



# Test Report

No.: ETR21602387M02

Date: 28-Jun-2021

Page: 1 of 25

NANTONG HORNBY ELECTRONIC CO.,LTD  
SMARTENGRAND LTD.

NO.8, XING YUAN ROAD,RUCHENG INDUSTRIAL ZONE, RUGAO CITY, JIANGSU PROVINCE, P. R. C.  
NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

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

Sample Submitted By : NANTONG HORNBY ELECTRONIC CO.,LTD  
Sample Name : SOLDER、SILICONE、EPOXY MOLDING COMPOUND、HALOGEN-FREE EPOXY MOLDING  
COMPOUND、PURE TIN、WAFER、GPP DICE、COPPER WIRE  
Used For. : PLEASE REFER TO PAGE 2

=====  
Sample Receiving Date : 15-Jun-2021  
Testing Period : 15-Jun-2021 to 24-Jun-2021

**Test Requested** : (1) As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample(s).  
(2) Please refer to next pages for the other item(s).

**Test Results** : Please refer to following pages.

**Conclusion** : (1) Based on the performed tests on submitted sample(s) and the declaration from the applicant, the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU with the exemption of Annex III 7(a) 【No.1】 and 7(c)-I 【No.7】.

  
Troy Chang, Manager, Tech  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei



PIN CODE: 6921FD04

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Page: 2 of 25

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NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

Used For. :

DIODE & BRIDGE RECTIFIERS(R-1 · A-405(H) · DO-41 · DO-15 · R-3 · DO-201AD · R-6 · R-7 · GBP · GBL · GB\*\*U · GBJ · KBL · KBP · KBU · KBJ · JA · JB · 2S · D3K · TSB-5 · S25VB10 · SKBPC · 2CL · CL · MD-M · MD-S · MD-F · DB-1 · DB-S · DF · DF-S · LBF · ABS · MSBS · YBS · YBSL · SBS · SBSL · SHBS · LDF · MBF(S/T1/T2) · WOM/RC-2 · MKBPC · MKBPC-W · KBPC-1 · KBPC-6 · KBPC-8 · KBPC · KBPC-W · MP · MP8 · MBR · MBR-W · BR · BR-W · BR-L · BR-6 · BR-8 · RA/RAS · CXA · TO-220AC · TO-220AB · ITO-220AC · ITO-220AB · TO-3P · TO-247(A/AD/S) · SMA-X · DO-214AC/SMA · SMA-F · SMA-L · SMA-S · SMA-HE · SMA-T · DO-214AA/SMB · SMB-F · SMB-S · SMB-L · DO-214AB/SMC · SMC-F · SMC-T3 · SMC-T4 · SMC-HE · DO-218(AB) · MINI-MELF · MELF · TO-92 · TO-126 · TO-252(A) · TO252-4L · TO-251 · TO-262 · D-PAK · TO-263 · D2PAK · SOD-123(FL/T/S/H1/HT/HE) · 1206(S) · SOD-323(FL/T/HE) · 0805 · SOD-523(FL) · 0603 · SOD-723(FL) · SOD-923(FL) · SOD-882 · 0402 · 0201 · SOT-23(-3/-3L/-3S/-5/-6/-6L) · SOT-26 · SOT-343 · SOT-353 · SOT-553 · SOT-363 · SOT-563 · SOT-223 · SOT-323(F) · SOT-523(F) · SOT-723(F) · SOT-883 · DFN1006-3L · 2928-8L · CP · SOT-143 · TO-277(A) · WBFBP · DFN1006-2 · DFN0603 · DSON10 · DFN2510(-10L) · DFN1608 · DFN1610 · DFN3810(-9L) · DFN5515(-18L) · DFN1515-6L · DFN1515-6L · DFN2020-6L · DFN1610-6L · DFN1713-8L · DFN2010-8L · TO-89 · SOP-8 · MSOP-8 · TSOP-6 · TSSOP-8 · MSOP-10 · DFN2626-10L · DFN3020-10L · DFN4120-10L · DFN3316-16 · LDFN4016-16L · PPAK2X3 · PPAK3X3 · DFN2X2-3L · DFN3X3(-8L) · DFN2X2-6 · DFN2X3-6 · DFN2X3-8 · PPAK5X6 · DFN5X6-8L)

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No.: ETR21602387M02

Date: 28-Jun-2021

Page: 3 of 25

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NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

## Test Part Description

- No.1 : SILVER COLORED METAL (SOLDER) - ETR21602387 No.1
- No.2 : WHITE LUMP (SILICONE) - ETR21602387 No.2
- No.3 : BLACK LUMP (EPOXY MOLDING COMPOUND) - ETR21602387 No.3
- No.4 : BLACK LUMP (HALOGEN-FREE EPOXY MOLDING COMPOUND) - ETR21602387 No.4
- No.5 : SILVER COLORED METAL (PURE TIN) - ETR21602387 No.5
- No.6 : WAFER - ETR21602384 No.1
- No.7 : GPP DICE - ETR21602385 No.1
- No.8 : COPPER COLORED METAL WIRE - ETR21602386 No.1

