contact parts, namely and skin contact time is less than 30 seconds components, or with no skin contact parts
Benzo[a]pyrene (mg/kg)	Not detectable(<0.2) *	1	20
Sum of 18 PAHs(mg/kg)	Not detectable(<0.2) *	10	200

Remark : * If the limits of Category 1 are surpassed but the limits of Category 2 still met, the confirmation of suitability of contact with foodstuff or the oral mucosa can be verified by an additional specific migration test of the PHAs components according to EN 1186 ff. and § 64 LFGB 80.30-1. The results of the migration test shall be evaluated according to law criteria for foodstuff.

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8) Extractable Heavy Metals

Test Method: Sample prepared with reference to Technical Guide on Metals and Alloys used in food contact materials and articles of the 1st edition in 2013 and by Inductively Coupled Plasma Optical Emission

Spectrometer (ICP-OES) and Graphite Furnace Atomic Absorption Spectrometry (GFAAS) analysis

Test condition: 100°C, 0.5h with Artificial tap water (prepare according DIN 10531 Clause 4.2.2.2)

Test sample No and description: #2 Silvery metal

Extractable Elements	The 1 st Results (mg/kg)	The 2 nd Results (mg/kg)	The 1 st + 2 nd Results (mg/kg)	7*Limit (mg/kg)	The 3rd Results (mg/kg)	Limit (mg/kg)
Silver (Ag)	N.D.	N.D.	N.D.	0.56	N.D.	0.08
Aluminium (Al)	N.D.	N.D.	N.D.	35	N.D.	5
Chromium (Cr)	N.D.	N.D.	N.D.	1.75	N.D.	0.250
Cobalt (Co)	N.D.	N.D.	N.D.	0.14	N.D.	0.02
Copper (Cu)	N.D.	N.D.	N.D.	28	N.D.	4
Iron (Fe)	N.D.	N.D.	N.D.	280	0.02	40
Magnesium (Mg)	N.D.	N.D.	N.D.	---	N.D.	---
Manganese (Mn)	N.D.	N.D.	N.D.	12.6	N.D.	1.8
Molybdenum (Mo)	N.D.	N.D.	N.D.	0.84	N.D.	0.12
Nickel (Ni)	N.D.	N.D.	N.D.	0.98	N.D.	0.14
Tin (Sn)	N.D.	N.D.	N.D.	700	N.D.	100
Titanium (Ti)	N.D.	N.D.	N.D.	---	N.D.	---
Vanadium (V)	N.D.	N.D.	N.D.	0.07	N.D.	0.01
Zinc (Zn)	N.D.	N.D.	N.D.	35	0.02	5
Antimony (Sb)	N.D.	N.D.	N.D.	0.28	N.D.	0.04
Arsenic (As)	N.D.	N.D.	N.D.	0.014	N.D.	0.002
Barium (Ba)	N.D.	N.D.	N.D.	8.4	N.D.	1.2
Beryllium (Be)	N.D.	N.D.	N.D.	0.07	N.D.	0.01
Cadmium (Cd)	N.D.	N.D.	N.D.	0.035	N.D.	0.005
Lead (Pb)	N.D.	N.D.	N.D.	0.07	N.D.	0.010
Lithium (Li)	N.D.	N.D.	N.D.	0.336	N.D.	0.048
Mercury (Hg)	N.D.	N.D.	N.D.	0.021	N.D.	0.003
Thallium (Tl)	N.D.	N.D.	N.D.	0.0007	N.D.	0.0001

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Remark:

1. The following table is the MDL of the Extractable Heavy Metals testing

Extractable Elements	MDL(mg/kg)	Extractable Elements	MDL(mg/kg)	Extractable Elements	MDL(mg/kg)
Silver (Ag)	0.01	Molybdenum (Mo)	0.01	Barium (Ba)	0.01
Aluminium (Al)	0.01	Nickel (Ni)	0.01	Beryllium (Be)	0.01
Chromium (Cr)	0.01	Tin (Sn)	0.01	Cadmium (Cd)	0.001
Cobalt (Co)	0.01	Titanium (Ti)	0.01	Lead (Pb)	0.001
Copper (Cu)	0.01	Vanadium (V)	0.01	Lithium (Li)	0.01
Iron (Fe)	0.01	Zinc (Zn)	0.01	Mercury (Hg)	0.001
Magnesium (Mg)	0.01	Antimony (Sb)	0.01	Thallium (Tl)	0.0001
Manganese (Mn)	0.01	Arsenic (As)	0.001	---	---

2. The submitted sample/component is a repeated use article. The migration test was carried out three times on the same article. The sum of the results of the first and second tests should not exceed seven times the limit (Result 1st test + Result 2nd test < 7* limit) and the Result 3rd should not exceed the limit.

- Note :**
- 1) MDL = Method Detection Limit.
 - 2) N.D. = Not detected, less than MDL.
 - 3) mg/dm² = milligram per square decimeter
 - 4) 1mg/kg = 1ppm = 0.0001%
 - 5) “---” = Not Regulated.
 - 6) Report the third extractive results.

***** To be continued *****

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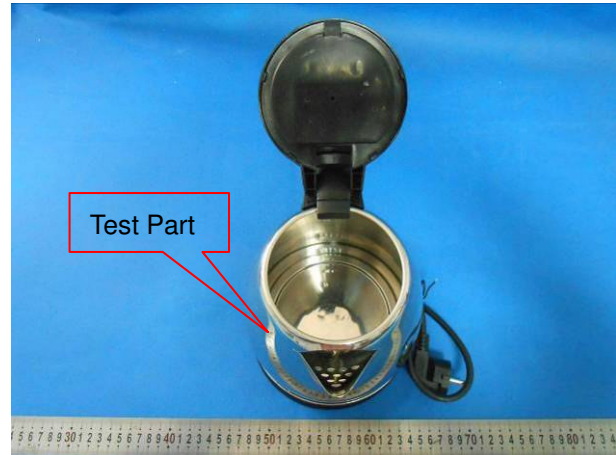
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Test Part(s) Description : 1# Black plastic (PP)
2# Silvery metal (Stainless steel)

SAMPLE PHOTO(S)



1#



2#

PRODUCT PHOTO(S)



***** To be continued *****

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Appendix:

Client Reference Information :

KL1801, KL1802, KL1803, KL1804, KL1805, KL1806, KL1807, KL1808, KL1809, KL1810, KL1811, KL1812, KL1813, KL1814, KL1815, KL1816, KL1817, KL1818, KL1819, KL1820, KL1821, KL1822, KL1823, KL1824, KL1825, KL1826, KL1827, KL1828, KL1829, KL1830, KL1831, KL1832, KL1833, KL1834, KL1835, KL1836, KL1837, KL1838, KL1839, KL1840, KL1841, KL1842, KL1843, KL1844, KL1845, KL1846, KL1847, KL1848, KL1849, KL1850, KL1851, KL1852, KL1853, KL1854, KL1855, KL1856, KL1857, KL1858, KL1859, KL1860, KL1861, KL1862, KL1863, KL1864, KL1865, KL1866, KL1867, KL1868, KL1869, KL1870, KL1871, KL1872, KL1873, KL1874, KL1875, KL1876, KL1877, KL1878, KL1879, KL1880, KL1881, KL1882, KL1883, KL1884, KL1885, KL1886, KL1887, KL1888, KL1889, KL1890, KL1891, KL1892, KL1893, KL1894, KL1895, KL1896, KL1897, KL1898, KL1899, KL1900, KL1901, KL1902, KL1903, KL1904, KL1905, KL1906, KL1907, KL1908

***** END OF REPORT *****

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