



**Applicant** : SHANGHAI TOP MOTOR CO., LTD.

**Address** : NO.303 KANGLIU ROAD KANGQIAO INDUSTRIAL  
ARER,PUDONG, SHANGHAI, P.R. OF CHINA

**Sample Name** : MOTOR

**Trade Name** : N/A

**Date of sample received** : Aug. 01, 2016

**Testing Period** : Aug. 01, 2016 to Aug. 05, 2016

**Test Requested** : Selected test(s) as requested by applicant.

**Test Results** : Refer to next pages

**Conclusion** : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of  
Acquire Truth Co., Ltd.

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Steven Gwok/Approved signatory



**Tested Parts Description**

Sample ID	Part Name	Description
01	Housing	Aluminum
02	Black coating of housing	Black paint
03	Grey coating of housing	Grey paint
04	Terminal board	Blue plastic
05	Screw	Silvery metal
06	Fan	White plastic
07	Enameled wire	Copper wire with golden coating
08	Nonwoven cloth	White fabric
09	Cable tie	White plastic
10	Shaft	Steel
11	Fiberglass sleeve	White sleeve
12	Cable strain relief bushing	Black plastic
13	Insulation paper	Green paper
14	Lead wire (see the details in the following from 14.1 to 14.4)	
14.1	Blue sheath	Blue plastic
14.2	Red sheath	Red plastic
14.3	Yellow sheath	Yellow plastic
14.4	Copper wire	Copper
15	Collar of shaft	Black plastic
16	Spring of shaft	Silvery metal

## Remarks:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) "-" = Not regulated
- (3) N/D = Not Detected (<MDL)
- (4) MDL = Method Detection Limit

**RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU**

## Test Method :

- (1) With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
- (2) With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
- (3) With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
- (4) With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
- (5) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.
- (6) With reference to EN 14372:2004, determination of phthalates by GC-MS.

**Test Results**

Test items	Unit	01	02	03	04	05	06	MDL	Limit
Cadmium (Cd)	mg/kg	N/D	6	11	N/D	3	N/D	2	100
Lead (Pb)	mg/kg	N/D	326	253	N/D	16	N/D	2	1000
Mercury (Hg)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	1000
Hexavalent Chromium (CrVI)	mg/kg	Negative	N/D	N/D	N/D	Negative	N/D	2	1000
Sum of PBBs	mg/kg								1000
Monobromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Dibromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Tribromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Tetrabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Pentabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Hexabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Heptabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Octabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Nonabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Decabromobiphenyl	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Sum of PBDEs	mg/kg								1000
Monobromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Dibromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Tribromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Tetrabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Pentabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Hexabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Heptabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Octabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Nonabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Decabromobiphenyl ether	mg/kg	—	N/D	N/D	N/D	—	N/D	5	
Di-butyl Phthalate (DBP)	mg/kg	—	N/D	N/D	N/D	—	N/D	30	1000
Benzyl Butyl Phthalate (BBP)	mg/kg	—	N/D	N/D	N/D	—	N/D	30	1000
Di-2-Ethyl Hexyl Phthalate (DEHP)	mg/kg	—	N/D	N/D	N/D	—	N/D	30	1000
Diisobutyl Phthalates (DIBP)	mg/kg	—	N/D	N/D	N/D	—	N/D	30	1000

\*\*\* Cont'd \*\*\*

**Test Results**

Test items	Unit	07	08	09	10	11	12	MDL	Limit
Cadmium (Cd)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	100
Lead (Pb)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	1000
Mercury (Hg)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	1000
Hexavalent Chromium (CrVI)	mg/kg	Negative	N/D	N/D	Negative	N/D	N/D	2	1000
Sum of PBBs	mg/kg								1000
Monobromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Dibromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Tribromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Tetrabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Pentabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Hexabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Heptabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Octabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Nonabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Decabromobiphenyl	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Sum of PBDEs	mg/kg								1000
Monobromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Dibromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Tribromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Tetrabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Pentabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Hexabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Heptabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Octabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Nonabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Decabromobiphenyl ether	mg/kg	N/D	N/D	N/D	—	N/D	N/D	5	
Di-butyl Phthalate (DBP)	mg/kg	N/D	N/D	N/D	—	N/D	N/D	30	1000
Benzyl Butyl Phthalate (BBP)	mg/kg	N/D	N/D	N/D	—	N/D	N/D	30	1000
Di-2-Ethyl Hexyl Phthalate (DEHP)	mg/kg	N/D	N/D	N/D	—	N/D	N/D	30	1000
Diisobutyl Phthalates (DIBP)	mg/kg	N/D	N/D	N/D	—	N/D	N/D	30	1000