## Test Result(s)

Test Item(s)	Method	Unit	MDL	Result					Limit
				No.1	No.2	No.3	No.4	No.5	
Cadmium (Cd) (CAS No.: 7440-43-9)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	n.d.	n.d.	n.d.	n.d.	100
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	-	929300 (*)	---	---	---	---	(*E)
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	---	n.d.	n.d.	n.d.	64.0	1000
Mercury (Hg) (CAS No.: 7439-97-6)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	n.d.	n.d.	n.d.	n.d.	1000
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	µg/cm <sup>2</sup>	0.1	n.d.	---	---	---	n.d.	-
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	---	n.d.	n.d.	n.d.	---	1000

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No.: ETR21602387M02

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Page: 4 of 25

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Test Item(s)	Method	Unit	MDL	Result					Limit
				No.1	No.2	No.3	No.4	No.5	
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Dibromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Tribromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Tetrabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Pentabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Hexabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Heptabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Octabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Nonabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Decabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
<b>Sum of PBBs</b>		mg/kg	-	n.d.	n.d.	n.d.	n.d.	n.d.	1000
Monobromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Dibromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Tribromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Tetrabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Pentabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Hexabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Heptabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Octabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Nonabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-
Decabromodiphenyl ether	mg/kg	5	n.d.	n.d.	n.d.	n.d.	n.d.	-	
<b>Sum of PBDEs</b>	mg/kg	-	n.d.	n.d.	n.d.	n.d.	n.d.	1000	

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Date: 28-Jun-2021

Page: 5 of 25

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NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

Test Item(s)	Method	Unit	MDL	Result					Limit
				No.1	No.2	No.3	No.4	No.5	
Butyl benzyl phthalate (BBP) (CAS No.: 85-68-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	1000
Dibutyl phthalate (DBP) (CAS No.: 84-74-2)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP) (CAS No.: 117-81-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	1000
Diisobutyl phthalate (DIBP) (CAS No.: 84-69-5)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	1000
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515- 49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	-
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515- 48-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	-
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	-
Di-n-hexyl phthalate (DNHP) (CAS No.: 84-75-3)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	-
Medium Chain Chlorinated Paraffins(C14-C17) (MCCP) (CAS No.: 85535-85-9)	With reference to ISO 18219: 2015, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	n.d.	n.d.	-
Antimony (Sb) (CAS No.: 7440- 36-0)	With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	---	---	73.9	-

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Date: 28-Jun-2021

Page: 6 of 25

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Test Item(s)	Method	Unit	MDL	Result					Limit
				No.1	No.2	No.3	No.4	No.5	
Antimony (Sb) (CAS No.: 7440-36-0)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	---	n.d.	6490	n.d.	---	-
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ -HBCDD, $\beta$ -HBCDD, $\gamma$ -HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	With reference to IEC 62321: 2008, analysis was performed by GC/MS.	mg/kg	5	---	---	n.d.	n.d.	---	-
Fluorine (F) (CAS No.: 14762-94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	---	---	n.d.	n.d.	---	-
Chlorine (Cl) (CAS No.: 22537-15-1)		mg/kg	50	---	---	128	123	---	-
Bromine (Br) (CAS No.: 10097-32-2)		mg/kg	50	---	---	7070	n.d.	---	-
Iodine (I) (CAS No.: 14362-44-8)		mg/kg	50	---	---	n.d.	n.d.	---	-
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	---	---	n.d.	n.d.	n.d.	-
PFOA and its salts (CAS No.: 335-67-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	---	---	n.d.	n.d.	n.d.	-
Red Phosphorus	Analysis was performed by Pyrolyzer-GC/MS.	**	-	---	---	Negative	Negative	---	-
Beryllium (Be) (CAS No.: 7440-41-7)	With reference to US EPA 3052: 1996, analysis was performed by ICP-OES.	mg/kg	2	---	---	n.d.	n.d.	---	-

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Page: 7 of 25

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Test Item(s)	Method	Unit	MDL	Result			Limit
				No.6	No.7	No.8	
Cadmium (Cd) (CAS No.: 7440-43-9)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	n.d.	n.d.	100
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	---	133000	---	(*E)
Lead (Pb) (CAS No.: 7439-92-1)	With reference to IEC 62321-5: 2013, analysis was performed by ICP-OES.	mg/kg	2	n.d.	---	n.d.	1000
Mercury (Hg) (CAS No.: 7439-97-6)	With reference to IEC 62321-4: 2013+ AMD1: 2017, analysis was performed by ICP-OES.	mg/kg	2	n.d.	n.d.	n.d.	1000
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9) (#2)	With reference to IEC 62321-7-1: 2015, analysis was performed by UV-VIS.	µg/cm <sup>2</sup>	0.1	---	---	n.d.	-
Hexavalent Chromium Cr(VI) (CAS No.: 18540-29-9)	With reference to IEC 62321-7-2: 2017, analysis was performed by UV-VIS.	mg/kg	8	n.d.	n.d.	---	1000
Monobromobiphenyl	With reference to IEC 62321-6: 2015, analysis was performed by GC/MS.	mg/kg	5	n.d.	n.d.	n.d.	-
Dibromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Tribromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Tetrabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Pentabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Hexabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Heptabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Octabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Nonabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
Decabromobiphenyl		mg/kg	5	n.d.	n.d.	n.d.	-
<b>Sum of PBBs</b>		mg/kg	-	n.d.	n.d.	n.d.	1000

