

Test Report No.	4157445	Date : 18-Feb-2019	Page 1 of 11		
Client : Double A (1991) PCL. 1 Moo 2, Tambol Thatoom, Amphur Srimahaphote, Prachinburi 25140 Thailand					
The following sample(s)	vas/were submitted and identified by/on b	ehalf of the client as:			
Sample Name Sample Description Manufacturer/Vendor Country of Origin	 aA copy Paper Double A (1991) PCL. Thailand 				
SGS Sample No.	 vas/were identified by SGS as: 4299136 Sample is contained in a plastic bag. 1 pack 				
Sample Receiving Date Testing Period	: 12-Feb-2019 : 12-Feb-2019 to 18-Feb-2019				
Test Requested	: In accordance with the RoHS Directive (EU) 2015/863] .Selected test (s) as re		y Directive		
Test Method	 (1) IEC 62321-5 edition 1.0 : 2013 for Microwave digestion method (2) IEC 62321-5 edition 1.0 : 2013 for Microwave digestion method (3) IEC 62321-4 ,edition 1.1 : 2017 for Microwave digestion method (4) IEC 62321-7-2 edition 1.0 : 2017, Insoluble polymer by Colorimetric IEC 62321-5:2013,determination 6 (5) IEC 62321-6 edition 1.0 : 2015 for (6) IEC 62321-8 edition 1.0 : 2017 for by GC/MS. 	r Cadmium content, Analyzed by ICP or Mercury content,Analyzed by ICP-C determination of Hexavalent Chromiu Method using UV-Vis.and/or with ref of Chromium by ICP-OES. r PBBs/PBDEs content, Analyzed by	P-OES. DES. um For Ference to 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, Lead, Mercury, 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) to be in compliance 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

Patcharee Treeporncharoen Laboratory manager - Chemical

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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 paper

Note :

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(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 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 paper

Note :

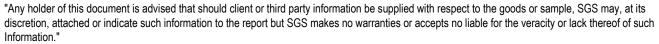
(a) mg/kg = ppm; 0.1 wt% = 1000 ppm

(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

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

Analysis	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 paper

(e) Test done on client submitted sample

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Flow ch	art of Pb,Cd,Hg Testing		
(Tes	t method : IEC 62321)		
+	nical Sample Preparation	+	
+	I	• •	
Acid	digestion with wave/Hotplate	+ 	
+ No I I	 Filtration Residue Yes Total digestion 	+	
+	÷ I	+	
 pe	Analysis was rformed by ICP-OES	' 	
+	l	т	
+	Data	I	
+		+	

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Flow c	hart of Hexavalent Chromium	Testing
	(Test method : IEC 62321)	
l I	Insoluble polymer	l I
	I	
	Adding extraction solution	
+-	I	
l I	Heating to 150-160 degree C For Extraction	
	I	
	Filtration aqueous phase and pH adjustment	
	l	
I I	Adding 1,5-diphenylcarbazide for color development	· • •
·		•
+-	Analysis was performed by UV-Vis	+
+-	I	·
+-	Data	l.

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Test Report No. 4157445	Da
Flow chart of PBBs,PBDEs Testing	
(Test method : IEC 62321)	
Sample pretreatment/separation	
· · · · · · · · · · · · · · · · · · ·	
Sample solvent extraction by Toluene	
++ l ++	
Concentrate/Dilution of extracted solution	
++ 	
FFiltration	
++ I	
Analysis was Performed by GC/MS	
++ I ++	
++ Data ++	

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Flow	chart of Phthalates Testing	
•	Test method : IEC 62321)	
•	mple pretreatment/separation	

| by Hexane

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Т +-----Sample dissolved/extraction

_____ Dilution

+-----+ Data

-----+

extracted solution

Analysis was

performed by GC/MS

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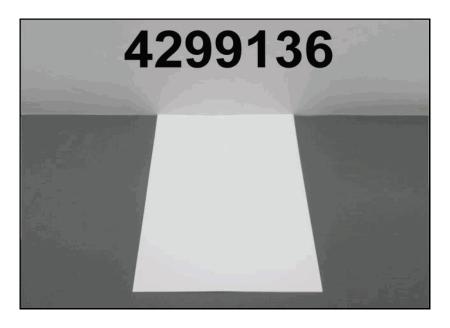


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SAMPLE/ATTACHMENT PICTURE



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