\*\*\* Cont'd \*\*\*

**Test Results**

Test items	Unit	13	14.1	14.2	14.3	14.4	15	MDL	Limit
Cadmium (Cd)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	100
Lead (Pb)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	1000
Mercury (Hg)	mg/kg	N/D	N/D	N/D	N/D	N/D	N/D	2	1000
Hexavalent Chromium (CrVI)	mg/kg	N/D	N/D	N/D	N/D	Negative	N/D	2	1000
Sum of PBBs	mg/kg								1000
Monobromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Dibromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Tribromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Tetrabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Pentabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Hexabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Heptabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Octabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Nonabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Decabromobiphenyl	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Sum of PBDEs	mg/kg								1000
Monobromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Dibromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Tribromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Tetrabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Pentabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Hexabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Heptabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Octabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Nonabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Decabromobiphenyl ether	mg/kg	N/D	N/D	N/D	N/D	—	N/D	5	
Di-butyl Phthalate (DBP)	mg/kg	N/D	N/D	N/D	N/D	—	N/D	30	1000
Benzyl Butyl Phthalate (BBP)	mg/kg	N/D	N/D	N/D	N/D	—	N/D	30	1000
Di-2-Ethyl Hexyl Phthalate (DEHP)	mg/kg	N/D	N/D	N/D	N/D	—	N/D	30	1000
Diisobutyl Phthalates (DIBP)	mg/kg	N/D	N/D	N/D	N/D	—	N/D	30	1000

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**Test Results**

Test items	Unit	16	MDL	Limit
Cadmium (Cd)	mg/kg	N/D	2	100
Lead (Pb)	mg/kg	N/D	2	1000
Mercury (Hg)	mg/kg	N/D	2	1000
Hexavalent Chromium (CrVI)	mg/kg	Negative	2	1000
Sum of PBBs	mg/kg			1000
Monobromobiphenyl	mg/kg	—	5	
Dibromobiphenyl	mg/kg	—	5	
Tribromobiphenyl	mg/kg	—	5	
Tetrabromobiphenyl	mg/kg	—	5	
Pentabromobiphenyl	mg/kg	—	5	
Hexabromobiphenyl	mg/kg	—	5	
Heptabromobiphenyl	mg/kg	—	5	
Octabromobiphenyl	mg/kg	—	5	
Nonabromobiphenyl	mg/kg	—	5	
Decabromobiphenyl	mg/kg	—	5	
Sum of PBDEs	mg/kg			1000
Monobromobiphenyl ether	mg/kg	—	5	
Dibromobiphenyl ether	mg/kg	—	5	
Tribromobiphenyl ether	mg/kg	—	5	
Tetrabromobiphenyl ether	mg/kg	—	5	
Pentabromobiphenyl ether	mg/kg	—	5	
Hexabromobiphenyl ether	mg/kg	—	5	
Heptabromobiphenyl ether	mg/kg	—	5	
Octabromobiphenyl ether	mg/kg	—	5	
Nonabromobiphenyl ether	mg/kg	—	5	
Decabromobiphenyl ether	mg/kg	—	5	
Di-butyl Phthalate (DBP)	mg/kg	—	30	1000
Benzyl Butyl Phthalate (BBP)	mg/kg	—	30	1000
Di-2-Ethyl Hexyl Phthalate (DEHP)	mg/kg	—	30	1000
Diisobutyl Phthalates (DIBP)	mg/kg	—	30	1000

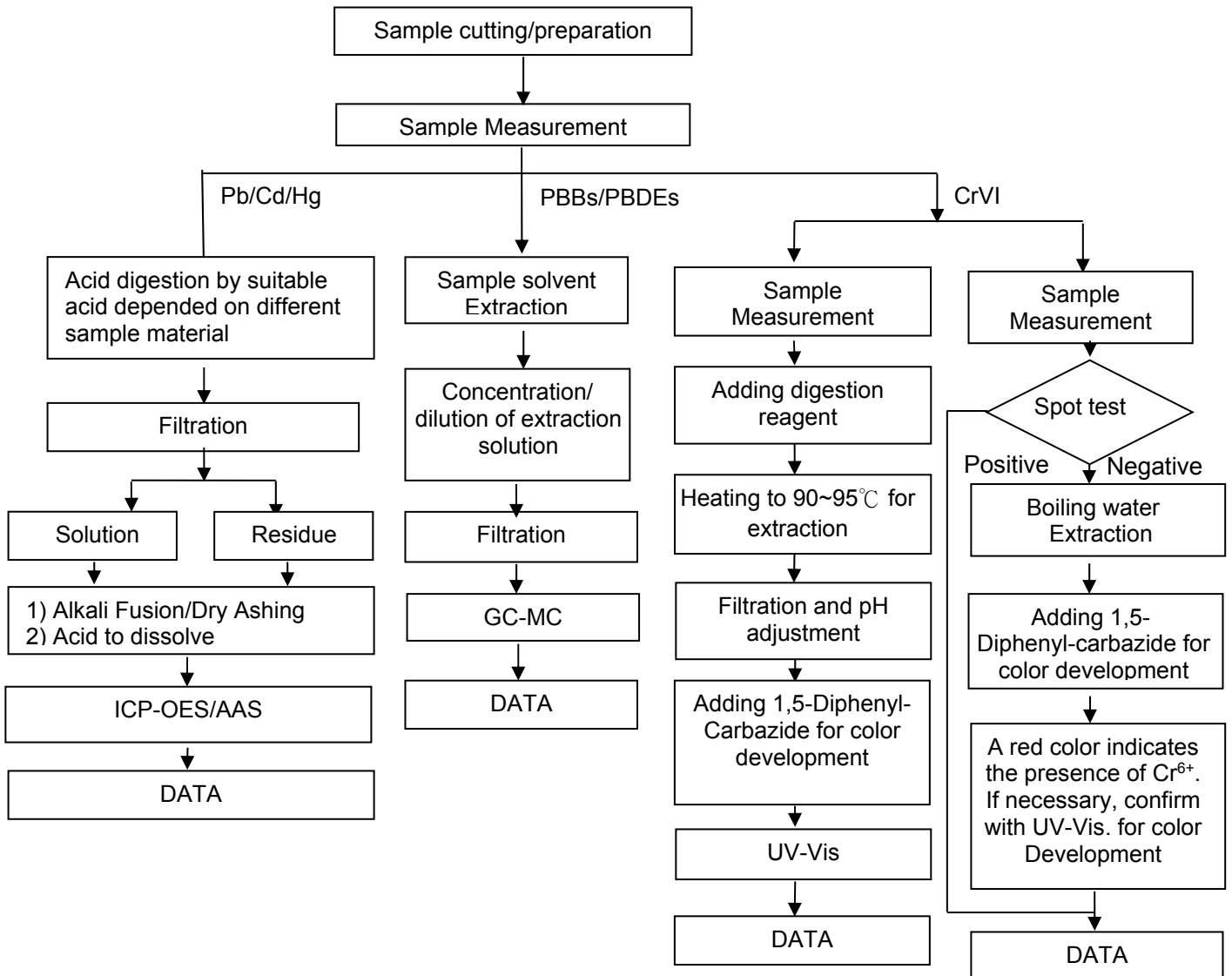
## Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2) It is marked as positive, when the CrVI concentration detected in the boiling water extraction solution is equal to or greater than 0.02mg/kg. Otherwise, it is marked as negative.