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Date: 28-Jun-2021

Page: 8 of 25

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NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

Test Item(s)	Method	Unit	MDL	Result			Limit
				No.6	No.7	No.8	
Monobromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Dibromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Tribromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Tetrabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Pentabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Hexabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Heptabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Octabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Nonabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
Decabromodiphenyl ether		mg/kg	5	n.d.	n.d.	n.d.	-
<b>Sum of PBDEs</b>		mg/kg	-	n.d.	n.d.	n.d.	1000
Butyl benzyl phthalate (BBP) (CAS No.: 85-68-7)		With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.
Dibutyl phthalate (DBP) (CAS No.: 84-74-2)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	1000
Di-(2-ethylhexyl) phthalate (DEHP) (CAS No.: 117-81-7)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	1000
Diisobutyl phthalate (DIBP) (CAS No.: 84-69-5)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	1000
Diisodecyl phthalate (DIDP) (CAS No.: 26761-40-0, 68515-49-1)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	-
Diisononyl phthalate (DINP) (CAS No.: 28553-12-0, 68515-48-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	-

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# Test Report

No.: ETR21602387M02

Date: 28-Jun-2021

Page: 9 of 25

NANTONG HORNBY ELECTRONIC CO.,LTD  
SMARTENGRAND LTD.

NO.8, XING YUAN ROAD,RUCHENG INDUSTRIAL ZONE, RUGAO CITY, JIANGSU PROVINCE, P. R. C.  
NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

Test Item(s)	Method	Unit	MDL	Result			Limit
				No.6	No.7	No.8	
Di-n-octyl phthalate (DNOP) (CAS No.: 117-84-0)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	-
Di-n-hexyl phthalate (DNHP) (CAS No.: 84-75-3)	With reference to IEC 62321-8: 2017, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	-
Medium Chain Chlorinated Paraffins(C14-C17) (MCCP) (CAS No.: 85535-85-9)	With reference to ISO 18219: 2015, analysis was performed by GC/MS.	mg/kg	50	n.d.	n.d.	n.d.	-
Antimony (Sb) (CAS No.: 7440- 36-0)	With reference to US EPA 3050B: 1996, analysis was performed by ICP-OES.	mg/kg	2	n.d.	n.d.	n.d.	-
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified ( $\alpha$ - HBCDD, $\beta$ - HBCDD, $\gamma$ - HBCDD) (CAS No.: 25637-99-4, 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	With reference to IEC 62321: 2008, analysis was performed by GC/MS.	mg/kg	5	n.d.	n.d.	---	-
Fluorine (F) (CAS No.: 14762- 94-8)	With reference to BS EN 14582: 2016, analysis was performed by IC.	mg/kg	50	n.d.	n.d.	---	-
Chlorine (Cl) (CAS No.: 22537- 15-1)		mg/kg	50	n.d.	n.d.	---	-
Bromine (Br) (CAS No.: 10097- 32-2)		mg/kg	50	n.d.	n.d.	---	-
Iodine (I) (CAS No.: 14362-44- 8)		mg/kg	50	n.d.	n.d.	---	-
PFOS and its salts (CAS No.: 1763-23-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.	n.d.	---	-
PFOA and its salts (CAS No.: 335-67-1 and its salts)	With reference to CEN/TS 15968: 2010, analysis was performed by LC/MS/MS.	mg/kg	0.01	n.d.	n.d.	---	-

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## Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. MDL = Method Detection Limit
3. n.d. = Not Detected ( Less than MDL)
4. "-" = Not Regulated
5. "---" = Not Conducted
6. \*\*= Qualitative analysis (No Unit)
7. Negative = Undetectable ; Positive = Detectable
8. PFOS and its salts including :  
CAS No.: 29081-56-9, 2795-39-3, 29457-72-5, 70225-14-8, 56773-42-3, 251099-16-8, 307-35-7.
9. PFOA and its salts including :  
CAS No.: 3825-26-1, 335-95-5, 2395-00-8, 335-93-3, 335-66-0.
10. (#2) =
  - a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13  $\mu\text{g}/\text{cm}^2$ . The sample coating is considered to contain Cr(VI).
  - b. The sample is negative for Cr(VI) if Cr(VI) is n.d. (concentration less than 0.10  $\mu\text{g}/\text{cm}^2$ ). The coating is considered a non-Cr(VI) 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.
11. The statement of compliance conformity is based on comparison of testing results and limits.
12. ( \* ) : The test result of balance was calculated by subtracting positive results of other elements from 100%.
13. (\*E): By client's claim, it is on the RoHS exemption list.
14. This report is combined with reports of ETR21602384, ETR21602385, ETR21602386 and ETR21602387.

