

Product/Process Change Notification

PCN#	Effective Date	Issue Date
2017-12-08C-05	2018/3/8	2017/12/8
PCN Classification	Product Category	
Major	Diode	
Subject		
Production process change from lead free to halogen free.		
Affected Product(s)		
WBFBP-02C Package of ESD Protection Diode, Such as attachments.		
Description of Change(s)		
To meet EU environment requirement, we implement halogen free to our products.		
Content of Change(s)		
Adding "-C" to each part number.		
Impact(s)		
N/A		
Attachment(s)		
SGS report. Reliability report.		

Approval		
Issue by	Alice Lai	e-mail: alice@secosgmbh.com
Development Engineer		Alice Lai
QA Manager		Peter Yang
General Manger		Mathew Liu

For more information, please contact us directly or visit our website <http://www.secosgmbh.com>

Affected Product(s)

STESD03
STESD03C
STESD05
STESD05C
STESD05CL
STESD07
STESD12
STESDL05C



Reliability Testing Summary Report

Date: 2017/11/30

Document No.: SK17 -11- 106

Test Item	P/N	Test Condition	(LTPD)	Sample Numbers	Allow Fall Numbers	Fall Numbers	Result
HTRB High Temp Reverse Bias	STESD05C-C	150°C ± 5°C, 80% VR, T = 1000 hrs		77	0	0	ACC
HTSL High Temperature Storage Life	STESD05C-C	150°C, T = 1000 hrs		77	0	0	ACC
PCT Pressure Cooker Test	STESD05C-C	121°C, 29.7PSIG, 168 hrs		77	0	0	ACC
TCT Temperature Cycle Test	STESD05C-C	-55°C/30min, 150°C/30min, For 1000 Cycle		77	0	0	ACC
THT High Temperature High Humidity Test	STESD05C-C	85 ± 2°C, RH=85±5%, 1000 hrs		77	0	0	ACC
H3TRB High Temper High Humidity Reverse Bies Test	STESD05C-C	85 ± 2°C, RH=85±5%, 80% VR, 1000 hrs		77	0	0	ACC
Resistance to Solder Heat Test	STESD05C-C	270°C ± 5°C, 7Sec +2/-0Sec		10	0	0	ACC

Judgment:

qualified unqualified

Testing Start Date: 2017.10.05 Testing End Date: 2017.11.30

Tester: King Huang Approval: Peter Yang



Electrical Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 25°C

Test Date: 2017.10.05

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

No	VBR	IR	VBR	IR
1	6.342V	1.157nA	6.299V	1.229nA
2	6.215V	1.171nA	6.235V	1.153nA
3	6.239V	1.042nA	6.279V	1.258nA
4	6.215V	1.108nA	6.227V	1.161nA
5	6.307V	1.207nA	6.256V	1.188nA
6	6.247V	1.234nA	6.206V	1.132nA
7	6.274V	1.246nA	6.268V	1.212nA
8	6.331V	1.196nA	6.277V	1.135nA
9	6.210V	1.140nA	6.225V	1.072nA
10	6.305V	1.226nA	6.214V	1.160nA
11	6.384V	1.147nA	6.214V	1.068nA
12	6.348V	1.180nA	6.219V	1.187nA
13	6.341V	1.083nA	6.261V	1.055nA
14	6.348V	1.116nA	6.253V	1.068nA
15	6.250V	1.085nA	6.294V	1.107nA
16	6.376V	1.065nA	6.291V	1.045nA
17	6.274V	1.245nA	6.233V	1.109nA
18	6.273V	1.086nA	6.305V	1.249nA
19	6.325V	1.108nA	6.237V	1.205nA
20	6.261V	1.247nA	6.226V	1.228nA
21	6.340V	1.080nA	6.306V	1.159nA
22	6.387V	1.085nA	6.238V	1.151nA
23	6.288V	1.090nA	6.354V	1.164nA
24	6.247V	1.037nA	6.311V	1.093nA
25	6.207V	1.076nA	6.239V	1.061nA
26	6.259V	1.217nA	6.237V	1.168nA
27	6.209V	1.210nA	6.377V	1.138nA
28	6.234V	1.230nA	6.259V	1.256nA
29	6.358V	1.246nA	6.363V	1.060nA
30	6.367V	1.060nA	6.377V	1.044nA



Electrical Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 25°C

Test Date: 2017.10.05

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

No	VBR	IR	VBR	IR
31	6.335V	1.080nA	6.348V	1.103nA
32	6.343V	1.237nA	6.296V	1.098nA
33	6.348V	1.228nA	6.299V	1.123nA
34	6.277V	1.069nA	6.363V	1.084nA
35	6.225V	1.042nA	6.335V	1.156nA
36	6.386V	1.065nA	6.354V	1.223nA
37	6.316V	1.170nA	6.264V	1.136nA
38	6.257V	1.114nA	6.339V	1.074nA
39	6.324V	1.182nA	6.360V	1.153nA
40	6.308V	1.162nA	6.244V	1.157nA
41	6.351V	1.117nA	6.277V	1.052nA
42	6.322V	1.108nA	6.327V	1.096nA
43	6.245V	1.237nA	6.216V	1.239nA
44	6.269V	1.177nA	6.287V	1.172nA
45	6.338V	1.137nA	6.295V	1.140nA
46	6.218V	1.217nA	6.237V	1.189nA
47	6.217V	1.248nA	6.211V	1.231nA
48	6.368V	1.066nA	6.233V	1.200nA
49	6.290V	1.218nA	6.277V	1.110nA
50	6.210V	1.156nA	6.225V	1.105nA
51	6.340V	1.198nA	6.385V	1.256nA
52	6.272V	1.230nA	6.217V	1.082nA
53	6.337V	1.180nA	6.222V	1.224nA
54	6.232V	1.242nA	6.234V	1.070nA
55	6.276V	1.255nA	6.385V	1.111nA
56	6.242V	1.246nA	6.271V	1.218nA
57	6.369V	1.147nA	6.299V	1.134nA
58	6.270V	1.183nA	6.375V	1.248nA
59	6.295V	1.183nA	6.322V	1.162nA
60	6.286V	1.232nA	6.272V	1.136nA



Electrical Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 25°C

Test Date: 2017.10.05

Test Standard : Specifications

Operator: Leo Hsia

Test Result: PASS

No	VBR	IR	VBR	IR
61	6.232V	1.054nA	6.328V	1.132nA
62	6.265V	1.130nA	6.225V	1.144nA
63	6.287V	1.141nA	6.313V	1.152nA
64	6.279V	1.171nA	6.206V	1.140nA
65	6.368V	1.081nA	6.257V	1.213nA
66	6.357V	1.243nA	6.320V	1.087nA
67	6.286V	1.227nA	6.264V	1.076nA
68	6.251V	1.188nA	6.275V	1.083nA
69	6.232V	1.158nA	6.217V	1.210nA
70	6.232V	1.193nA	6.279V	1.042nA
71	6.221V	1.092nA	6.345V	1.235nA
72	6.314V	1.044nA	6.357V	1.136nA
73	6.316V	1.049nA	6.282V	1.061nA
74	6.354V	1.079nA	6.241V	1.067nA
75	6.287V	1.065nA	6.342V	1.208nA
76	6.344V	1.056nA	6.389V	1.164nA
77	6.210V	1.144nA	6.239V	1.140nA

Made By: King Huang

Approval: Peter Yang



High Temperature Reverse Bias Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 150°C ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2017.10.05 ~ 2017.11.17

Test Standard : JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.359V	1.206nA	6.370V	1.210nA	6.300V	1.064nA	6.328V	1.085nA
2	6.277V	1.086nA	6.284V	1.058nA	6.353V	1.178nA	6.351V	1.244nA
3	6.216V	1.064nA	6.326V	1.149nA	6.349V	1.112nA	6.209V	1.129nA
4	6.249V	1.047nA	6.363V	1.192nA	6.380V	1.189nA	6.244V	1.053nA
5	6.242V	1.138nA	6.327V	1.071nA	6.249V	1.166nA	6.244V	1.174nA
6	6.245V	1.063nA	6.381V	1.195nA	6.327V	1.250nA	6.338V	1.258nA
7	6.295V	1.190nA	6.336V	1.052nA	6.288V	1.177nA	6.226V	1.163nA
8	6.227V	1.041nA	6.381V	1.047nA	6.211V	1.242nA	6.360V	1.134nA
9	6.227V	1.252nA	6.231V	1.037nA	6.226V	1.217nA	6.335V	1.240nA
10	6.288V	1.077nA	6.248V	1.227nA	6.279V	1.184nA	6.271V	1.180nA
11	6.271V	1.193nA	6.375V	1.180nA	6.324V	1.132nA	6.209V	1.174nA
12	6.310V	1.045nA	6.376V	1.038nA	6.323V	1.050nA	6.230V	1.194nA
13	6.274V	1.156nA	6.207V	1.149nA	6.225V	1.116nA	6.388V	1.233nA
14	6.207V	1.239nA	6.290V	1.228nA	6.224V	1.109nA	6.247V	1.092nA
15	6.253V	1.251nA	6.283V	1.237nA	6.360V	1.043nA	6.347V	1.056nA
16	6.286V	1.160nA	6.237V	1.227nA	6.274V	1.185nA	6.241V	1.065nA
17	6.317V	1.197nA	6.380V	1.252nA	6.304V	1.102nA	6.346V	1.127nA
18	6.257V	1.212nA	6.384V	1.134nA	6.229V	1.134nA	6.235V	1.197nA
19	6.373V	1.152nA	6.384V	1.257nA	6.303V	1.040nA	6.272V	1.226nA
20	6.250V	1.245nA	6.265V	1.227nA	6.233V	1.049nA	6.344V	1.046nA
21	6.218V	1.223nA	6.365V	1.071nA	6.266V	1.176nA	6.358V	1.175nA
22	6.331V	1.204nA	6.315V	1.114nA	6.221V	1.190nA	6.324V	1.076nA
23	6.255V	1.107nA	6.268V	1.142nA	6.388V	1.248nA	6.389V	1.229nA
24	6.221V	1.054nA	6.253V	1.066nA	6.206V	1.245nA	6.310V	1.147nA
25	6.336V	1.215nA	6.297V	1.105nA	6.290V	1.143nA	6.217V	1.088nA
26	6.234V	1.054nA	6.388V	1.228nA	6.299V	1.171nA	6.357V	1.046nA
27	6.207V	1.167nA	6.295V	1.249nA	6.289V	1.242nA	6.359V	1.250nA
28	6.336V	1.177nA	6.375V	1.200nA	6.210V	1.104nA	6.248V	1.143nA
29	6.256V	1.230nA	6.364V	1.099nA	6.253V	1.203nA	6.280V	1.252nA



High Temperature Reverse Bias Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 150°C ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2017.10.05 ~ 2017.11.17