**Test Flow Chart for Pb/Cd/Hg/PBBs/PBDEs/CrVI**

- 1) Name of the person who made testing: Mary Luo
- 2) Name of the person in charge of testing: Xiao Liu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (CrVI and PBBs/PBDEs test method excluded).



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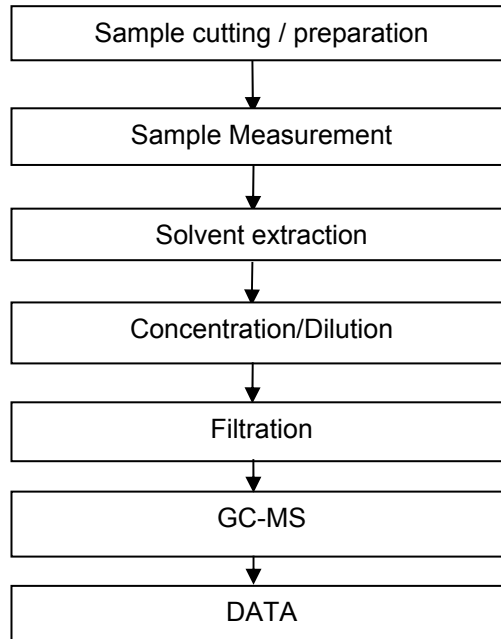
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**Test Flow Chart for Phthalates**

- 1) Name of the person who made testing: Mary Luo
- 2) Name of the person in charge of testing: Xiao Liu







**Sample Photo**



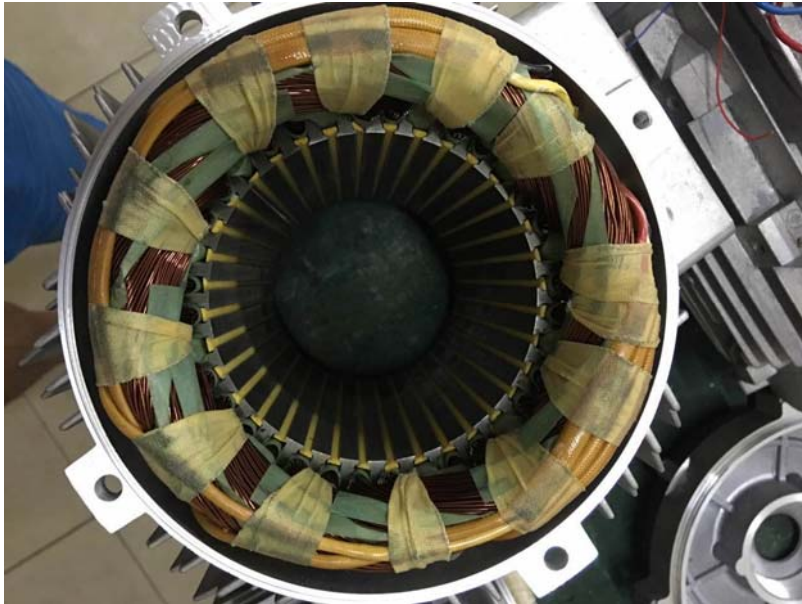
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Sample Photo



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Sample Photo



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