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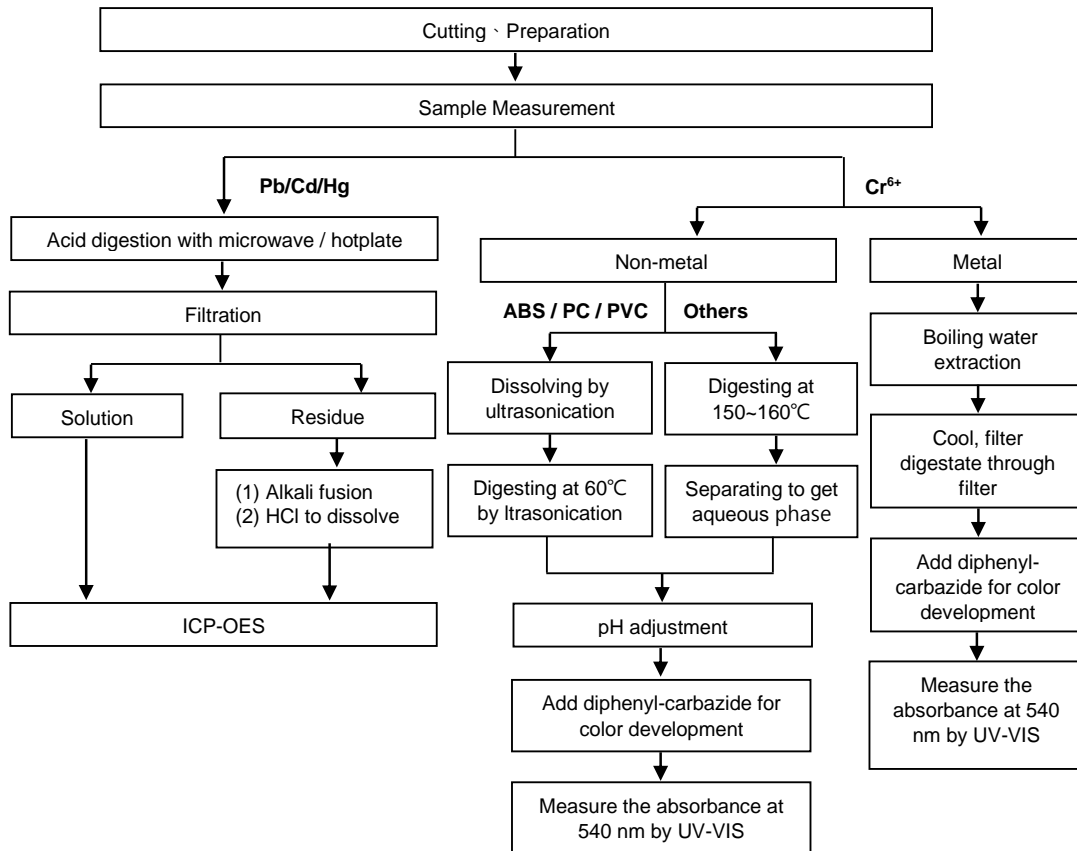
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### Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.

( Cr<sup>6+</sup> test method excluded )

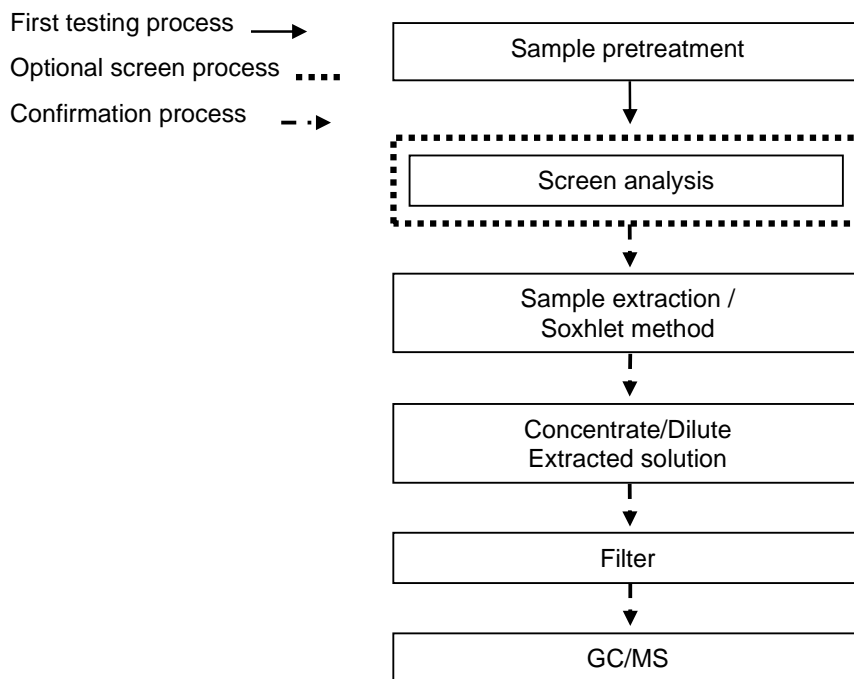


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### Analytical flow chart – PBBs / PBDEs



