

CONG TY TNHH SAN XUAT VA THUONG MAI DULICO

LO A2, CN7, CUM CONG NGHIEP TU LIEM, PHUONG PHUONG CANH, QUAN NAM TU LIEM, THANH PHO HA NOI, VIET NAM.

The following sample was submitted and identified on behalf of the client as below:

SGS Job No. : VNHL2101001103EE
Sample Description : BRASS STRIP C2680
Characteristic : C2680
Style / Item No. : 01-01-2021
Country of Origin : VIET NAM
Manufacturer : DULICO MANUFACTURING CO., LTD
Sample Receiving Date : JANUARY 18, 2021
Final confirmed Date : JANUARY 18, 2021
Testing Period : JANUARY 18, 2021 TO JANUARY 25, 2021
Test Requested : PLEASE REFER TO THE RESULT SUMMARY
Test Results : PLEASE REFER TO NEXT PAGE(S).
Result Summary :

Test Requested	Result (s)
RoHS Directive 2011/65/EU Annex II [amended by Directive (EU) 2015/863] (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))	Pass

Signed for and on behalf of

SGS Vietnam LTD

To Ka Wing

Chemical Lab Manager

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Test Report

No. VNHL2101001103EE

Date: January 25, 2021

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Test results:

Test Part Description:

Component No.	Description	Material	Color
1	GOLD METAL (BRASS STRIP C2680)	METAL	GOLD

RoHS Directive 2011/65/EU Annex II [amended by Directive (EU) 2015/863]

Test Item(s):	Unit	Test Method	Results	MDL	Limit	
			1			
Cadmium (Cd)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Cd by ICP-OES)	ND	2	100	
Lead (Pb)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Pb by ICP-OES)	82	2	1000	
Mercury (Hg)	mg/kg	With reference to IEC 62321-5:2013 (Determination of Hg by ICP-OES)	ND	2	1000	
Hexavalent Chromium (CrVI) #	µg/cm ²	With reference to IEC 62321-7-1:2015 (Determination of CrVI by UV-VIS)	ND	0.10	-	
Sum of PBBs	mg/kg	With reference to IEC 62321-6:2015 (Determination of PBB by GC-MS)	ND	-	1000	
Monobromobiphenyl	mg/kg		ND	5	-	
Dibromobiphenyl	mg/kg		ND	5	-	
Tribromobiphenyl	mg/kg		ND	5	-	
Tetrabromobiphenyl	mg/kg		ND	5	-	
Hexabromobiphenyl	mg/kg		ND	5	-	
Pentabromobiphenyl	mg/kg		ND	5	-	
Heptabromobiphenyl	mg/kg		ND	5	-	
Octabromobiphenyl	mg/kg		ND	5	-	
Nonabromobiphenyl	mg/kg		ND	5	-	
Decabromobiphenyl	mg/kg		ND	5	-	
Sum of PBDEs	mg/kg		With reference to IEC 62321-6:2015 (Determination of PBDE by GC-MS)	ND	-	1000
Monobromodiphenyl ether	mg/kg			ND	5	-
Dibromodiphenyl ether	mg/kg	ND		5	-	
Tribromodiphenyl ether	mg/kg	ND		5	-	
Tetrabromodiphenyl ether	mg/kg	ND		5	-	
Pentabromodiphenyl ether	mg/kg	ND		5	-	
Hexabromodiphenyl ether	mg/kg	ND		5	-	
Heptabromodiphenyl ether	mg/kg	ND		5	-	
Octabromodiphenyl ether	mg/kg	ND		5	-	
Nonabromodiphenyl ether	mg/kg	ND		5	-	
Decabromodiphenyl ether	mg/kg	ND	5	-		
Bis (2-ethylhexyl) phthalate (DEHP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of DEHP by GC-MS)	ND	50	1000	
Butyl benzyl phthalate (BBP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of BBP by GC-MS)	ND	50	1000	
Dibutyl phthalate (DBP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of DBP by GC-MS)	ND	50	1000	
Diisobutyl phthalate (DIBP)	mg/kg	With reference to IEC 62321-8:2017 (Determination of DIBP by GC-MS)	ND	50	1000	

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Note:

1. mg/kg = ppm; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. ND = Not detected
4. # =
 - a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$.
The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is n.d. (concentration less than 0.10 $\mu\text{g}/\text{cm}^2$).
The coating is considered a non-CrVI based coating
 - c. The result between 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$ is considered to be inconclusive –
unavoidable coating variations may influence the determination
5. - = not regulated
6. IEC 62321 is equivalent to EN 62321
http://www.cenelec.eu/dyn/www/f?p=104:110:721668440899381:::FSP_PROJECT,FSP_LANG_ID:20662,25.
7. The above test(s) was / were accredited ISO 17025:2005 by VILAS
The above test(s) was / were performed by SGS VN's Chemical lab.

