Test Report

Applicant: OMC CORPORATION LIMITED

Contact information: #7 Zhongke Road, Jiangning District,Nanjing City, 211100 China

The following sample(s) was (were) submitted and identified by client as:

Sample Name	:	Stepper Motor
Model No.	:	17HS19-2004S1
Series Model	:	Nema 6, Nema 8, Nema 11, Nema 14, Nema 16, Nema 17, Nema 23, Nema 24, Nema 34, Nema 42, Nema 52
Trade mark	:	STEPPERONLINE
Sample Received Date	:	Aug. 14, 2020
Testing Period	:	From Aug. 14, 2020 to Aug. 20, 2020
Test Request	:	Please refer to next page(s).
Test Result(s)	:	Please refer to next page(s).

Signed for and on behalf of Shen Zhen UONE Test Co., LTD.

Prepared by	Checked by	Approved by
Marcia Deng	Nora Deng	Levent Liang

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Summary of test results:

TEST REQUEST		CONCLUSION
RoHS Directive 2011/65/EU and its subsequent amendments & Directive (EU) 2015/863		
(1)	To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs) content by screening test and chemical test	**PASS**
(2)	To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test	**PASS**

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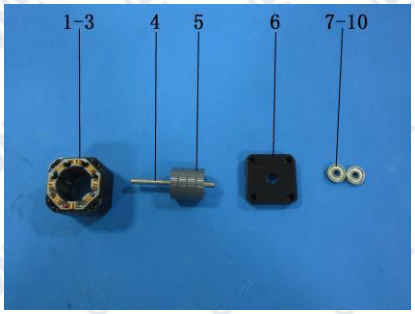
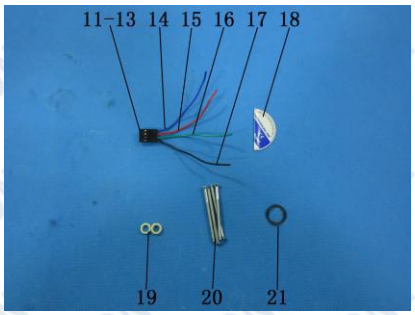
Test Material List

Material No.	Description (Location)	Photo(s) of tested materials
1	Metal (housing) coated with black	
2	Copper metal (coil)	
3	Beige plastic case	
4	Silver metal shaft	
5	Silver metal (magnet)	
6	Metal cover with black coating	
7	Silver metal (bearing)	
8	Silver metal cover	
9	Silver metal (fixed frame)	
10	Silver metal (ball)	
11	Black plastic (terminal case)	
12	Silver metal (pin)	
13	Silver metal (wire)	
14	Blue plastic (cable)	
15	Red plastic (cable)	
16	Green plastic (cable)	
17	Black plastic (cable)	
18	The silver label	
19	White plastic (gasket)	
20	Silver metal (screw)	
21	Black coated metal (gasket)	

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Test Result(s):

(1) Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)

Test Method: IEC62321-3-1: 2013, IEC62321-4: 2013+A1:2017, IEC62321-5: 2013, IEC62321-6: 2015,IEC 62321-7-1:2015, IEC 62321-7-2: 2017, analyzed by EDXRF & ICP-OES & GC-MS & UV-Vis.

No.	EDXRF Result (1)					Chemical Result (2) (mg/kg)	Remark(3)	Conclusion
	Pb	Cd	Hg	Cr	Br			
1	BL	BL	BL	BL	NA	—	—	PASS
2	BL	BL	BL	BL	NA	—	—	PASS
3	BL	BL	BL	BL	BL	—	—	PASS
4	BL	BL	BL	BL	NA	—	—	PASS
5	BL	BL	BL	BL	NA	—	—	PASS
6	BL	BL	BL	BL	NA	—	—	PASS
7	BL	BL	BL	BL	NA	—	—	PASS
8	BL	BL	BL	BL	NA	—	—	PASS
9	BL	BL	BL	BL	NA	—	—	PASS
10	BL	BL	BL	BL	NA	—	—	PASS
11	BL	BL	BL	BL	BL	—	—	PASS
12	BL	BL	BL	BL	NA	—	—	PASS
13	BL	BL	BL	BL	NA	—	—	PASS
14	BL	BL	BL	BL	BL	—	—	PASS
15	BL	BL	BL	BL	BL	—	—	PASS
16	BL	BL	BL	BL	BL	—	—	PASS
17	BL	BL	BL	BL	BL	—	—	PASS
18	BL	BL	BL	BL	BL	—	—	PASS
19	BL	BL	BL	BL	BL	—	—	PASS
20	BL	BL	BL	BL	NA	—	—	PASS
21	BL	BL	BL	BL	NA	—	—	PASS

Remark:

(1) ①Results are obtained by EDXRF for primary screening, and further wet chemical testing by ICP-OES (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if an inconclusive result was found (as "X" in below table) (unit: mg/kg).