Test Standard : JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
30	6.355V	1.134nA	6.302V	1.090nA	6.379V	1.186nA	6.295V	1.194nA
31	6.333V	1.245nA	6.371V	1.111nA	6.338V	1.069nA	6.378V	1.061nA
32	6.381V	1.074nA	6.276V	1.110nA	6.330V	1.066nA	6.224V	1.091nA
33	6.265V	1.048nA	6.214V	1.221nA	6.208V	1.204nA	6.329V	1.039nA
34	6.339V	1.090nA	6.258V	1.132nA	6.314V	1.163nA	6.232V	1.253nA
35	6.253V	1.106nA	6.368V	1.156nA	6.276V	1.132nA	6.316V	1.202nA
36	6.378V	1.157nA	6.237V	1.238nA	6.243V	1.196nA	6.294V	1.093nA
37	6.282V	1.141nA	6.313V	1.215nA	6.270V	1.254nA	6.206V	1.048nA
38	6.223V	1.228nA	6.350V	1.041nA	6.334V	1.236nA	6.305V	1.083nA
39	6.347V	1.118nA	6.261V	1.039nA	6.325V	1.167nA	6.227V	1.055nA
40	6.372V	1.099nA	6.292V	1.131nA	6.256V	1.119nA	6.350V	1.041nA
41	6.249V	1.053nA	6.339V	1.211nA	6.269V	1.189nA	6.344V	1.237nA
42	6.240V	1.238nA	6.301V	1.074nA	6.284V	1.252nA	6.282V	1.186nA
43	6.234V	1.258nA	6.251V	1.181nA	6.331V	1.186nA	6.341V	1.082nA
44	6.243V	1.226nA	6.242V	1.243nA	6.239V	1.248nA	6.225V	1.075nA
45	6.332V	1.048nA	6.322V	1.140nA	6.357V	1.253nA	6.291V	1.126nA
46	6.362V	1.113nA	6.227V	1.193nA	6.342V	1.159nA	6.382V	1.240nA
47	6.346V	1.150nA	6.287V	1.105nA	6.347V	1.083nA	6.260V	1.052nA
48	6.383V	1.096nA	6.291V	1.073nA	6.232V	1.089nA	6.352V	1.076nA
49	6.332V	1.205nA	6.374V	1.167nA	6.355V	1.109nA	6.243V	1.148nA
50	6.243V	1.243nA	6.234V	1.256nA	6.265V	1.120nA	6.243V	1.100nA
51	6.233V	1.191nA	6.279V	1.218nA	6.384V	1.184nA	6.313V	1.207nA
52	6.385V	1.145nA	6.248V	1.115nA	6.331V	1.060nA	6.337V	1.157nA
53	6.323V	1.214nA	6.279V	1.145nA	6.228V	1.040nA	6.246V	1.087nA
54	6.215V	1.130nA	6.275V	1.142nA	6.245V	1.120nA	6.218V	1.080nA
55	6.307V	1.252nA	6.327V	1.235nA	6.257V	1.104nA	6.338V	1.179nA
56	6.294V	1.208nA	6.337V	1.225nA	6.354V	1.161nA	6.260V	1.045nA
57	6.218V	1.062nA	6.251V	1.169nA	6.214V	1.140nA	6.206V	1.232nA
58	6.216V	1.112nA	6.278V	1.225nA	6.207V	1.237nA	6.257V	1.043nA



High Temperature Reverse Bias Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 150°C ± 5°C, 80% VR, T = 1000 hrs

Test Date: 2017.10.05 ~ 2017.11.17

Test Standard : JESD22 STANDARD Method-A108

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
59	6.244V	1.072nA	6.260V	1.111nA	6.305V	1.093nA	6.322V	1.069nA
60	6.340V	1.113nA	6.359V	1.066nA	6.214V	1.217nA	6.237V	1.075nA
61	6.369V	1.120nA	6.342V	1.197nA	6.371V	1.146nA	6.283V	1.138nA
62	6.242V	1.094nA	6.331V	1.047nA	6.382V	1.070nA	6.305V	1.078nA
63	6.289V	1.244nA	6.252V	1.167nA	6.302V	1.198nA	6.342V	1.120nA
64	6.275V	1.246nA	6.376V	1.165nA	6.390V	1.074nA	6.240V	1.176nA
65	6.319V	1.255nA	6.375V	1.110nA	6.232V	1.086nA	6.234V	1.045nA
66	6.304V	1.203nA	6.243V	1.038nA	6.273V	1.226nA	6.243V	1.093nA
67	6.211V	1.238nA	6.286V	1.052nA	6.245V	1.258nA	6.205V	1.045nA
68	6.220V	1.098nA	6.364V	1.152nA	6.286V	1.106nA	6.292V	1.199nA
69	6.214V	1.102nA	6.315V	1.082nA	6.381V	1.092nA	6.326V	1.194nA
70	6.272V	1.163nA	6.372V	1.233nA	6.332V	1.139nA	6.354V	1.200nA
71	6.275V	1.192nA	6.292V	1.228nA	6.252V	1.234nA	6.273V	1.155nA
72	6.310V	1.200nA	6.322V	1.211nA	6.324V	1.096nA	6.206V	1.238nA
73	6.335V	1.155nA	6.381V	1.048nA	6.310V	1.259nA	6.378V	1.123nA
74	6.356V	1.088nA	6.374V	1.057nA	6.267V	1.124nA	6.276V	1.092nA
75	6.298V	1.229nA	6.352V	1.193nA	6.333V	1.100nA	6.325V	1.077nA
76	6.350V	1.127nA	6.238V	1.071nA	6.311V	1.190nA	6.346V	1.152nA
77	6.377V	1.162nA	6.376V	1.063nA	6.301V	1.147nA	6.380V	1.154nA

Made By: King Huang

Approval: Peter Yang



High Temperature Storage Life Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 150°C, 1000Hrs

Test Date: 2017.10.05 ~ 2017.11.17

Test Standard : JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.291V	1.166nA	6.224V	1.179nA	6.214V	1.059nA	6.253V	1.228nA
2	6.228V	1.099nA	6.243V	1.115nA	6.222V	1.218nA	6.381V	1.095nA
3	6.342V	1.219nA	6.282V	1.167nA	6.340V	1.050nA	6.333V	1.193nA
4	6.348V	1.134nA	6.265V	1.046nA	6.321V	1.055nA	6.281V	1.228nA
5	6.339V	1.206nA	6.335V	1.064nA	6.323V	1.256nA	6.286V	1.091nA
6	6.238V	1.171nA	6.275V	1.118nA	6.226V	1.142nA	6.292V	1.061nA
7	6.332V	1.223nA	6.371V	1.039nA	6.330V	1.142nA	6.347V	1.176nA
8	6.303V	1.216nA	6.316V	1.154nA	6.267V	1.249nA	6.242V	1.121nA
9	6.248V	1.201nA	6.257V	1.077nA	6.274V	1.211nA	6.299V	1.123nA
10	6.232V	1.246nA	6.287V	1.219nA	6.373V	1.155nA	6.377V	1.097nA
11	6.246V	1.102nA	6.269V	1.122nA	6.242V	1.053nA	6.304V	1.211nA
12	6.383V	1.066nA	6.354V	1.181nA	6.294V	1.054nA	6.244V	1.225nA
13	6.210V	1.053nA	6.206V	1.155nA	6.300V	1.148nA	6.285V	1.196nA
14	6.318V	1.153nA	6.370V	1.094nA	6.371V	1.084nA	6.312V	1.038nA
15	6.315V	1.117nA	6.327V	1.244nA	6.250V	1.247nA	6.207V	1.194nA
16	6.250V	1.254nA	6.236V	1.155nA	6.284V	1.194nA	6.275V	1.157nA
17	6.293V	1.200nA	6.383V	1.181nA	6.225V	1.238nA	6.387V	1.188nA
18	6.364V	1.199nA	6.307V	1.066nA	6.225V	1.054nA	6.389V	1.249nA
19	6.264V	1.157nA	6.265V	1.229nA	6.303V	1.135nA	6.253V	1.095nA
20	6.241V	1.099nA	6.253V	1.049nA	6.334V	1.195nA	6.333V	1.051nA
21	6.284V	1.155nA	6.341V	1.170nA	6.212V	1.135nA	6.216V	1.161nA
22	6.321V	1.248nA	6.281V	1.088nA	6.293V	1.223nA	6.304V	1.214nA
23	6.338V	1.238nA	6.362V	1.246nA	6.348V	1.048nA	6.369V	1.206nA
24	6.274V	1.085nA	6.238V	1.173nA	6.313V	1.180nA	6.380V	1.129nA
25	6.223V	1.231nA	6.260V	1.191nA	6.290V	1.055nA	6.280V	1.141nA
26	6.260V	1.161nA	6.297V	1.163nA	6.243V	1.206nA	6.351V	1.056nA
27	6.333V	1.204nA	6.313V	1.111nA	6.295V	1.251nA	6.375V	1.106nA
28	6.241V	1.085nA	6.215V	1.155nA	6.238V	1.109nA	6.367V	1.153nA
29	6.219V	1.244nA	6.233V	1.203nA	6.215V	1.071nA	6.289V	1.055nA



High Temperature Storage Life Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 150°C, 1000Hrs

Test Date: 2017.10.05 ~ 2017.11.17

Test Standard : JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
30	6.306V	1.110nA	6.209V	1.225nA	6.296V	1.174nA	6.252V	1.095nA
31	6.334V	1.185nA	6.229V	1.070nA	6.277V	1.224nA	6.337V	1.151nA
32	6.274V	1.143nA	6.309V	1.245nA	6.333V	1.123nA	6.326V	1.145nA
33	6.292V	1.236nA	6.288V	1.176nA	6.286V	1.053nA	6.238V	1.086nA
34	6.289V	1.245nA	6.318V	1.187nA	6.313V	1.121nA	6.240V	1.062nA
35	6.306V	1.181nA	6.319V	1.114nA	6.359V	1.117nA	6.352V	1.210nA
36	6.313V	1.254nA	6.260V	1.170nA	6.348V	1.104nA	6.295V	1.169nA
37	6.289V	1.145nA	6.342V	1.060nA	6.343V	1.065nA	6.371V	1.233nA
38	6.230V	1.209nA	6.253V	1.221nA	6.356V	1.120nA	6.299V	1.103nA
39	6.208V	1.250nA	6.309V	1.247nA	6.346V	1.098nA	6.265V	1.213nA
40	6.295V	1.073nA	6.230V	1.222nA	6.377V	1.218nA	6.271V	1.053nA
41	6.236V	1.047nA	6.342V	1.048nA	6.334V	1.186nA	6.246V	1.235nA
42	6.368V	1.072nA	6.367V	1.257nA	6.246V	1.196nA	6.289V	1.108nA
43	6.322V	1.067nA	6.338V	1.118nA	6.230V	1.093nA	6.364V	1.177nA
44	6.360V	1.046nA	6.381V	1.096nA	6.304V	1.055nA	6.285V	1.127nA
45	6.236V	1.129nA	6.210V	1.199nA	6.269V	1.135nA	6.363V	1.149nA
46	6.363V	1.143nA	6.345V	1.161nA	6.328V	1.080nA	6.252V	1.234nA
47	6.358V	1.084nA	6.283V	1.222nA	6.218V	1.182nA	6.300V	1.123nA
48	6.362V	1.124nA	6.307V	1.235nA	6.255V	1.230nA	6.342V	1.253nA
49	6.356V	1.221nA	6.327V	1.067nA	6.246V	1.258nA	6.206V	1.185nA
50	6.328V	1.155nA	6.266V	1.192nA	6.266V	1.142nA	6.319V	1.201nA
51	6.347V	1.133nA	6.210V	1.208nA	6.332V	1.038nA	6.257V	1.182nA
52	6.381V	1.100nA	6.310V	1.053nA	6.253V	1.126nA	6.316V	1.137nA
53	6.377V	1.165nA	6.271V	1.118nA	6.331V	1.049nA	6.244V	1.097nA
54	6.220V	1.171nA	6.266V	1.037nA	6.215V	1.197nA	6.217V	1.070nA
55	6.295V	1.121nA	6.219V	1.233nA	6.362V	1.111nA	6.334V	1.233nA
56	6.361V	1.249nA	6.340V	1.120nA	6.337V	1.152nA	6.326V	1.046nA
57	6.239V	1.193nA	6.368V	1.177nA	6.265V	1.086nA	6.292V	1.098nA
58	6.281V	1.151nA	6.325V	1.227nA	6.365V	1.098nA	6.343V	1.090nA



High Temperature Storage Life Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 150°C, 1000Hrs

