



**Technical Report No. 68.435.17.0622.01**  
**Dated 2017-11-28**

Client: Liveon Industrial Co., Ltd

Address: No.46, Yudong 6 Road, the 4th Industrial Estate, Yangdong, Yangjiang, Guangdong, China

Attn.: Mr. David Chen

Sample Description: Damascus chef knife (Quality Damascus Steel Blade, with 67layers)

Model No.: 008705

Sample Received Date: 2017-11-20

Test Period: From 2017-11-20 to 2017-11-23

Test Requested: As specified by client, to test below items as regulated by the German Food & Feed Acts LFGB (§ 30 & 31) and Regulation (EC) No.1935/2004,

1. For material: Metal and Metal alloy
  - Specific Migration of 21 Heavy Metals according to European Directorate for the Quality of Medicines & Healthcare Technical guide PA/PH/EMB (13) 9 and Resolution CM/Res(2013)9
2. Sensory test
  - With reference to DIN 10955

Conclusion: The submitted sample with test part(s) was found to **comply** with the respective requirement(s) for the tested item(s) as stated in the German Food & Feed Acts LFGB (§ 30 & 31) and Regulation (EC) No.1935/2004 (Material in contact with food regulation)

Test Result: Refer to the following page(s)


Remark: --The result relates only to the items tested..

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TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch  
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Tel.: (86) 755 88286998  
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1. TESTED SUBJECT DESCRIPTION

Sample Number	Item Name	Tested Material Description	Photo
001	Knife (SUS)	Silvery metal	



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**2. TEST RESULT**

**2.1 SPECIFIC MIGRATION OF HEAVY METAL CONTENT TEST**

Test method: The sample(s) were extracted with food simulant , followed by analysis using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) and Inductively Coupled Plasma Mass Spectrometry(ICP-MS).

Testing condition and simulant: 0.5 citric acid at 70 °C for 2 hour(s).

No.	Test Item		Result [mg/kg] (3 <sup>rd</sup> migration)	Limit for 3 <sup>rd</sup> migration [mg/kg]
			Sample 001	
1.	Barium	(Ba)	<0.1	1.2
2.	Copper	(Cu)	<0.1	4
3.	Iron	(Fe)	0.4	40
4.	Tin	(Sn)	<0.5	100
5.	Chromium	(Cr)	<0.05	0.250
6.	Manganese	(Mn)	<0.1	1.8
7.	Zinc	(Zn)	< 0.1	5
8.	Aluminum	(Al)	<0.1	5
9.	Lithium	(Li)	<0.005	0.048
10.	Beryllium	(Be)	<0.002	0.01
11.	Vanadium	(V)	< 0.002	0.01
12.	Nickel	(Ni)	<0.05	0.14
13.	Cobalt	(Co)	<0.002	0.02
14.	Arsenic	(As)	<0.0004	0.002
15.	Molybdenum	(Mo)	<0.002	0.12
16.	Silver	(Ag)	<0.002	0.08
17.	Cadmium	(Cd)	<0.0004	0.005
18.	Antimony	(Sb)	<0.005	0.04
19.	Mercury	(Hg)	< 0.0005	0.003
20.	Thallium	(Tl)	< 0.0001	0.0001
21.	Lead	(Pb)	< 0.01	0.010

Note:

- “°C” denotes degree Celsius
- “mg/kg” denotes milligram per kilogram foodstuff
- “<” denotes less than.

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**(Continued)**

Testing condition and simulant: 0.5 citric acid at 70 °C for 2 hour(s).

No.	Test Item		Result [mg/kg] (1 <sup>st</sup> + 2 <sup>nd</sup> Migration)	Limit for 1 <sup>st</sup> +2 <sup>nd</sup> migration [mg/kg]
			Sample 001	
1.	Barium	(Ba)	<0.2	8.4
2.	Copper	(Cu)	<0.2	28
3.	Iron	(Fe)	0.8	280
4.	Tin	(Sn)	<1.0	700
5.	Chromium	(Cr)	<0.1	1.75
6.	Manganese	(Mn)	<0.2	12.6
7.	Zinc	(Zn)	< 0.2	35
8.	Aluminum	(Al)	<0.2	35
9.	Lithium	(Li)	<0.01	0.336
10.	Beryllium	(Be)	< 0.004	0.07
11.	Vanadium	(V)	< 0.004	0.07
12.	Nickel	(Ni)	<0.1	0.98
13.	Cobalt	(Co)	<0.004	0.14
14.	Arsenic	(As)	<0.0008	0.014
15.	Molybdenum	(Mo)	<0.004	0.84
16.	Silver	(Ag)	<0.004	0.56
17.	Cadmium	(Cd)	<0.0008	0.035
18.	Antimony	(Sb)	<0.01	0.28
19.	Mercury	(Hg)	< 0.001	0.021
20.	Thallium	(Tl)	< 0.0002	0.0007
21.	Lead	(Pb)	< 0.02	0.07

Note:

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2.2 SENSORY TEST

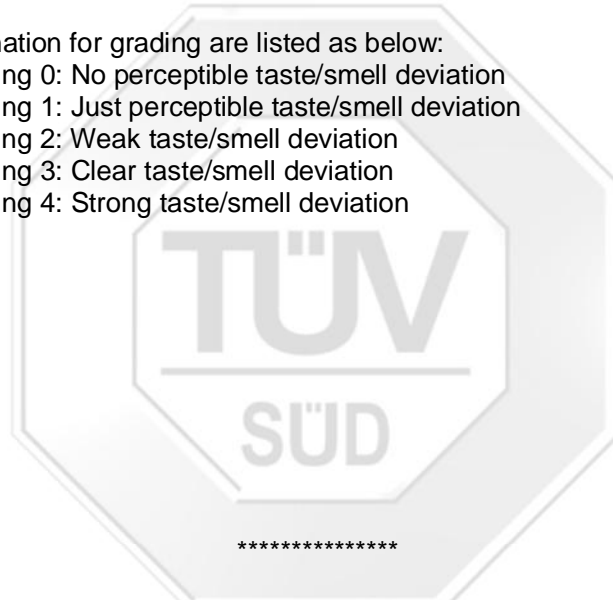
Test method: With reference to DIN 10955: 2004. The submitted sample was treated with food stimulant. After this treatment, treated water was examined by panels with regard to any divergence in smell and taste.

Testing condition and simulant: Distilled water at 70 °C for 2 hour(s)

Test Item	Grading Result	Recommended Level
	Sample 001	
Transfer of Smell	1	< 2.5
Transfer of Taste	1	< 2.5

Note:

- Explanation for grading are listed as below:  
 Grading 0: No perceptible taste/smell deviation  
 Grading 1: Just perceptible taste/smell deviation  
 Grading 2: Weak taste/smell deviation  
 Grading 3: Clear taste/smell deviation  
 Grading 4: Strong taste/smell deviation



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TÜV SÜD Group

Prepared by:

Jason Peng  
Project Handler



Reviewed by:

Vic Wei  
Designated Reviewer

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**APPENDIX:**

Photos of submitted products



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