②OL = Over Limit, BL = Below Limit, X = Inconclusive, NA = Not Applicable.

③The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

Element	Polymer	Metal	Composite Materials
Cd	BL ≤(70-3σ)< X <(130+3σ)≤ OL	BL ≤(70-3σ)< X <(130+3σ)≤ OL	LOD < X <(150+3σ)≤ OL
Pb	BL ≤(700-3σ)< X <(1300+3σ)≤ OL	BL ≤(700-3σ)< X <(1300+3σ)≤ OL	BL ≤(500-3σ)< X <(1500+3σ)≤ OL
Hg	BL ≤(700-3σ)< X <(1300+3σ)≤ OL	BL ≤(700-3σ)< X <(1300+3σ)≤ OL	BL ≤(500-3σ)< X <(1500+3σ)≤ OL
Br	BL ≤ (300-3σ)< X	NA	BL ≤ (250-3σ)< X
Cr	BL ≤ (700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< X

Units and limits in EU RoHS Directive 2011/65/EU:

Element	Pb	Cd	Hg	Cr(VI)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit	1000	100	1000	1000	1000	1000

(2) ① mg/kg = ppm = 0.0001%, N.D. = Not Detected (Less than RL).

②Unit and RL (Report limit) in wet chemical test.

Element	Pb	Cd	Hg	Cr(VI)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RL	2	2	2	2	5	5

③According to IEC 62321-7-1:2015, result on Cr(VI) for metal sample is shown as Positive/Negative.
Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating.
Storage condition and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

④ According to IEC 62321-3-1:2013, this column represents the results of wet chem test.

(3) This column represents the exempted decoration of material or other related testing sample's information.

(2) Phthalates (DBP, BBP, DEHP, DIBP) content

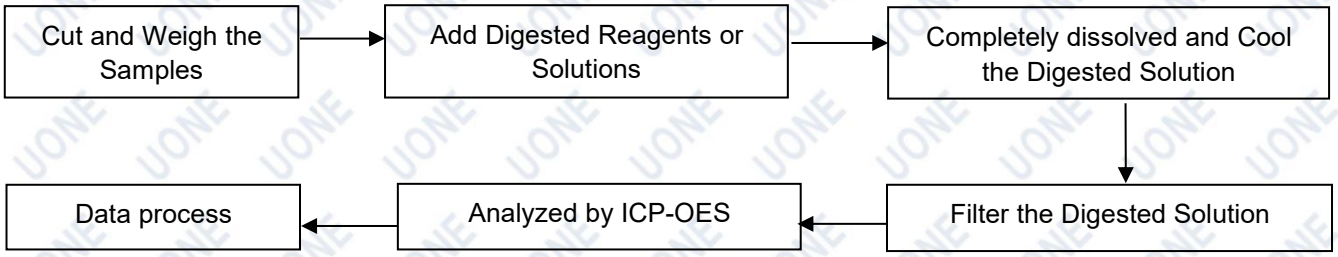
Test Method: IEC 62321-8: 2017, analyzed by gas chromatographic- mass spectrometer (GC-MS).

Substances	DBP	BBP	DEHP	DIBP	Conclusion
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	
Limit (mg/kg)	1000	1000	1000	1000	
RL (mg/kg)	30	30	30	30	
Material No.	Result (mg/kg)				
3	N.D.	N.D.	N.D.	N.D.	PASS
11	N.D.	N.D.	N.D.	N.D.	PASS
14	N.D.	N.D.	N.D.	N.D.	PASS
15	N.D.	N.D.	N.D.	N.D.	PASS
16	N.D.	N.D.	N.D.	N.D.	PASS
17	N.D.	N.D.	N.D.	N.D.	PASS
18	N.D.	N.D.	N.D.	N.D.	PASS
19	N.D.	N.D.	N.D.	N.D.	PASS