Test Date: 2017.10.05 ~ 2017.11.17

Test Standard : JESD22 STANDARD Method-A103

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
59	6.235V	1.165nA	6.297V	1.209nA	6.206V	1.161nA	6.326V	1.206nA
60	6.236V	1.215nA	6.210V	1.188nA	6.362V	1.064nA	6.349V	1.224nA
61	6.366V	1.257nA	6.237V	1.244nA	6.304V	1.150nA	6.212V	1.082nA
62	6.235V	1.177nA	6.311V	1.206nA	6.287V	1.166nA	6.363V	1.149nA
63	6.351V	1.162nA	6.365V	1.152nA	6.251V	1.057nA	6.213V	1.171nA
64	6.380V	1.073nA	6.343V	1.242nA	6.281V	1.227nA	6.389V	1.062nA
65	6.313V	1.232nA	6.359V	1.135nA	6.383V	1.087nA	6.288V	1.222nA
66	6.365V	1.066nA	6.307V	1.222nA	6.222V	1.168nA	6.279V	1.050nA
67	6.355V	1.152nA	6.245V	1.208nA	6.382V	1.192nA	6.278V	1.120nA
68	6.296V	1.090nA	6.266V	1.058nA	6.317V	1.092nA	6.205V	1.256nA
69	6.363V	1.092nA	6.282V	1.165nA	6.314V	1.204nA	6.379V	1.218nA
70	6.246V	1.040nA	6.270V	1.070nA	6.266V	1.117nA	6.337V	1.154nA
71	6.302V	1.241nA	6.297V	1.079nA	6.356V	1.088nA	6.290V	1.163nA
72	6.249V	1.144nA	6.372V	1.173nA	6.220V	1.193nA	6.346V	1.054nA
73	6.364V	1.043nA	6.246V	1.090nA	6.271V	1.062nA	6.360V	1.114nA
74	6.348V	1.058nA	6.377V	1.050nA	6.319V	1.197nA	6.212V	1.155nA
75	6.362V	1.178nA	6.327V	1.243nA	6.347V	1.046nA	6.368V	1.078nA
76	6.322V	1.098nA	6.283V	1.147nA	6.334V	1.141nA	6.256V	1.159nA
77	6.371V	1.166nA	6.305V	1.251nA	6.385V	1.160nA	6.322V	1.082nA

Made By: King Huang

Approval: Peter Yang



SeCoS Corporation

Pressure Cooker Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 121°C, 100%RH, 29.7PSIG, 168Hrs

Test Date: 2017.10.05 ~ 2017.10.13

Test Standard : JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.376V	1.238nA	6.378V	1.073nA	6.284V	1.256nA	6.230V	1.224nA
2	6.270V	1.136nA	6.309V	1.119nA	6.210V	1.124nA	6.280V	1.115nA
3	6.296V	1.093nA	6.248V	1.170nA	6.258V	1.122nA	6.265V	1.257nA
4	6.335V	1.062nA	6.386V	1.045nA	6.313V	1.114nA	6.376V	1.102nA
5	6.331V	1.254nA	6.370V	1.153nA	6.355V	1.092nA	6.314V	1.065nA
6	6.267V	1.161nA	6.228V	1.142nA	6.359V	1.074nA	6.331V	1.236nA
7	6.246V	1.082nA	6.268V	1.241nA	6.329V	1.045nA	6.374V	1.230nA
8	6.207V	1.125nA	6.380V	1.105nA	6.293V	1.216nA	6.303V	1.050nA
9	6.270V	1.155nA	6.385V	1.195nA	6.324V	1.153nA	6.357V	1.194nA
10	6.377V	1.052nA	6.235V	1.154nA	6.247V	1.074nA	6.332V	1.039nA
11	6.300V	1.177nA	6.270V	1.118nA	6.378V	1.048nA	6.347V	1.181nA
12	6.297V	1.150nA	6.304V	1.227nA	6.278V	1.129nA	6.251V	1.196nA
13	6.321V	1.080nA	6.364V	1.202nA	6.315V	1.183nA	6.300V	1.113nA
14	6.261V	1.161nA	6.226V	1.118nA	6.383V	1.151nA	6.242V	1.150nA
15	6.308V	1.087nA	6.312V	1.141nA	6.290V	1.170nA	6.296V	1.039nA
16	6.332V	1.118nA	6.238V	1.182nA	6.340V	1.208nA	6.290V	1.065nA
17	6.230V	1.203nA	6.246V	1.123nA	6.251V	1.252nA	6.342V	1.191nA
18	6.303V	1.242nA	6.272V	1.109nA	6.255V	1.129nA	6.235V	1.237nA
19	6.382V	1.041nA	6.378V	1.186nA	6.324V	1.145nA	6.383V	1.211nA
20	6.337V	1.070nA	6.247V	1.220nA	6.377V	1.210nA	6.355V	1.063nA
21	6.250V	1.220nA	6.279V	1.079nA	6.348V	1.202nA	6.340V	1.160nA
22	6.217V	1.076nA	6.310V	1.179nA	6.339V	1.259nA	6.273V	1.190nA
23	6.289V	1.243nA	6.255V	1.165nA	6.219V	1.231nA	6.372V	1.075nA
24	6.389V	1.173nA	6.250V	1.059nA	6.294V	1.051nA	6.305V	1.226nA
25	6.364V	1.077nA	6.382V	1.113nA	6.371V	1.206nA	6.253V	1.195nA
26	6.238V	1.083nA	6.221V	1.181nA	6.249V	1.156nA	6.346V	1.165nA
27	6.235V	1.196nA	6.214V	1.086nA	6.349V	1.042nA	6.256V	1.085nA
28	6.348V	1.077nA	6.368V	1.049nA	6.274V	1.083nA	6.385V	1.220nA
29	6.209V	1.158nA	6.375V	1.237nA	6.224V	1.040nA	6.243V	1.127nA



SeCoS Corporation

Pressure Cooker Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 121°C, 100%RH, 29.7PSIG, 168Hrs

Test Date: 2017.10.05 ~ 2017.10.13

Test Standard : JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
30	6.366V	1.055nA	6.378V	1.191nA	6.234V	1.225nA	6.257V	1.092nA
31	6.355V	1.143nA	6.364V	1.046nA	6.315V	1.135nA	6.256V	1.173nA
32	6.284V	1.052nA	6.369V	1.188nA	6.266V	1.133nA	6.286V	1.244nA
33	6.303V	1.137nA	6.322V	1.075nA	6.256V	1.087nA	6.246V	1.161nA
34	6.245V	1.098nA	6.388V	1.199nA	6.257V	1.183nA	6.284V	1.088nA
35	6.352V	1.102nA	6.354V	1.187nA	6.296V	1.129nA	6.315V	1.215nA
36	6.350V	1.206nA	6.362V	1.124nA	6.243V	1.049nA	6.326V	1.158nA
37	6.324V	1.210nA	6.258V	1.093nA	6.300V	1.203nA	6.313V	1.061nA
38	6.280V	1.151nA	6.230V	1.061nA	6.208V	1.252nA	6.310V	1.190nA
39	6.246V	1.130nA	6.226V	1.101nA	6.212V	1.086nA	6.246V	1.134nA
40	6.212V	1.080nA	6.234V	1.247nA	6.362V	1.164nA	6.259V	1.150nA
41	6.261V	1.213nA	6.297V	1.250nA	6.326V	1.141nA	6.369V	1.059nA
42	6.283V	1.154nA	6.237V	1.168nA	6.307V	1.250nA	6.208V	1.144nA
43	6.309V	1.076nA	6.332V	1.111nA	6.321V	1.062nA	6.366V	1.234nA
44	6.270V	1.120nA	6.214V	1.195nA	6.371V	1.103nA	6.253V	1.118nA
45	6.271V	1.068nA	6.277V	1.259nA	6.216V	1.089nA	6.222V	1.070nA
46	6.343V	1.230nA	6.374V	1.219nA	6.254V	1.056nA	6.359V	1.211nA
47	6.355V	1.193nA	6.266V	1.038nA	6.230V	1.226nA	6.294V	1.227nA
48	6.248V	1.183nA	6.222V	1.063nA	6.307V	1.130nA	6.232V	1.106nA
49	6.307V	1.258nA	6.274V	1.038nA	6.356V	1.049nA	6.205V	1.240nA
50	6.335V	1.082nA	6.386V	1.049nA	6.274V	1.160nA	6.271V	1.196nA
51	6.314V	1.079nA	6.276V	1.101nA	6.208V	1.220nA	6.299V	1.096nA
52	6.218V	1.159nA	6.270V	1.145nA	6.316V	1.252nA	6.295V	1.171nA
53	6.291V	1.067nA	6.257V	1.126nA	6.322V	1.076nA	6.255V	1.130nA
54	6.389V	1.053nA	6.366V	1.143nA	6.279V	1.236nA	6.208V	1.069nA
55	6.334V	1.094nA	6.373V	1.060nA	6.279V	1.230nA	6.274V	1.065nA
56	6.299V	1.121nA	6.269V	1.249nA	6.322V	1.128nA	6.342V	1.083nA
57	6.210V	1.119nA	6.341V	1.138nA	6.255V	1.181nA	6.241V	1.237nA
58	6.382V	1.049nA	6.298V	1.043nA	6.225V	1.075nA	6.328V	1.038nA



SeCoS Corporation

Pressure Cooker Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 121°C, 100%RH, 29.7PSIG, 168Hrs

Test Date: 2017.10.05 ~ 2017.10.13

Test Standard : JESD22 STANDARD Method-A102

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
59	6.370V	1.143nA	6.316V	1.069nA	6.215V	1.174nA	6.253V	1.155nA
60	6.293V	1.228nA	6.258V	1.234nA	6.388V	1.215nA	6.247V	1.186nA
61	6.352V	1.124nA	6.256V	1.253nA	6.328V	1.055nA	6.219V	1.188nA
62	6.261V	1.121nA	6.285V	1.243nA	6.257V	1.158nA	6.297V	1.205nA
63	6.333V	1.183nA	6.375V	1.060nA	6.326V	1.250nA	6.281V	1.130nA
64	6.325V	1.114nA	6.368V	1.062nA	6.226V	1.126nA	6.360V	1.112nA
65	6.287V	1.076nA	6.265V	1.117nA	6.378V	1.037nA	6.346V	1.257nA
66	6.266V	1.055nA	6.230V	1.157nA	6.365V	1.073nA	6.241V	1.086nA
67	6.357V	1.236nA	6.260V	1.179nA	6.299V	1.119nA	6.305V	1.176nA
68	6.286V	1.149nA	6.380V	1.194nA	6.206V	1.055nA	6.261V	1.141nA
69	6.343V	1.187nA	6.268V	1.078nA	6.342V	1.179nA	6.225V	1.225nA
70	6.225V	1.106nA	6.223V	1.221nA	6.351V	1.201nA	6.235V	1.176nA
71	6.297V	1.231nA	6.244V	1.211nA	6.275V	1.200nA	6.310V	1.194nA
72	6.272V	1.157nA	6.370V	1.098nA	6.314V	1.067nA	6.382V	1.192nA
73	6.235V	1.092nA	6.298V	1.117nA	6.237V	1.076nA	6.378V	1.160nA
74	6.352V	1.133nA	6.340V	1.109nA	6.227V	1.242nA	6.277V	1.257nA
75	6.360V	1.122nA	6.320V	1.233nA	6.337V	1.224nA	6.235V	1.111nA
76	6.234V	1.099nA	6.264V	1.221nA	6.229V	1.117nA	6.294V	1.056nA
77	6.320V	1.042nA	6.276V	1.190nA	6.295V	1.170nA	6.238V	1.149nA

Made By: King Huang

Approval: Peter Yang



SeCoS Corporation

Temperature Cycle Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: -55°C/30min, 150°C/30min, for1000 Cycle