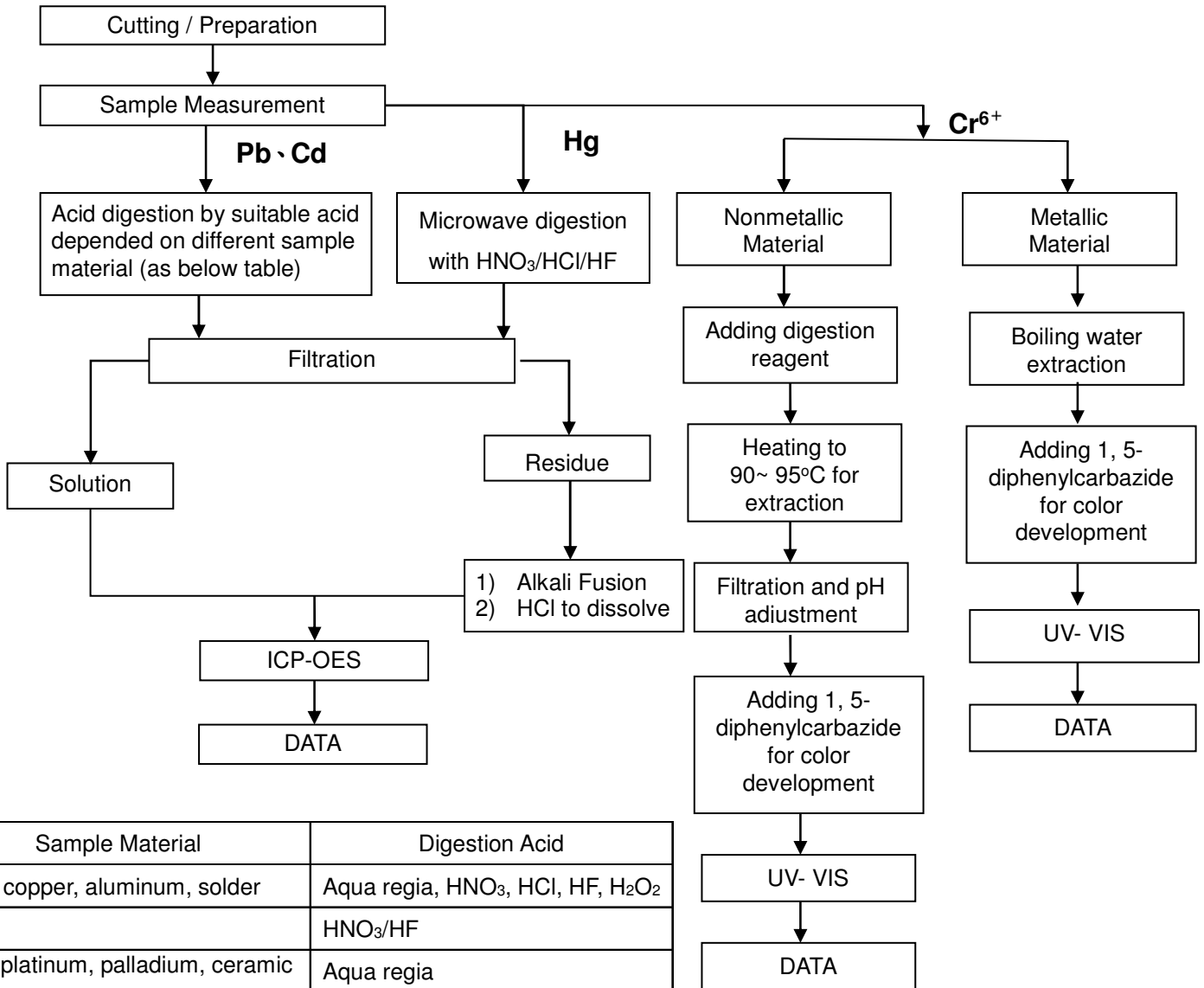
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Flow Chart for RoHS: Pb/Cd/Hg/Cr⁶⁺ Testing

The samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

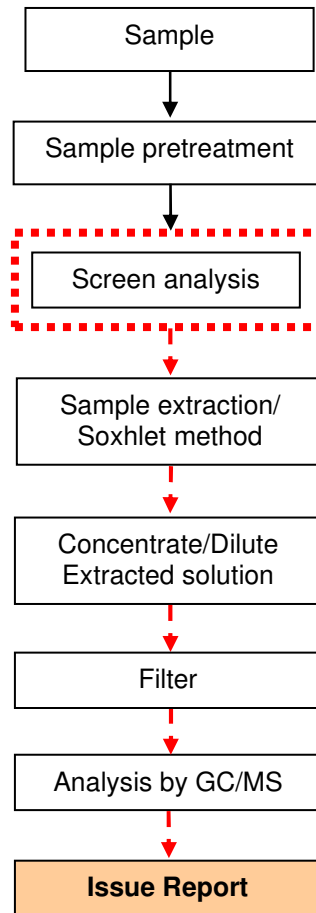
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PBB/PBDE analytical FLOW CHART

First testing process →
 Optional screen process
 Confirmation process - ->



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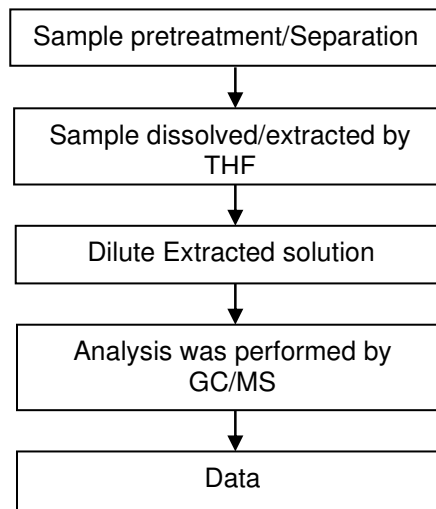
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Analytical flow chart of phthalate content

Test method: IEC 62321-8:2017

First testing process →
Optional screen process
Confirmation process -▶



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PHOTO OF SUBMITTED SAMPLE FOR TESTING



REPORT RESULTS REFER TO SUBMITTED SAMPLE (S) ONLY
End of Report

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