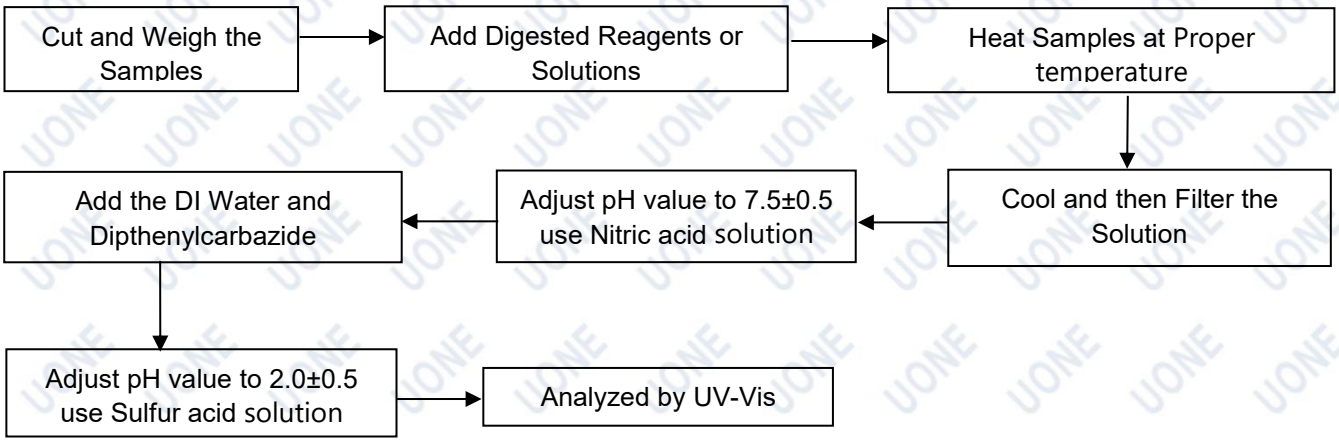
Note:
1. mg/kg = milligram per kilogram (ppm).
2. RL = report limit.
3. N.D.=not detected(less than RL).

Test Process Flow

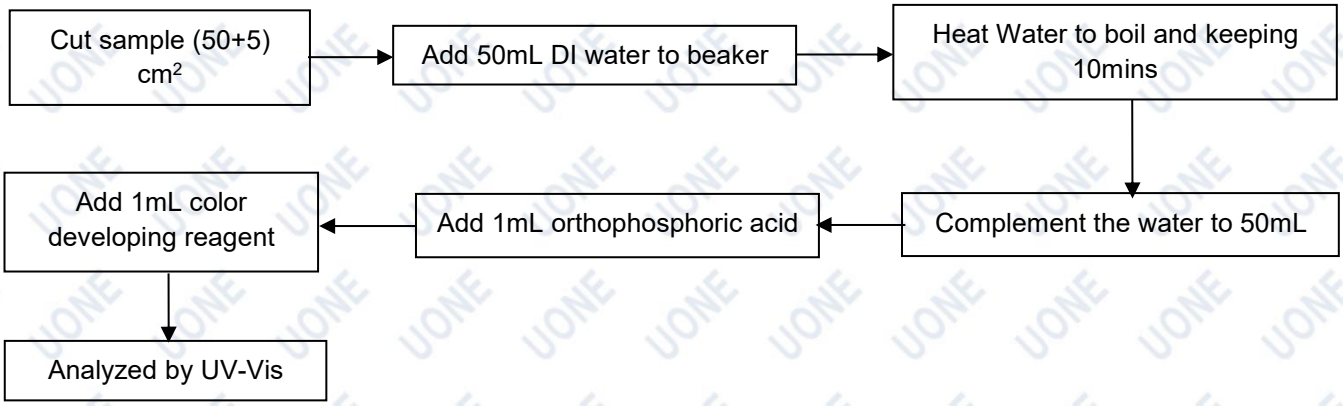
1. Lead, Cadmium, Mercury



2. Hexavalent Chromium (Non-metal)



Hexavalent Chromium (Metal)



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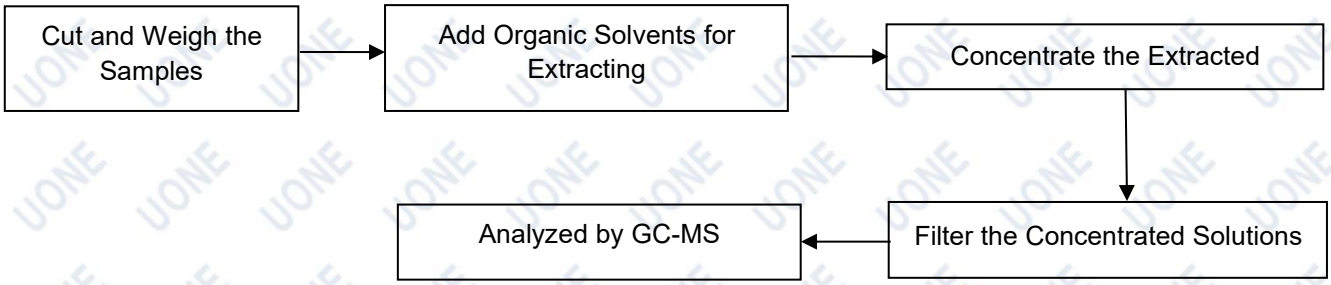
Test Process Flow (Continued):

3. PBBs & PBDEs, Phthalates



Remark: This report replaces the report whose report No. is U01605200814606E. The original report No. is U01605200814606E will be automatically nullified on the date of issuance of this report.

Photo(s) of Sample:

End of Report