Test Date: 2017.10.06 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.354V	1.170nA	6.294V	1.208nA	6.298V	1.144nA	6.212V	1.202nA
2	6.266V	1.236nA	6.251V	1.047nA	6.269V	1.049nA	6.364V	1.167nA
3	6.327V	1.211nA	6.374V	1.173nA	6.357V	1.251nA	6.226V	1.229nA
4	6.266V	1.191nA	6.312V	1.256nA	6.282V	1.099nA	6.242V	1.258nA
5	6.276V	1.227nA	6.239V	1.040nA	6.384V	1.168nA	6.352V	1.072nA
6	6.377V	1.043nA	6.345V	1.079nA	6.361V	1.046nA	6.334V	1.202nA
7	6.349V	1.140nA	6.352V	1.221nA	6.368V	1.154nA	6.340V	1.194nA
8	6.250V	1.067nA	6.221V	1.226nA	6.292V	1.054nA	6.334V	1.258nA
9	6.372V	1.154nA	6.377V	1.166nA	6.300V	1.159nA	6.330V	1.165nA
10	6.234V	1.040nA	6.231V	1.080nA	6.364V	1.072nA	6.253V	1.041nA
11	6.231V	1.039nA	6.247V	1.065nA	6.315V	1.204nA	6.321V	1.136nA
12	6.368V	1.241nA	6.312V	1.049nA	6.321V	1.162nA	6.294V	1.216nA
13	6.291V	1.135nA	6.343V	1.214nA	6.301V	1.219nA	6.322V	1.085nA
14	6.385V	1.224nA	6.248V	1.253nA	6.357V	1.103nA	6.370V	1.156nA
15	6.282V	1.105nA	6.233V	1.094nA	6.367V	1.108nA	6.235V	1.044nA
16	6.270V	1.058nA	6.296V	1.195nA	6.297V	1.064nA	6.379V	1.137nA
17	6.331V	1.082nA	6.222V	1.103nA	6.272V	1.135nA	6.379V	1.078nA
18	6.367V	1.138nA	6.307V	1.043nA	6.309V	1.227nA	6.209V	1.049nA
19	6.283V	1.073nA	6.370V	1.082nA	6.358V	1.052nA	6.213V	1.151nA
20	6.320V	1.244nA	6.292V	1.230nA	6.294V	1.068nA	6.277V	1.221nA
21	6.338V	1.065nA	6.316V	1.147nA	6.283V	1.247nA	6.259V	1.210nA
22	6.379V	1.173nA	6.268V	1.121nA	6.276V	1.123nA	6.386V	1.125nA
23	6.227V	1.189nA	6.205V	1.084nA	6.254V	1.182nA	6.262V	1.082nA
24	6.305V	1.226nA	6.263V	1.141nA	6.354V	1.212nA	6.218V	1.041nA
25	6.320V	1.189nA	6.364V	1.219nA	6.254V	1.186nA	6.314V	1.256nA
26	6.218V	1.135nA	6.277V	1.253nA	6.381V	1.234nA	6.212V	1.169nA
27	6.307V	1.083nA	6.339V	1.248nA	6.315V	1.074nA	6.244V	1.118nA
28	6.324V	1.101nA	6.261V	1.171nA	6.280V	1.125nA	6.345V	1.159nA
29	6.335V	1.206nA	6.309V	1.181nA	6.239V	1.143nA	6.287V	1.145nA



SeCoS Corporation

Temperature Cycle Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: -55°C/30min, 150°C/30min, for1000 Cycle

Test Date: 2017.10.06 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
30	6.222V	1.103nA	6.208V	1.093nA	6.311V	1.041nA	6.306V	1.255nA
31	6.340V	1.048nA	6.342V	1.125nA	6.327V	1.129nA	6.315V	1.133nA
32	6.368V	1.177nA	6.232V	1.153nA	6.367V	1.237nA	6.320V	1.038nA
33	6.337V	1.141nA	6.260V	1.082nA	6.273V	1.247nA	6.356V	1.082nA
34	6.279V	1.238nA	6.271V	1.082nA	6.381V	1.103nA	6.212V	1.212nA
35	6.305V	1.133nA	6.301V	1.177nA	6.388V	1.065nA	6.258V	1.215nA
36	6.271V	1.174nA	6.373V	1.099nA	6.356V	1.177nA	6.241V	1.051nA
37	6.209V	1.042nA	6.373V	1.069nA	6.334V	1.175nA	6.238V	1.160nA
38	6.246V	1.125nA	6.361V	1.230nA	6.289V	1.182nA	6.255V	1.141nA
39	6.288V	1.106nA	6.257V	1.239nA	6.284V	1.226nA	6.313V	1.090nA
40	6.212V	1.226nA	6.253V	1.185nA	6.316V	1.131nA	6.344V	1.248nA
41	6.338V	1.217nA	6.375V	1.161nA	6.274V	1.053nA	6.277V	1.159nA
42	6.364V	1.156nA	6.306V	1.190nA	6.256V	1.191nA	6.361V	1.172nA
43	6.330V	1.223nA	6.337V	1.244nA	6.249V	1.056nA	6.227V	1.143nA
44	6.328V	1.045nA	6.307V	1.250nA	6.222V	1.187nA	6.330V	1.184nA
45	6.294V	1.250nA	6.311V	1.101nA	6.365V	1.216nA	6.372V	1.192nA
46	6.242V	1.059nA	6.331V	1.185nA	6.283V	1.253nA	6.226V	1.162nA
47	6.388V	1.111nA	6.256V	1.204nA	6.361V	1.232nA	6.359V	1.241nA
48	6.345V	1.236nA	6.290V	1.071nA	6.248V	1.039nA	6.261V	1.119nA
49	6.354V	1.146nA	6.308V	1.208nA	6.378V	1.118nA	6.247V	1.166nA
50	6.249V	1.215nA	6.253V	1.059nA	6.244V	1.084nA	6.344V	1.056nA
51	6.323V	1.091nA	6.234V	1.038nA	6.256V	1.207nA	6.275V	1.105nA
52	6.256V	1.203nA	6.303V	1.152nA	6.310V	1.075nA	6.384V	1.150nA
53	6.253V	1.234nA	6.355V	1.180nA	6.368V	1.103nA	6.373V	1.139nA
54	6.357V	1.051nA	6.354V	1.249nA	6.339V	1.074nA	6.291V	1.246nA
55	6.293V	1.097nA	6.252V	1.069nA	6.249V	1.064nA	6.216V	1.110nA
56	6.306V	1.090nA	6.380V	1.227nA	6.333V	1.125nA	6.305V	1.114nA
57	6.324V	1.247nA	6.238V	1.251nA	6.294V	1.039nA	6.269V	1.069nA
58	6.256V	1.135nA	6.378V	1.200nA	6.276V	1.109nA	6.337V	1.227nA



SeCoS Corporation

Temperature Cycle Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: -55°C/30min, 150°C/30min, for1000 Cycle

Test Date: 2017.10.06 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A104

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
59	6.270V	1.091nA	6.358V	1.256nA	6.292V	1.254nA	6.247V	1.136nA
60	6.300V	1.083nA	6.285V	1.189nA	6.264V	1.053nA	6.216V	1.127nA
61	6.218V	1.248nA	6.290V	1.107nA	6.258V	1.258nA	6.209V	1.095nA
62	6.374V	1.196nA	6.225V	1.242nA	6.374V	1.204nA	6.293V	1.146nA
63	6.353V	1.146nA	6.372V	1.170nA	6.242V	1.061nA	6.271V	1.088nA
64	6.385V	1.179nA	6.320V	1.170nA	6.348V	1.084nA	6.381V	1.155nA
65	6.272V	1.247nA	6.250V	1.105nA	6.325V	1.083nA	6.331V	1.187nA
66	6.304V	1.248nA	6.213V	1.082nA	6.265V	1.165nA	6.375V	1.170nA
67	6.328V	1.144nA	6.383V	1.043nA	6.332V	1.185nA	6.275V	1.254nA
68	6.347V	1.241nA	6.222V	1.102nA	6.353V	1.253nA	6.372V	1.115nA
69	6.335V	1.247nA	6.316V	1.122nA	6.359V	1.098nA	6.219V	1.156nA
70	6.241V	1.046nA	6.273V	1.150nA	6.225V	1.111nA	6.228V	1.213nA
71	6.225V	1.118nA	6.230V	1.194nA	6.388V	1.249nA	6.325V	1.071nA
72	6.312V	1.081nA	6.209V	1.132nA	6.239V	1.110nA	6.366V	1.060nA
73	6.352V	1.219nA	6.268V	1.237nA	6.295V	1.134nA	6.249V	1.236nA
74	6.314V	1.186nA	6.230V	1.242nA	6.296V	1.113nA	6.343V	1.167nA
75	6.354V	1.227nA	6.280V	1.065nA	6.325V	1.064nA	6.356V	1.087nA
76	6.348V	1.210nA	6.251V	1.123nA	6.224V	1.233nA	6.271V	1.206nA
77	6.271V	1.112nA	6.287V	1.052nA	6.358V	1.102nA	6.339V	1.103nA

Made By: King Huang

Approval: Peter Yang



High Temperature High Humidity Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 85±2°C, 85±5%RH, 1000Hrs

Test Date: 2017.10.16 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.249V	1.218nA	6.312V	1.082nA	6.347V	1.188nA	6.387V	1.087nA
2	6.337V	1.100nA	6.290V	1.186nA	6.316V	1.139nA	6.290V	1.170nA
3	6.380V	1.113nA	6.240V	1.196nA	6.339V	1.134nA	6.345V	1.049nA
4	6.306V	1.107nA	6.221V	1.257nA	6.377V	1.153nA	6.336V	1.146nA
5	6.313V	1.122nA	6.307V	1.125nA	6.288V	1.180nA	6.239V	1.053nA
6	6.360V	1.180nA	6.275V	1.075nA	6.264V	1.072nA	6.378V	1.177nA
7	6.321V	1.252nA	6.248V	1.108nA	6.343V	1.091nA	6.364V	1.098nA
8	6.297V	1.085nA	6.324V	1.198nA	6.229V	1.043nA	6.364V	1.117nA
9	6.217V	1.201nA	6.335V	1.209nA	6.280V	1.082nA	6.310V	1.046nA
10	6.244V	1.178nA	6.383V	1.061nA	6.286V	1.202nA	6.293V	1.093nA
11	6.224V	1.108nA	6.239V	1.190nA	6.389V	1.155nA	6.297V	1.226nA
12	6.238V	1.196nA	6.257V	1.128nA	6.375V	1.246nA	6.311V	1.088nA
13	6.304V	1.225nA	6.247V	1.154nA	6.262V	1.253nA	6.245V	1.237nA
14	6.339V	1.115nA	6.353V	1.052nA	6.346V	1.206nA	6.348V	1.097nA
15	6.299V	1.074nA	6.364V	1.255nA	6.214V	1.061nA	6.257V	1.252nA
16	6.308V	1.185nA	6.245V	1.184nA	6.351V	1.055nA	6.301V	1.097nA
17	6.344V	1.194nA	6.234V	1.253nA	6.368V	1.084nA	6.310V	1.214nA
18	6.385V	1.038nA	6.356V	1.144nA	6.231V	1.074nA	6.245V	1.231nA
19	6.314V	1.225nA	6.363V	1.047nA	6.290V	1.172nA	6.252V	1.151nA
20	6.319V	1.063nA	6.233V	1.222nA	6.347V	1.226nA	6.371V	1.112nA
21	6.245V	1.173nA	6.310V	1.047nA	6.234V	1.062nA	6.363V	1.169nA
22	6.306V	1.091nA	6.274V	1.175nA	6.362V	1.189nA	6.223V	1.239nA
23	6.232V	1.085nA	6.230V	1.081nA	6.214V	1.144nA	6.243V	1.213nA
24	6.255V	1.190nA	6.244V	1.079nA	6.232V	1.140nA	6.382V	1.219nA
25	6.281V	1.115nA	6.339V	1.110nA	6.288V	1.203nA	6.269V	1.244nA
26	6.381V	1.054nA	6.211V	1.206nA	6.281V	1.219nA	6.229V	1.125nA
27	6.371V	1.123nA	6.378V	1.235nA	6.214V	1.238nA	6.372V	1.047nA
28	6.269V	1.051nA	6.388V	1.184nA	6.373V	1.245nA	6.314V	1.130nA
29	6.240V	1.084nA	6.284V	1.180nA	6.217V	1.096nA	6.355V	1.202nA



High Temperature High Humidity Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 85±2°C , 85±5%RH, 1000Hrs

