





**Test Report No.** 4600621 Date : 19-May-2020

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Client: Giantlok (Thailand) Co.,Ltd.

262/10 Moo3, T. Bowin

Sriracha Chonburi 20230 Thailand

The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Name : CABLE TIES
Sample Description : CABLE TIES
Part No. : PA66 (Natural)

Manufacturer/Vendor : ASCEND PERFORMANCE MATERIALS LLC

Country of Origin : USA

The following sample(s) was/were identified by SGS as:

SGS Sample No. : 4772581

Sample Condition : Sample is contained in a plastic bag.

Quantity Submitted : 1 bag

Sample Receiving Date : 13-May-2020

Testing Period : 13-May-2020 to 19-May-2020

Test Requested : In accordance with the RoHS Directive 2011/65/EU (Annex II) [amended by Directive

(EU) 2015/863] .Selected test (s) as requested by client.

Test Method : (1) IEC 62321-5 edition 1.0 : 2013 for Lead content, Analyzed by ICP-OES.

Microwave digestion method

(2) IEC 62321-5 edition 1.0: 2013 for Cadmium content, Analyzed by ICP-OES.

Microwave digestion method

(3) IEC 62321-4 ,edition 1.1: 2017 for Mercury Content, Analyzed by ICP-OES.

Microwave digestion method

(4) IEC 62321-7-2 edition 1.0 : 2017, determination of Hexavalent Chromium For

Insoluble polymer by Colorimetric Method using UV-Vis.and/or with reference to

IEC 62321-5:2013, determination of Chromium by ICP-OES.

(5) IEC 62321-6 edition 1.0: 2015 for PBBs/PBDEs content, Analyzed by GC/MS.

(6) IEC 62321-8 edition 1.0: 2017 for Phthalates content, Analyzed was performed

by GC/MS.

Test Results : Please refer to next page.

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CONCLUSION

Based on the performed tests on submitted sample(s), the results of Cadmium (Cd), Lead (Pb), Mercury (Hg), Hexavalent chromium (Cr-VI), 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 SGS (Thailand) Limited

Patchavee T.

**Patcharee Treeporncharoen Laboratory manager - Chemical** 

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**TEST RESULTS** 

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Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result (1)	MDL	RoHS Limit
Lead (Pb)	(1)	n.d.	2	1000
Cadmium (Cd)	(2)	n.d.	2	100
Mercury (Hg)	(3)	n.d.	2	1000
Hexavalent Chromium (Cr(VI))	(4)	n.d.	8	1000

Test Part Description Result (1) white plastic

## Note:

(a) mg/kg = ppm; 0.1wt% = 1000 ppm

(b) n.d. = Not Detected (<MDL)

(c) MDL = Method Detection Limit

(d) Test done on client submitted sample

- (e) The result of Hexavalent Chromium (Cr(VI)) is "ND" as the result of Chromium (Cr) is "ND", and confirmation test of Hexavalent Chromium (Cr(VI)) is not required.
- (f) If the Chromium (Cr) content is greater than the MDL of Hexavalent Chromium (Cr(VI)), confirmation test of Hexavalent Chromium (Cr(VI)) is required.

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Test results by chemical method	(Unit: mg/kg)			
Test Item (s):	Method (Refer to)	Result (1)	MDL	RoHS Limit
Sum of PBBs	(5)	n.d.	-	1000
Monobromobiphenyl		n.d.	5	-
Dibromobiphenyl		n.d.	5	-
Tribromobiphenyl		n.d.	5	-
Tetrabromobiphenyl		n.d.	5	-
Pentabromobiphenyl		n.d.	5	-
Hexabromobiphenyl		n.d.	5	-
Heptabromobiphenyl		n.d.	5	-
Octabromobiphenyl		n.d.	5	-
Nonabromobiphenyl		n.d.	5	-
Decabromobiphenyl		n.d.	5	-

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**TEST RESULTS** 

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result (1)	MDL	RoHS Limit
Sum of PBDEs	(5)	n.d.	-	1000
Monobromodiphenyl ether		n.d.	5	-
Dibromodiphenyl ether		n.d.	5	-
Tribromodiphenyl ether		n.d.	5	-
Tetrabromodiphenyl ether		n.d.	5	-
Pentabromodiphenyl ether		n.d.	5	-
Hexabromodiphenyl ether		n.d.	5	-
Heptabromodiphenyl ether		n.d.	5	-
Octabromodiphenyl ether		n.d.	5	-
Nonabromodiphenyl ether		n.d.	5	-
Decabromodiphenyl ether		n.d.	5	-

**Test Part Description** Result (1) white plastic

(a) mg/kg = ppm; 0.1 wt% = 1000 ppm

(b) n.d. = Not Detected

(c) MDL = Method Detection Limit

(d) "-" = Not regulated

(e) Test done on client submitted sample

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**TEST RESULTS** 

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Date: 19-May-2020

Phthalates Content for RoHS Directive 2011/65/EU Annex II [amended by Directive (EU) 2015/863], Analysis was performed by GC/MS.

performed by contro.				
Test item (s) :	Method (Refer to 6)	Result (1) (mg/kg)	MDL	RoHS Limit (mg/kg)
DEHP (Di-2-ethylhexyl phthalate) (CAS No.: 117-81-7)	IEC 62321-8 , Edition 1.0 , 2017	n.d.	50	1000
BBP (Benzyl butyl phthalate) (CAS No.: 85-68-7)	IEC 62321-8 , Edition 1.0 , 2017	n.d.	50	1000
DBP (Di-butyl phthalate) (CAS No.: 84-74-2)	IEC 62321-8 , Edition 1.0 , 2017	n.d.	50	1000
DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	IEC 62321-8 , Edition 1.0 , 2017	n.d.	50	1000

Note

(a) mg/kg = ppm; 0.1 wt% = 1000 ppm

(b) n.d. = Not Detected

(c) MDL = Method Detection Limit

(d) Result (1) white plastic

(e) Test done on client submitted sample

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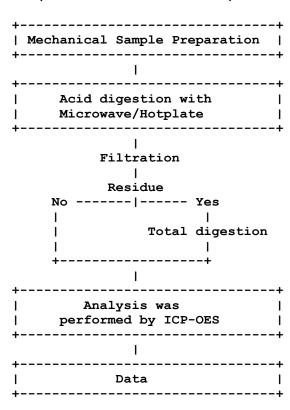
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Flow chart of Pb,Cd,Hg Testing

(Test method : IEC 62321)



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Flow chart of Hexavalent Chromium Testing

(Test method : IEC 62321)

+
Insoluble polymer
Adding extraction solution
Heating to 150-160 degree C   For Extraction
Filtration aqueous phase   and pH adjustment
l
Adding 1,5-diphenylcarbazide   for color development
Analysis was   performed by UV-Vis
Data
T

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Flow chart of PBBs, PBDEs Testing

(Test method : IEC 62321)

Sample pretreatment/separation
Sample solvent extraction   by Toluene
Concentrate/Dilution of   extracted solution
Filtration
Analysis was   performed by GC/MS
Data
T

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Flow chart of Phthalates Testing
(Test method : IEC 62321)
+  Sample pretreatment/separation
+
Sample dissolved/extraction   by Hexane
Dilution   extracted solution
Analysis was   performed by GC/MS
Data

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## SAMPLE/ATTACHMENT PICTURE



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