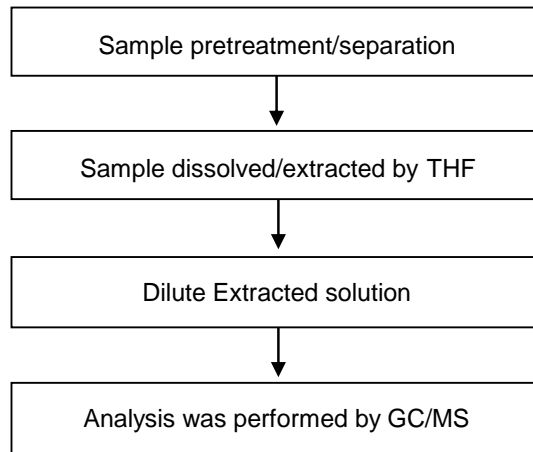
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### Analytical flow chart - Phthalate

**【Test method: IEC 62321-8】**



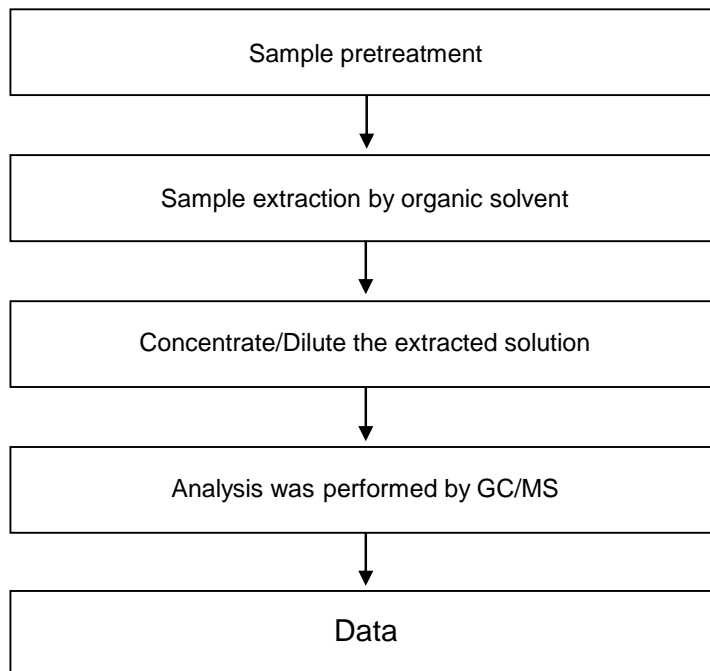
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### Analytical flow chart

\* Apply to: PCBs, PCNs, PCTs, Mirex, Chlorinated Paraffins, DBBT



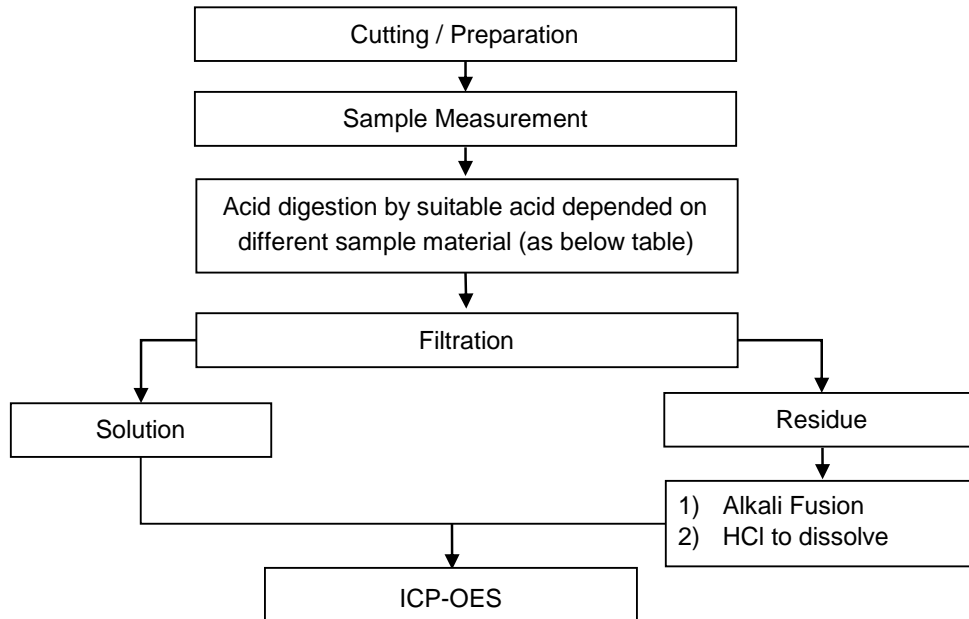
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### Flow Chart of digestion for the elements analysis performed by ICP-OES

These samples were dissolved totally by pre-conditioning method according to below flow chart.



Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Added appropriate reagent to total digestion

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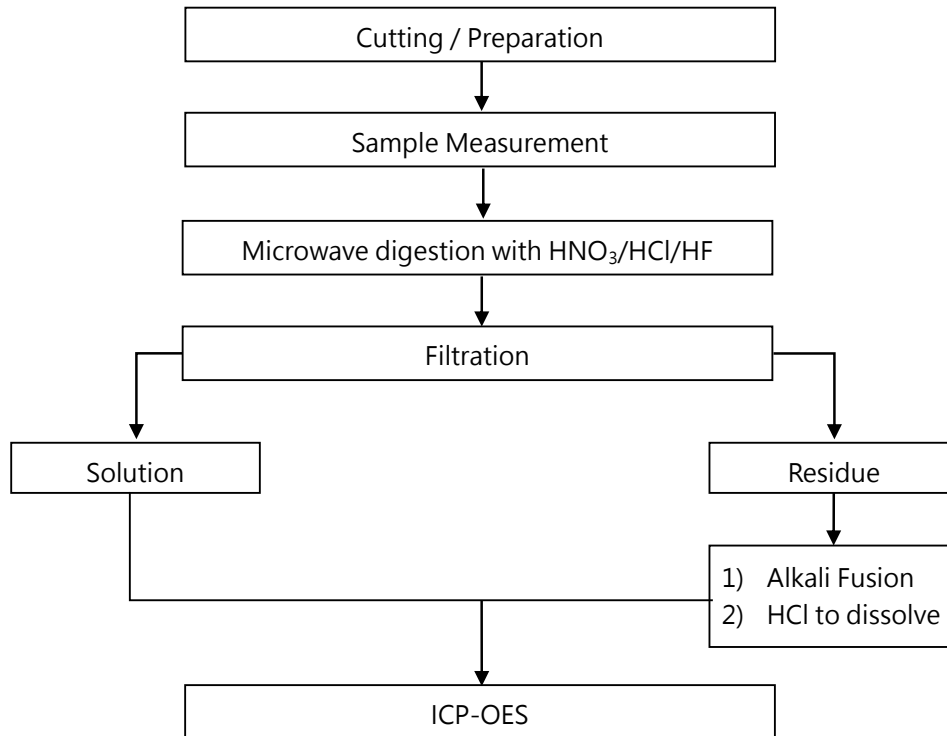
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### Analytical flow chart of Heavy Metal

These samples were dissolved totally by pre-conditioning method according to below flow chart.

【Reference method : US EPA 3051A 、 US EPA 3052】



\* US EPA 3051A method does not add HF.

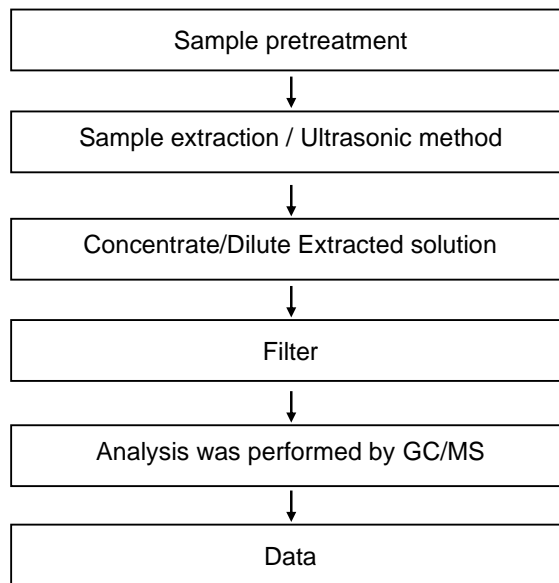
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### Analytical flow chart - HBCDD

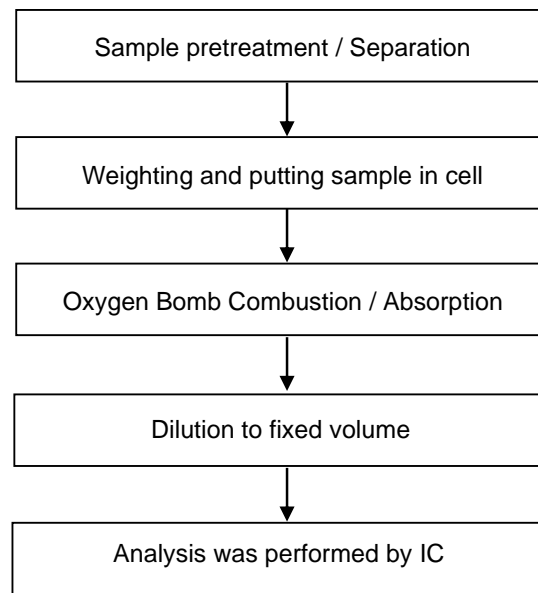


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### Analytical flow chart - Halogen

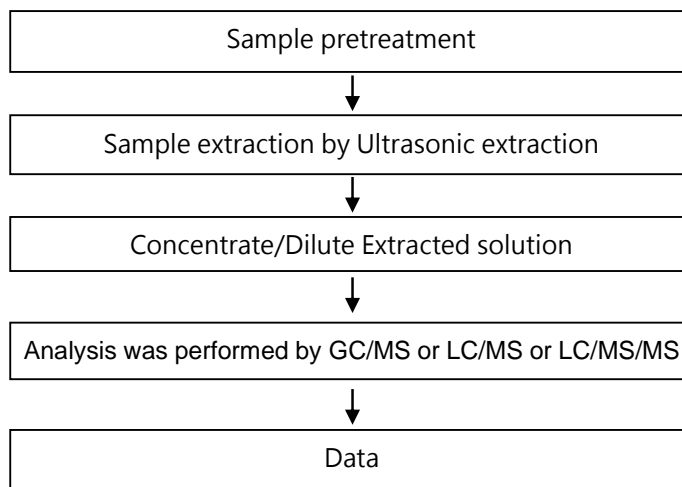


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## Analytical flow chart – PFAS (including PFOA/PFOS/its related compound, etc.)