Test Date: 2017.10.16 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
30	6.335V	1.086nA	6.216V	1.064nA	6.354V	1.237nA	6.344V	1.056nA
31	6.214V	1.231nA	6.237V	1.136nA	6.243V	1.063nA	6.334V	1.129nA
32	6.388V	1.047nA	6.271V	1.076nA	6.357V	1.138nA	6.279V	1.055nA
33	6.356V	1.078nA	6.350V	1.164nA	6.292V	1.080nA	6.329V	1.182nA
34	6.362V	1.149nA	6.287V	1.214nA	6.242V	1.246nA	6.384V	1.137nA
35	6.343V	1.080nA	6.235V	1.191nA	6.229V	1.185nA	6.352V	1.192nA
36	6.217V	1.203nA	6.369V	1.106nA	6.383V	1.224nA	6.292V	1.084nA
37	6.238V	1.235nA	6.346V	1.132nA	6.296V	1.227nA	6.308V	1.194nA
38	6.274V	1.185nA	6.296V	1.039nA	6.217V	1.199nA	6.266V	1.222nA
39	6.238V	1.091nA	6.261V	1.062nA	6.259V	1.194nA	6.333V	1.200nA
40	6.212V	1.082nA	6.338V	1.077nA	6.331V	1.132nA	6.264V	1.181nA
41	6.287V	1.187nA	6.328V	1.109nA	6.295V	1.118nA	6.300V	1.174nA
42	6.223V	1.148nA	6.306V	1.061nA	6.210V	1.146nA	6.264V	1.096nA
43	6.214V	1.161nA	6.339V	1.082nA	6.284V	1.182nA	6.369V	1.178nA
44	6.243V	1.142nA	6.208V	1.161nA	6.276V	1.120nA	6.208V	1.142nA
45	6.312V	1.195nA	6.234V	1.182nA	6.311V	1.201nA	6.240V	1.108nA
46	6.267V	1.091nA	6.280V	1.144nA	6.220V	1.197nA	6.273V	1.197nA
47	6.358V	1.150nA	6.300V	1.254nA	6.308V	1.082nA	6.333V	1.232nA
48	6.369V	1.170nA	6.292V	1.252nA	6.221V	1.136nA	6.288V	1.044nA
49	6.249V	1.038nA	6.215V	1.244nA	6.339V	1.050nA	6.322V	1.203nA
50	6.374V	1.155nA	6.383V	1.159nA	6.311V	1.222nA	6.230V	1.043nA
51	6.373V	1.161nA	6.260V	1.113nA	6.209V	1.099nA	6.214V	1.090nA
52	6.205V	1.183nA	6.344V	1.216nA	6.385V	1.222nA	6.301V	1.158nA
53	6.268V	1.046nA	6.293V	1.241nA	6.319V	1.043nA	6.283V	1.216nA
54	6.250V	1.052nA	6.258V	1.127nA	6.346V	1.256nA	6.350V	1.193nA
55	6.230V	1.056nA	6.276V	1.177nA	6.294V	1.079nA	6.321V	1.212nA
56	6.280V	1.131nA	6.363V	1.052nA	6.271V	1.236nA	6.227V	1.123nA
57	6.388V	1.100nA	6.229V	1.097nA	6.220V	1.116nA	6.312V	1.144nA
58	6.219V	1.127nA	6.276V	1.083nA	6.242V	1.181nA	6.357V	1.062nA



High Temperature High Humidity Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 85±2°C , 85±5%RH, 1000Hrs

Test Date: 2017.10.16 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
59	6.329V	1.048nA	6.385V	1.114nA	6.337V	1.064nA	6.259V	1.086nA
60	6.319V	1.047nA	6.388V	1.075nA	6.334V	1.040nA	6.342V	1.146nA
61	6.354V	1.170nA	6.261V	1.160nA	6.317V	1.250nA	6.207V	1.167nA
62	6.262V	1.062nA	6.323V	1.059nA	6.362V	1.101nA	6.358V	1.200nA
63	6.208V	1.173nA	6.340V	1.119nA	6.373V	1.053nA	6.384V	1.096nA
64	6.322V	1.082nA	6.298V	1.221nA	6.370V	1.126nA	6.380V	1.164nA
65	6.210V	1.237nA	6.225V	1.147nA	6.360V	1.098nA	6.348V	1.102nA
66	6.333V	1.117nA	6.277V	1.107nA	6.347V	1.156nA	6.275V	1.117nA
67	6.308V	1.096nA	6.212V	1.203nA	6.316V	1.227nA	6.246V	1.081nA
68	6.389V	1.181nA	6.328V	1.215nA	6.335V	1.089nA	6.235V	1.100nA
69	6.318V	1.118nA	6.367V	1.134nA	6.371V	1.071nA	6.257V	1.242nA
70	6.278V	1.046nA	6.225V	1.084nA	6.281V	1.176nA	6.250V	1.045nA
71	6.379V	1.165nA	6.367V	1.086nA	6.376V	1.159nA	6.304V	1.181nA
72	6.266V	1.065nA	6.292V	1.133nA	6.327V	1.233nA	6.280V	1.039nA
73	6.255V	1.046nA	6.214V	1.139nA	6.261V	1.038nA	6.377V	1.157nA
74	6.245V	1.125nA	6.258V	1.208nA	6.362V	1.240nA	6.215V	1.258nA
75	6.274V	1.209nA	6.245V	1.154nA	6.230V	1.241nA	6.378V	1.112nA
76	6.382V	1.122nA	6.239V	1.207nA	6.277V	1.183nA	6.239V	1.241nA
77	6.289V	1.056nA	6.309V	1.190nA	6.266V	1.221nA	6.251V	1.059nA

Made By: King Huang

Approval: Peter Yang



High Temperature High Humidity Reverse Bias Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 85±2°C, 85±5%RH, 80% VR, 1000Hrs

Test Date: 2017.10.16 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.277V	1.190nA	6.222V	1.211nA	6.389V	1.243nA	6.288V	1.174nA
2	6.374V	1.053nA	6.332V	1.132nA	6.262V	1.177nA	6.329V	1.199nA
3	6.364V	1.163nA	6.316V	1.041nA	6.227V	1.114nA	6.361V	1.115nA
4	6.277V	1.170nA	6.278V	1.084nA	6.229V	1.251nA	6.223V	1.187nA
5	6.355V	1.126nA	6.209V	1.084nA	6.216V	1.061nA	6.329V	1.233nA
6	6.265V	1.109nA	6.270V	1.158nA	6.296V	1.214nA	6.322V	1.153nA
7	6.311V	1.233nA	6.341V	1.150nA	6.253V	1.237nA	6.291V	1.159nA
8	6.379V	1.225nA	6.351V	1.212nA	6.246V	1.076nA	6.332V	1.195nA
9	6.333V	1.197nA	6.227V	1.085nA	6.309V	1.122nA	6.230V	1.168nA
10	6.300V	1.252nA	6.237V	1.167nA	6.285V	1.203nA	6.342V	1.156nA
11	6.252V	1.220nA	6.330V	1.189nA	6.244V	1.046nA	6.371V	1.172nA
12	6.302V	1.071nA	6.389V	1.195nA	6.316V	1.134nA	6.267V	1.146nA
13	6.319V	1.137nA	6.272V	1.171nA	6.222V	1.065nA	6.320V	1.231nA
14	6.263V	1.248nA	6.261V	1.120nA	6.349V	1.085nA	6.292V	1.229nA
15	6.307V	1.257nA	6.284V	1.237nA	6.264V	1.228nA	6.287V	1.094nA
16	6.327V	1.247nA	6.383V	1.247nA	6.295V	1.212nA	6.267V	1.211nA
17	6.380V	1.075nA	6.301V	1.207nA	6.333V	1.100nA	6.347V	1.085nA
18	6.243V	1.212nA	6.206V	1.186nA	6.249V	1.044nA	6.346V	1.098nA
19	6.276V	1.139nA	6.359V	1.047nA	6.387V	1.073nA	6.334V	1.160nA
20	6.350V	1.116nA	6.347V	1.205nA	6.370V	1.174nA	6.373V	1.158nA
21	6.278V	1.223nA	6.213V	1.254nA	6.255V	1.086nA	6.266V	1.038nA
22	6.240V	1.115nA	6.322V	1.243nA	6.321V	1.121nA	6.233V	1.213nA
23	6.359V	1.148nA	6.321V	1.067nA	6.253V	1.236nA	6.246V	1.169nA
24	6.332V	1.147nA	6.227V	1.075nA	6.221V	1.106nA	6.366V	1.195nA
25	6.383V	1.246nA	6.236V	1.196nA	6.290V	1.190nA	6.245V	1.131nA
26	6.238V	1.095nA	6.211V	1.170nA	6.382V	1.154nA	6.300V	1.123nA
27	6.361V	1.116nA	6.357V	1.066nA	6.334V	1.139nA	6.373V	1.073nA
28	6.272V	1.043nA	6.226V	1.046nA	6.336V	1.151nA	6.249V	1.252nA
29	6.322V	1.082nA	6.368V	1.078nA	6.336V	1.239nA	6.347V	1.244nA



High Temperature High Humidity Reverse Bias Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 85±2°C, 85±5%RH, 80% VR, 1000Hrs

Test Date: 2017.10.16 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
30	6.353V	1.085nA	6.207V	1.140nA	6.350V	1.144nA	6.267V	1.244nA
31	6.281V	1.146nA	6.385V	1.152nA	6.228V	1.214nA	6.360V	1.248nA
32	6.239V	1.082nA	6.258V	1.081nA	6.298V	1.045nA	6.355V	1.052nA
33	6.293V	1.258nA	6.280V	1.236nA	6.263V	1.254nA	6.359V	1.041nA
34	6.295V	1.105nA	6.217V	1.067nA	6.380V	1.223nA	6.263V	1.171nA
35	6.236V	1.224nA	6.266V	1.042nA	6.355V	1.106nA	6.261V	1.181nA
36	6.225V	1.095nA	6.213V	1.130nA	6.290V	1.087nA	6.276V	1.210nA
37	6.307V	1.083nA	6.211V	1.098nA	6.220V	1.154nA	6.383V	1.048nA
38	6.366V	1.079nA	6.383V	1.256nA	6.302V	1.162nA	6.280V	1.236nA
39	6.356V	1.130nA	6.328V	1.204nA	6.244V	1.071nA	6.307V	1.139nA
40	6.255V	1.111nA	6.260V	1.056nA	6.316V	1.214nA	6.334V	1.097nA
41	6.266V	1.072nA	6.297V	1.123nA	6.275V	1.121nA	6.255V	1.209nA
42	6.389V	1.171nA	6.322V	1.243nA	6.372V	1.249nA	6.346V	1.185nA
43	6.214V	1.082nA	6.270V	1.238nA	6.363V	1.127nA	6.378V	1.187nA
44	6.261V	1.199nA	6.243V	1.184nA	6.336V	1.085nA	6.215V	1.137nA
45	6.270V	1.042nA	6.327V	1.132nA	6.250V	1.194nA	6.382V	1.085nA
46	6.310V	1.081nA	6.271V	1.121nA	6.316V	1.058nA	6.388V	1.153nA
47	6.360V	1.097nA	6.334V	1.041nA	6.229V	1.113nA	6.255V	1.132nA
48	6.253V	1.130nA	6.360V	1.145nA	6.345V	1.114nA	6.375V	1.057nA
49	6.277V	1.076nA	6.231V	1.141nA	6.295V	1.148nA	6.303V	1.212nA
50	6.237V	1.235nA	6.232V	1.220nA	6.216V	1.076nA	6.350V	1.157nA
51	6.240V	1.090nA	6.308V	1.208nA	6.330V	1.238nA	6.274V	1.236nA
52	6.373V	1.053nA	6.281V	1.130nA	6.206V	1.159nA	6.241V	1.112nA
53	6.237V	1.122nA	6.289V	1.225nA	6.234V	1.064nA	6.368V	1.148nA
54	6.225V	1.254nA	6.363V	1.237nA	6.366V	1.235nA	6.287V	1.094nA
55	6.318V	1.080nA	6.328V	1.090nA	6.242V	1.128nA	6.380V	1.140nA
56	6.304V	1.197nA	6.299V	1.158nA	6.329V	1.067nA	6.262V	1.182nA
57	6.329V	1.144nA	6.205V	1.188nA	6.255V	1.211nA	6.277V	1.127nA
58	6.282V	1.189nA	6.355V	1.193nA	6.343V	1.237nA	6.282V	1.162nA



High Temperature High Humidity Reverse Bias Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 85±2°C , 85±5%RH, 80% VR, 1000Hrs

Test Date: 2017.10.16 ~ 2017.11.28

Test Standard : JESD22 STANDARD Method-A101

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
59	6.331V	1.188nA	6.354V	1.242nA	6.358V	1.116nA	6.389V	1.057nA
60	6.219V	1.254nA	6.213V	1.240nA	6.215V	1.223nA	6.377V	1.228nA
61	6.325V	1.050nA	6.350V	1.104nA	6.390V	1.122nA	6.328V	1.068nA
62	6.205V	1.186nA	6.309V	1.236nA	6.351V	1.245nA	6.364V	1.042nA
63	6.267V	1.144nA	6.312V	1.075nA	6.300V	1.046nA	6.384V	1.259nA
64	6.234V	1.177nA	6.264V	1.130nA	6.264V	1.088nA	6.318V	1.251nA
65	6.252V	1.237nA	6.248V	1.105nA	6.345V	1.147nA	6.351V	1.103nA
66	6.216V	1.158nA	6.208V	1.241nA	6.281V	1.113nA	6.326V	1.111nA
67	6.387V	1.059nA	6.358V	1.191nA	6.295V	1.170nA	6.295V	1.040nA
68	6.382V	1.137nA	6.249V	1.072nA	6.223V	1.200nA	6.235V	1.236nA
69	6.252V	1.163nA	6.239V	1.039nA	6.311V	1.220nA	6.207V	1.142nA
70	6.365V	1.100nA	6.376V	1.219nA	6.270V	1.224nA	6.278V	1.147nA
71	6.225V	1.181nA	6.259V	1.204nA	6.243V	1.083nA	6.206V	1.117nA
72	6.238V	1.114nA	6.337V	1.114nA	6.385V	1.236nA	6.348V	1.095nA
73	6.342V	1.077nA	6.339V	1.050nA	6.316V	1.130nA	6.323V	1.058nA
74	6.236V	1.043nA	6.266V	1.143nA	6.364V	1.242nA	6.358V	1.089nA
75	6.292V	1.150nA	6.239V	1.237nA	6.345V	1.193nA	6.292V	1.145nA
76	6.278V	1.170nA	6.266V	1.133nA	6.210V	1.061nA	6.292V	1.258nA
77	6.356V	1.246nA	6.269V	1.223nA	6.384V	1.072nA	6.301V	1.071nA

Made By: King Huang

Approval: Peter Yang



Resistance to Solder Heat Test Data

Report No : T171130-106

Part No : STESD05C-C

Test Equipment: JUNO Test System DTS-1000

Test Condition : 5.8V>VBR>8.8V@I1=1mA, IR<1000nA@VR=5V

Test Condition: 270°C ± 5°C, 7Sec + 2Sec/-0Sec

Test Date: 2017.11.29

Test Standard : JESD22 STANDARD Method-B106

Operator: Leo Hsia

Test Result: PASS

No	Before				After			
	VBR	IR	VBR	IR	VBR	IR	VBR	IR
1	6.243V	1.080nA	6.353V	1.165nA	6.249V	1.066nA	6.265V	1.136nA
2	6.266V	1.095nA	6.277V	1.128nA	6.218V	1.110nA	6.370V	1.228nA
3	6.244V	1.101nA	6.374V	1.207nA	6.279V	1.175nA	6.346V	1.151nA
4	6.289V	1.052nA	6.232V	1.085nA	6.243V	1.113nA	6.214V	1.079nA
5	6.301V	1.151nA	6.314V	1.055nA	6.288V	1.055nA	6.249V	1.074nA
6	6.341V	1.177nA	6.387V	1.048nA	6.331V	1.053nA	6.210V	1.192nA
7	6.309V	1.096nA	6.329V	1.072nA	6.343V	1.245nA	6.308V	1.233nA
8	6.206V	1.130nA	6.213V	1.063nA	6.315V	1.225nA	6.324V	1.258nA
9	6.309V	1.072nA	6.383V	1.045nA	6.350V	1.098nA	6.278V	1.077nA
10	6.358V	1.211nA	6.266V	1.258nA	6.378V	1.079nA	6.277V	1.101nA

Made By: King Huang

Approval: Peter Yang

化學實驗室-高雄 Chemical Laboratory - Kao., SGS Taiwan Ltd.

試驗報告

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義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

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NO. 130, LIOUAN, LIOUAN LI, JIALI DIST., TAINAN CITY, TAIWAN

NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as) :

樣品名稱(Sample Description) : EPOXY MOLDING COMPOUND
 樣品型號(Style/Item No.) : ELER-8-SERIES
 收件日期(Sample Receiving Date) : 2017/06/13
 測試期間(Testing Period) : 2017/06/13 TO 2017/06/15
 送樣廠商(Sample Submitted By) : 義典科技股份有限公司 (E'DALE TECHNOLOGY CO., LTD.)

測試需求(Test Requested) :

- (1) 依據客戶指定, 參考RoHS2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP. (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.)
- (2) 其他測試項目請見下一頁 . (Please refer to next pages for the other item(s).)

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).

結論(Conclusion) :

- (1) 根據客戶所提供的樣品, 其鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚, DBP, BBP, DEHP, DIBP的測試結果符合RoHS指令暨(EU) 2015/863之限值要求. (Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by RoHS and amending Directive (EU) 2015/863.)




報告簽署人/Ray Chang, Ph.D./Manager-Tech
Signed for and on behalf of
SGS Taiwan Limited

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NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

測試結果(Test Results)

測試部位(PART NAME)No.1 : 黑色 EPOXY MOLDING COMPOUND
(BLACK EPOXY MOLDING COMPOUND)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)	限值 (Limit)
				No.1	
鎘 / Cadmium (Cd)	mg/kg	參考IEC 62321-5:2013方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5:2013 and performed by ICP-AES.	2	n.d.	100
鉛 / Lead (Pb)	mg/kg	參考IEC 62321-5:2013方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-5:2013 and performed by ICP-AES.	2	n.d.	1000
汞 / Mercury (Hg)	mg/kg	參考IEC 62321-4:2013方法, 以感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321-4:2013 and performed by ICP-AES.	2	n.d.	1000
六價鉻 / Hexavalent Chromium Cr(VI)	mg/kg	參考IEC 62321-7-2:2017, 以UV-VIS檢測. / With reference to IEC 62321-7-2:2017 and performed by UV-VIS.	8	n.d.	1000

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義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

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NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)	限值 (Limit)
				No.1	
多溴聯苯總和 / Sum of PBBs	mg/kg	參考IEC 62321-6: 2015方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS.	-	n.d.	1000
一溴聯苯 / Monobromobiphenyl	mg/kg		5	n.d.	-
二溴聯苯 / Dibromobiphenyl	mg/kg		5	n.d.	-
三溴聯苯 / Tribromobiphenyl	mg/kg		5	n.d.	-
四溴聯苯 / Tetrabromobiphenyl	mg/kg		5	n.d.	-
五溴聯苯 / Pentabromobiphenyl	mg/kg		5	n.d.	-
六溴聯苯 / Hexabromobiphenyl	mg/kg		5	n.d.	-
七溴聯苯 / Heptabromobiphenyl	mg/kg		5	n.d.	-
八溴聯苯 / Octabromobiphenyl	mg/kg		5	n.d.	-
九溴聯苯 / Nonabromobiphenyl	mg/kg		5	n.d.	-
十溴聯苯 / Decabromobiphenyl	mg/kg		5	n.d.	-
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	參考IEC 62321-6: 2015方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS.	-	n.d.	1000
一溴聯苯醚 / Monobromodiphenyl ether	mg/kg		5	n.d.	-
二溴聯苯醚 / Dibromodiphenyl ether	mg/kg		5	n.d.	-
三溴聯苯醚 / Tribromodiphenyl ether	mg/kg		5	n.d.	-
四溴聯苯醚 / Tetrabromodiphenyl ether	mg/kg		5	n.d.	-
五溴聯苯醚 / Pentabromodiphenyl ether	mg/kg		5	n.d.	-
六溴聯苯醚 / Hexabromodiphenyl ether	mg/kg		5	n.d.	-
七溴聯苯醚 / Heptabromodiphenyl ether	mg/kg		5	n.d.	-
八溴聯苯醚 / Octabromodiphenyl ether	mg/kg		5	n.d.	-
九溴聯苯醚 / Nonabromodiphenyl ether	mg/kg		5	n.d.	-
十溴聯苯醚 / Decabromodiphenyl ether	mg/kg	5	n.d.	-	

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)	限值 (Limit)
				No.1	
鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No.: 84-69-5)	mg/kg	參考IEC 62321-8:2017, 以氣相層析儀/ 質譜儀檢測。 / With reference to IEC 62321-8:2017. Analysis was performed by GC/MS.	50	n.d.	1000
鄰苯二甲酸丁苄甲酯 / BBP (Butyl Benzyl phthalate) (CAS No.: 85-68-7)	mg/kg		50	n.d.	1000
鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No.: 84-74-2)	mg/kg		50	n.d.	1000
鄰苯二甲酸二(2-乙基己基)酯 / DEHP (Di- (2-ethylhexyl) phthalate) (CAS No.: 117-81-7)	mg/kg		50	n.d.	1000
鄰苯二甲酸二異癸酯 / DIDP (Di-isodecyl phthalate) (CAS No.: 26761-40-0, 68515-49-1)	mg/kg		50	n.d.	-
鄰苯二甲酸二異壬酯 / DINP (Di-isononyl phthalate) (CAS No.: 28553-12-0, 68515-48-0)	mg/kg		50	n.d.	-
鄰苯二甲酸二正辛酯 / DNOP (Di-n-octyl phthalate) (CAS No.: 117-84-0)	mg/kg		50	n.d.	-
鄰苯二甲酸二(2-甲氧基乙基)酯 / DMEP (Bis (2-methoxyethyl) phthalate) (CAS No.: 117-82-8)	mg/kg		50	n.d.	-
鄰苯二甲酸二正戊酯 / DNPP (Di-n-pentyl phthalate) (CAS No.: 131-18-0)	mg/kg		50	n.d.	-
鄰苯二甲酸二己酯 / DNHP (Di-n-hexyl phthalate) (CAS No.: 84-75-3)	mg/kg		50	n.d.	-

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Test Report

義典科技股份有限公司

E'DALE TECHNOLOGY CO., LTD.

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NO. 130, LIOUAN, LIOUAN LI, JIALI DIST., TAINAN CITY, TAIWAN

NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)	限值 (Limit)
				No.1	
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測銻含量. / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.	-
鈹 / Beryllium (Be)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測鈹含量. / With reference to US EPA Method 3052 for Beryllium Content. Analysis was performed by ICP-AES.	2	n.d.	-
砷 / Arsenic (As)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測砷含量. / With reference to US EPA Method 3052 for Arsenic Content. Analysis was performed by ICP-AES.	2	n.d.	-
磷 / Phosphorus (P)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿 原子發射光譜儀檢測磷含量. / With reference to US EPA Method 3052 for Phosphorus Content. Analysis was performed by ICP-AES.	10	115	-
六溴環十二烷及所有主要被辨別出的異構物 / Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (α - HBCDD, β - HBCDD, γ - HBCDD) (CAS No.: 25637-99-4 and 3194-55-6 (134237-51-7, 134237-50-6, 134237-52-8))	mg/kg	參考IEC 62321: 2008方法, 以氣相層析/ 質譜儀檢測. / With reference to IEC 62321: 2008 method. Analysis was performed by GC/MS.	5	n.d.	-
四溴雙酚-A / Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	mg/kg	參考RSTS-E&E-121方法, 以液相層析/質 譜儀分析. / With reference to RSTS- E&E-121. Analysis was performed by LC/MS.	10	n.d.	-