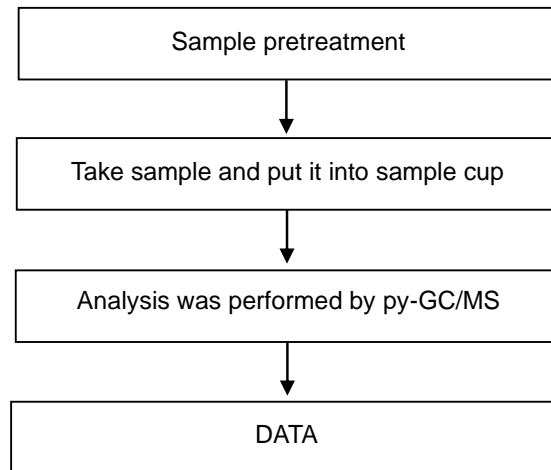


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### Analytical flow chart - Red phosphorus



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## Test Report

No.: ETR21602387M02

Date: 28-Jun-2021

Page: 21 of 25

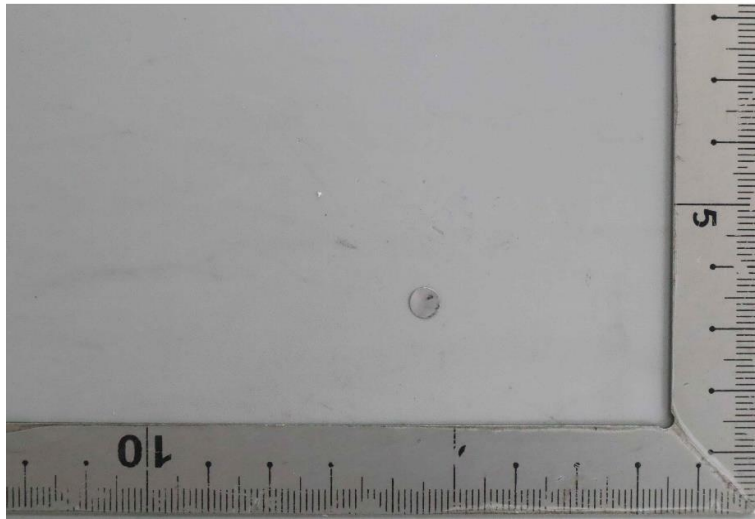
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\* The tested sample / part is marked by an arrow if it's shown on the photo. \*

No.1

### ETR21602387 NO.1



No.2

### ETR21602387 NO.2



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## Test Report

No.: ETR21602387M02

Date: 28-Jun-2021

Page: 22 of 25

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SMARTENGRAND LTD.

NO.8, XING YUAN ROAD,RUCHENG INDUSTRIAL ZONE, RUGAO CITY, JIANGSU PROVINCE, P. R. C.  
NO. 168, SEC. 2, ZHONGZHENG ROAD, SANXIA DISTRICT, NEW TAIPEI CITY, TAIWAN, R. O. C.

No.3

### ETR21602387 NO.3



No.4

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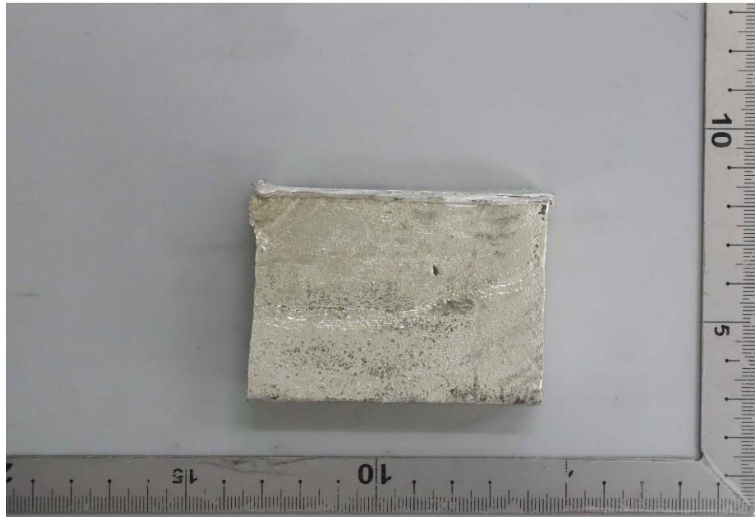
Page: 23 of 25