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)	限值 (Limit)
				No.1	
紅磷 / Red phosphorus	**	本測試以熱裂解-氣相層析/質譜儀分析。 / Analysis was performed by Pyrolyzer-GC/MS.	-	Negative	-
聚氯乙烯 / PVC	**	以紅外光譜分析及焰色法檢測。/ Analysis was performed by FTIR and FLAME Test.	-	Negative	-
全氟辛酸(銨) / PFOA (CAS No.: 335-67-1)	mg/kg	參考US EPA 3550C: 2007方法, 以液相層 析/質譜儀檢測。/ With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS)	mg/kg	參考US EPA 3550C: 2007方法, 以液相層 析/質譜儀檢測。/ With reference to US EPA 3550C: 2007. Analysis was performed by LC/MS.	10	n.d.	-
鹵素 / Halogen					
鹵素(氟) / Halogen-Fluorine (F) (CAS No.: 014762-94-8)	mg/kg	參考BS EN 14582:2016, 以離子層析儀分 析。/ With reference to BS EN 14582:2016. Analysis was performed by IC.	50	n.d.	-
鹵素(氯) / Halogen-Chlorine (Cl) (CAS No.: 022537-15-1)	mg/kg		50	104	-
鹵素(溴) / Halogen-Bromine (Br) (CAS No.: 010097-32-2)	mg/kg		50	n.d.	-
鹵素(碘) / Halogen-Iodine (I) (CAS No.: 014362-44-8)	mg/kg		50	n.d.	-

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)	限值 (Limit)
				No.1	
多環芳香烴 / Polynuclear Aromatic Hydrocarbons (PAHs)					
芴 / Acenaphthene (CAS No.: 83-32-9)	mg/kg	參考AfPS GS 2014:01 PAK方法, 以氣相層析/質譜儀檢測。 / With reference to AfPS GS 2014:01 PAK method. Analysis was performed by GC/MS.	0.2	n.d.	-
芴烯 / Acenaphthylene (CAS No.: 208-96-8)	mg/kg		0.2	n.d.	-
蔥 / Anthracene (CAS No.: 120-12-7)	mg/kg		0.2	n.d.	-
苯駢蔥 / Benzo[a]anthracene (CAS No.: 56-55-3)	mg/kg		0.2	n.d.	-
苯駢(a)芘 / Benzo[a]pyrene (CAS No.: 50-32-8)	mg/kg		0.2	n.d.	-
苯(b)苯駢芴 / Benzo[b]fluoranthene (CAS No.: 205-99-2)	mg/kg		0.2	n.d.	-
苯駢芘 / Benzo[g,h,i]perylene (CAS No.: 191-24-2)	mg/kg		0.2	n.d.	-
苯(k)苯駢芴 / Benzo[k]fluoranthene (CAS No.: 207-08-9)	mg/kg		0.2	n.d.	-
Chrysene (CAS No.: 218-01-9)	mg/kg		0.2	n.d.	-
二苯駢蔥 / Dibenzo[a,h]anthracene (CAS No.: 53-70-3)	mg/kg		0.2	n.d.	-
苯駢芴 / Fluoranthene (CAS No.: 206-44-0)	mg/kg		0.2	n.d.	-
芴 / Fluorene (CAS No.: 86-73-7)	mg/kg		0.2	n.d.	-
茚酮芘 / Indeno[1,2,3-c,d] pyrene (CAS No.: 193-39-5)	mg/kg		0.2	n.d.	-
萘 / Naphthalene (CAS No.: 91-20-3)	mg/kg		0.2	n.d.	-
菲 / Phenanthrene (CAS No.: 85-01-8)	mg/kg		0.2	n.d.	-
芘 / Pyrene (CAS No.: 129-00-0)	mg/kg		0.2	n.d.	-
苯(j)苯駢芴 / Benzo[j]fluoranthene (CAS No.: 205-82-3)	mg/kg		0.2	n.d.	-
苯駢(e)芘 / Benzo[e]pyrene (CAS No.: 192-97-2)	mg/kg		0.2	n.d.	-
多環芳香烴18項總和 / Sum of 18 PAHs	mg/kg	-	n.d.	-	

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NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)
5. ** = Qualitative analysis (No Unit) 定性分析(無單位)
6. Negative = Undetectable 陰性(未偵測到); Positive = Detectable 陽性(已偵測到)
7. 聚氯乙烯測試由SGS其他實驗室執行 (The PVC test was subcontracted to other SGS Laboratory.)
8. 紅磷定性分析測試由SGS其他實驗室執行
(The Red Phosphorus test was subcontracted to other SGS Laboratory.)

PFOS參考資訊(Reference Information) : 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm), 在半成品、成品或零部件中不得超過0.1%(1000ppm), 在紡織品或塗層材料中不得超過1µg/m²。(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1µg/m².)

全氟辛烷磺酸指全氟辛烷磺酸和它的衍生物包括全氟辛烷磺酸, 全氟辛基磺醯胺, N-甲基全氟辛烷磺醯胺, N-乙基全氟辛烷磺醯胺, N-甲基全氟辛基磺醯基氨基乙醇, N-乙基全氟辛基磺醯基氨基乙醇。(PFOS refer to Perfluorooctanesulfonic acid and its derivatives including Perfluorooctanesulfonic acid, Perfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamide, N-Ethylperfluorooctane sulfonamide, N-Methylperfluorooctane sulfonamidoethanol and N-Ethylperfluorooctane sulfonamidoethanol.)

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德國產品安全委員會(AfPS) GS PAHs 要求 /

AfPS (German commission for Product Safety): GS PAHs requirements

項目 (Parameter)	第1類 (Category 1)	第2類 (Category 2)		第3類 (Category 3)	
	意圖放入嘴內的材料或玩具會與皮膚有所接觸(超過30秒). (Material indented to be put in the mouth or toys with intended skin contact (longer than 30 s).)	不屬於第1類的材料並可預見與皮膚接觸逾30秒(長期或經常與皮膚接觸). (Materials not falling under category 1 with foreseeable contact to skin for longer than 30 seconds (long-term or frequent contact).)		可預見與皮膚接觸短於30秒(短期與皮膚接觸), 以及不屬於第1類或第2類的材料. (Materials not falling under category 1 or 2 with foreseeable contact to skin for less than 30 seconds (short-term skin contact).)	
		列於2009/48/EC之玩具 (Toy under 2009/48/EC)	列於德國產品安全法之其他產品 (Other products under ProdSG)	列於2009/48/EC之玩具 (Toy under 2009/48/EC)	列於德國產品安全法之其他產品 (Other products under ProdSG)
Naphthalene	< 1	< 2		< 10	
Acenaphthylene	< 1 Sum	< 5 Sum	< 10 Sum	< 20 Sum	< 50 Sum
Acenaphthene					
Fluorene					
Phenanthrene					
Anthracene					
Fluoranthene					
Pyrene					
Benzo[a]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Chrysene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[b]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[i]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[k]fluoranthene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[a]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[e]pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Indeno[1,2,3-c,d] pyrene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Dibenzo[a,h]anthracene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
Benzo[g,h,i]perylene	< 0.2	< 0.2	< 0.5	< 0.5	< 1
18項PAH總濃度 (Sum of 18 PAH)	< 1	< 5	< 10	< 20	< 50

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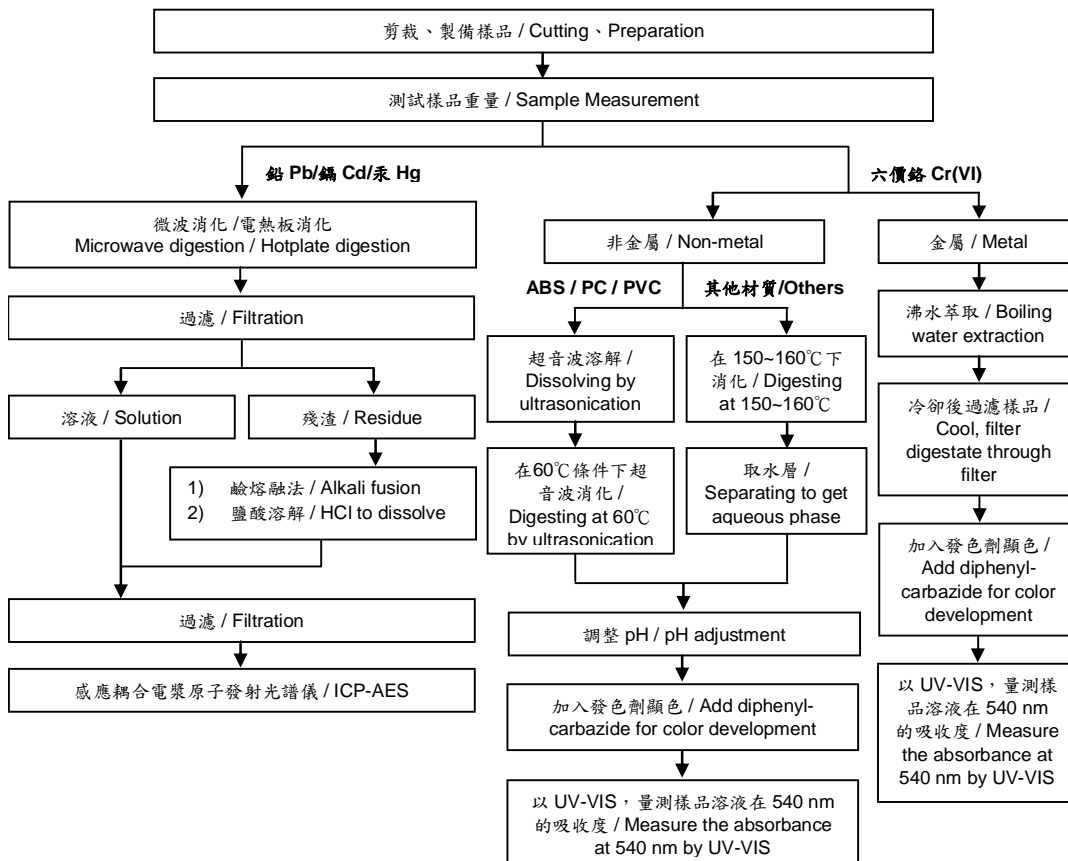
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重金屬流程圖 / Analytical flow chart of Heavy Metal

根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外)

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

- 測試人員：劉俊宏 / Technician : Jony Liu
- 測試負責人：張伯睿 / Supervisor: Ray Chang



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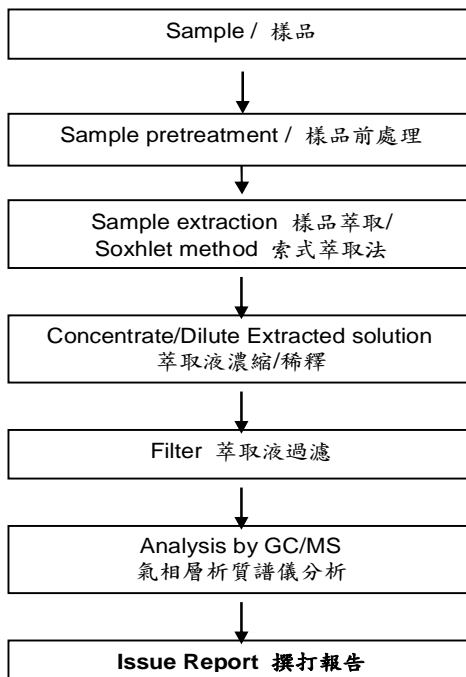
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多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員：陳威錚 / Name of the person who made measurement: Dorothy Chen
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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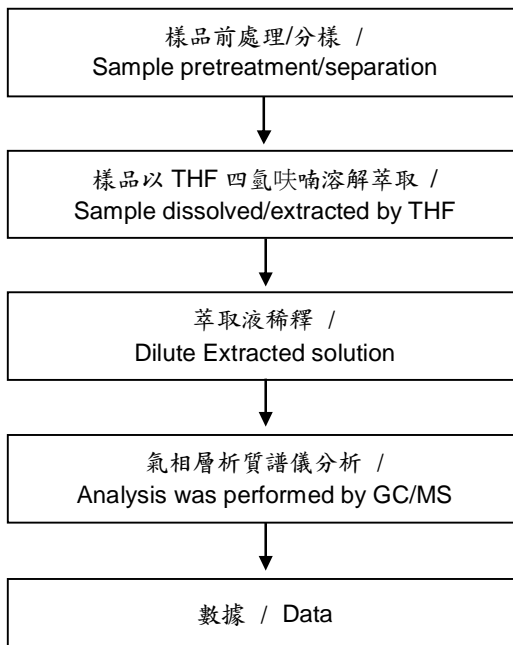
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NO. 35, XIGANG EAST ROAD, DONGGANG TOWN, XISHAN DIST., WUXI CITY, JIANG SU, CHINA