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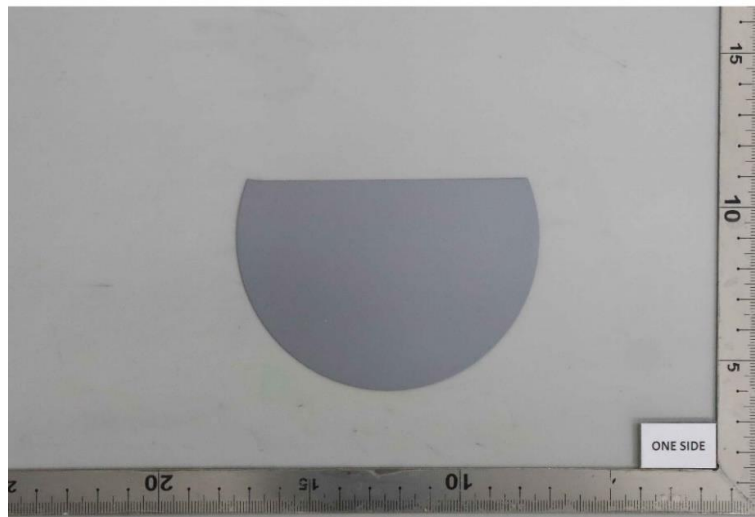
No.5

### ETR21602387 NO.5



No.6

### ETR21602384

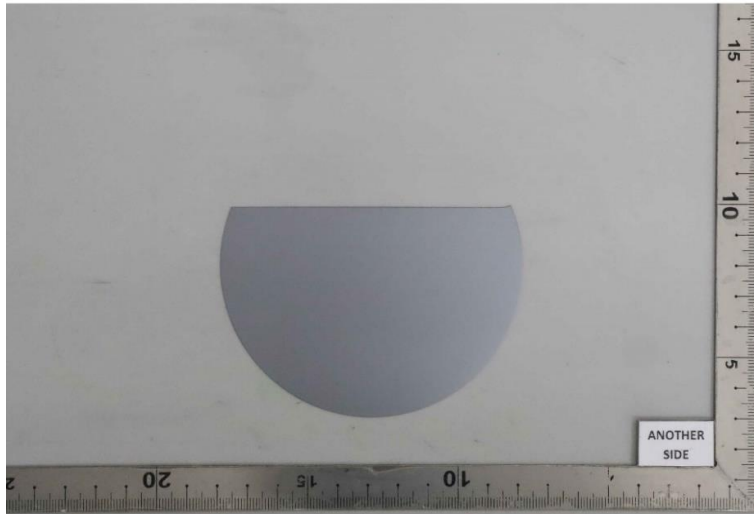


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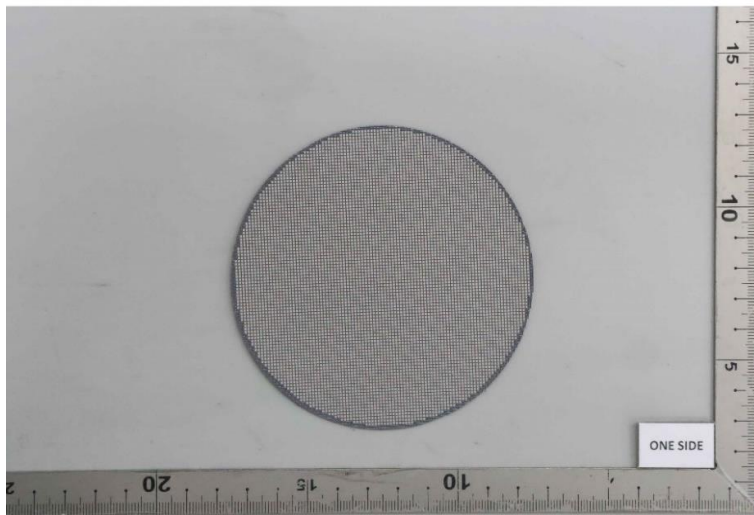
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### ETR21602384



No.7

### ETR21602385



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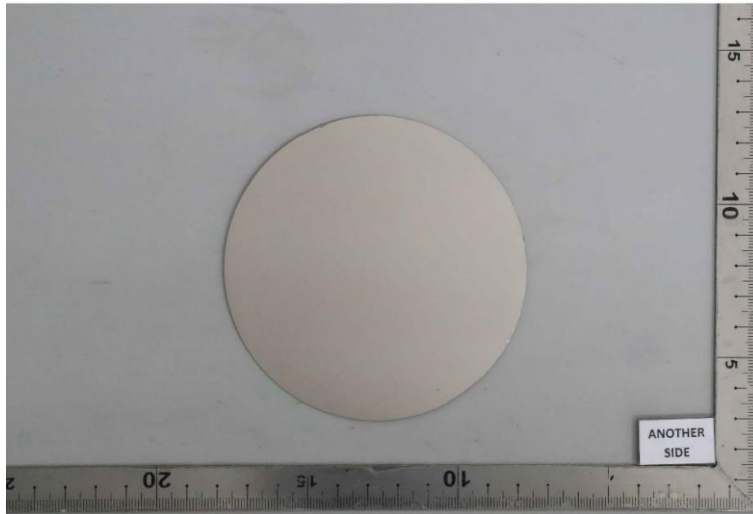
Date: 28-Jun-2021

Page: 25 of 25

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No.8

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