可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 測試人員：陳威錚 / Name of the person who made measurement: Dorothy Chen
- 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang

【測試方法/Test method: IEC 62321-8】



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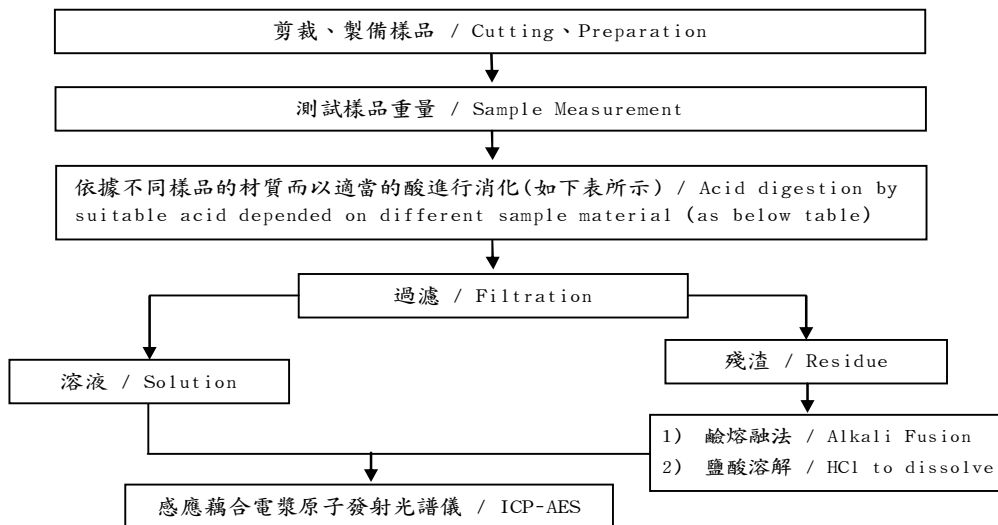
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員：劉俊宏 / Name of the person who made measurement: Jony Liu
- 3) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang

元素以 ICP-AES 分析的消化流程圖

(Flow Chart of digestion for the elements analysis performed by ICP-AES)



鋼, 銅, 鋁, 焊錫 / Steel, copper, aluminum, solder	王水, 硝酸, 鹽酸, 氫氟酸, 雙氧水 / Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
玻璃 / Glass	硝酸, 氫氟酸 / HNO ₃ /HF
金, 鉑, 鈦, 陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO ₃
塑膠 / Plastic	硫酸, 雙氧水, 硝酸, 鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion

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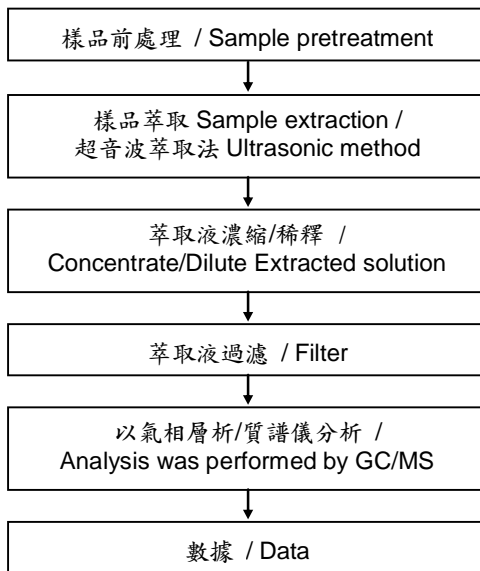
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六溴環十二烷分析流程圖 / HBCDD analytical flow chart

- 1) 測試人員：陳威錚/ Name of the person who made measurement: Dorothy Chen
- 2) 測試負責人：張伯睿/ Name of the person in charge of measurement: Ray Chang



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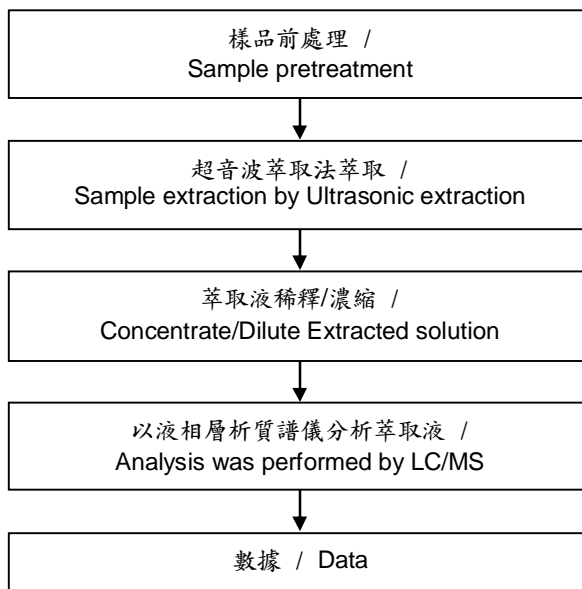
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四溴雙酚-A分析流程圖 / TBBP-A analytical flow chart

- 測試人員：黃璟瓔/ Name of the person who made measurement: Ginny Huang
- 測試負責人：張伯睿/ Name of the person in charge of measurement: Ray Chang



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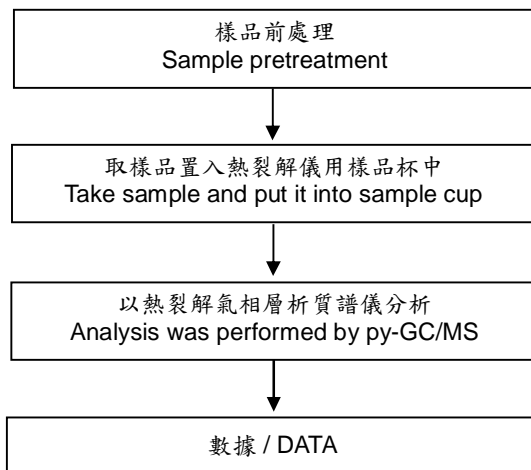
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紅磷分析流程 / Analytical flow chart of Red phosphorus

- 測試人員：林建宇 / Name of the person who made measurement: Roy Lin
- 測試負責人：張啟興 / Name of the person in charge of measurement: Troy Chang



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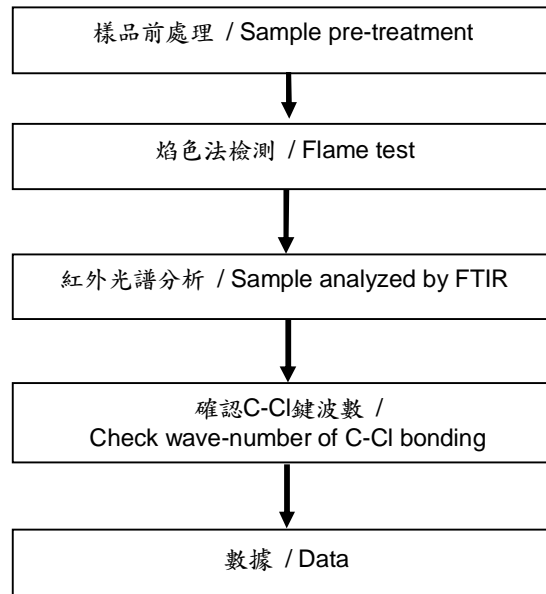
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聚氯乙稀物質判定分析流程圖 /

Analysis flow chart for determination of PVC in material

- 1) 測試人員：戴秀純 / Name of the person who made measurement: Hannah Tai
- 2) 測試負責人：林立翔 / Name of the person in charge of measurement: Roger Lin



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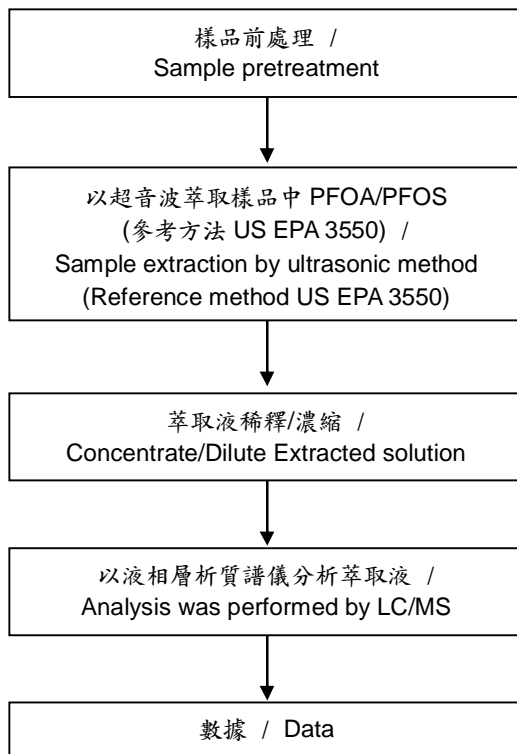
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全氟辛酸(銨)/全氟辛酸磺酸分析流程圖 / Analytical flow chart of PFOA/PFOS content

1)測試人員：黃環瓔 / Name of the person who made measurement: Ginny Huang

2)測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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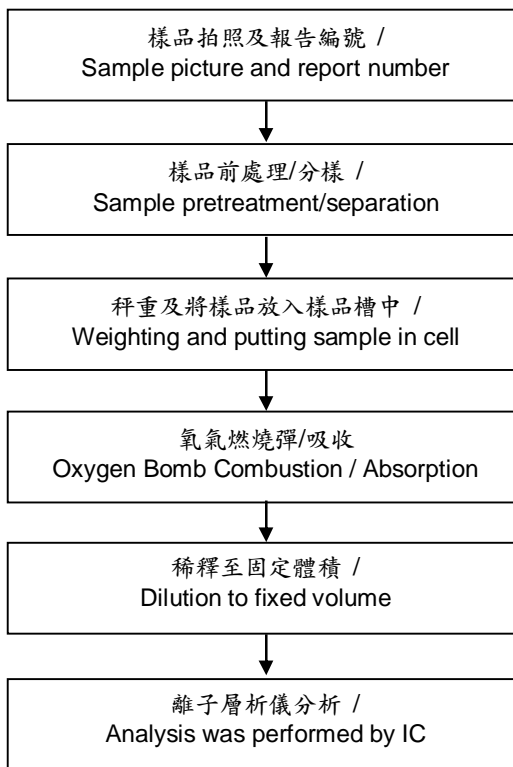
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鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員：洪秀真/ Name of the person who made measurement: Jean Hung
- 2) 測試負責人：張伯睿/ Name of the person in charge of measurement: Ray Chang



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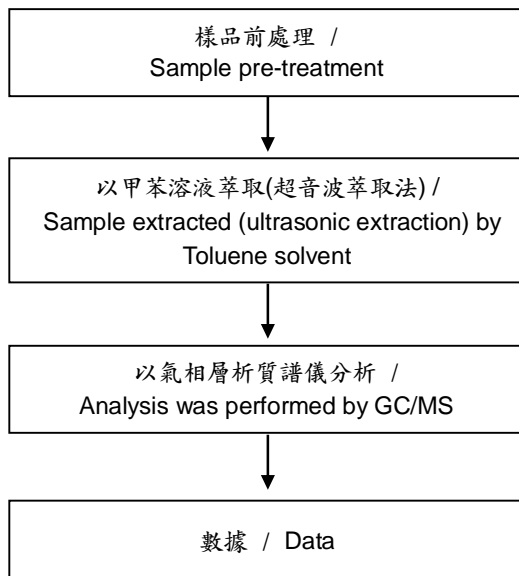
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多苯環芳香族化合物分析流程圖 /

PAHs (Poly Aromatic Hydrocarbons) analytical flow chart

- 1) 測試人員：陳威錚 / Name of the person who made measurement: Dorothy Chen
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。 *
(The tested sample / part is marked by an arrow if it's shown on the photo.)

KA/2017/61160



** 報告結尾 (End of Report) **