



RoHS Test Report

Applicant : NINGBO FORYARD OPTOELECTRONICS CO.,LTD.

Address : NO.115 Qixin Road Ningbo Zhejiang China

Manufacturer : NINGBO FORYARD OPTOELECTRONICS CO.,LTD.

Address : NO.115 Qixin Road Ningbo Zhejiang China

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

Sample Name : LED DISPLAY

Trade Mark : FORYARD

Model Number : FYM-12881BUA-11

Sample Received Date : Apr. 23, 2018

Testing Period : Apr. 24, 2018–Apr. 26, 2018

Test Requested : Selected test (s) in the selected parts as requested by client with the RoHS Directive 2011/65/EU.


Test Method : Please refer to next page(s).

Test Result : Please refer to next page(s).

The test results apply to all models with prefix FYI LED DISPLAY SERIES .

Prepared by: 
Engineer

Reviewer: 
Supervisor

Approved & Authorized Signer: 
Tomy Wu / Manager





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Sample Description:

No.	Description	Name
1	LED	LED
2	Metal Pin	Metal Pin
3	Silica Gel	Silica Gel
4	Shell	Shell



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Test Result (No. 1):

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium(Cd)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	100
Lead(Pb)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	1000
Mercury(Hg)	mg/kg	IEC 62321-4:2013, ICP-AES	N.D.	2	1000
Hexavalent Chromium(CrVI)	mg/kg	IEC 62321:2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	IEC 62321:2008, GC-MS	N.D.	--	1000
Monobromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Sum of PBDEs	mg/kg	IEC 62321:2008, GC-MS	N.D.	--	1000
Monobromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
DEHP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
DBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
BBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
DIBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000



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Test Result (No. 2):

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium(Cd)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	100
Lead(Pb)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	1000
Mercury(Hg)	mg/kg	IEC 62321-4:2013, ICP-AES	N.D.	2	1000
Hexavalent Chromium(CrVI)	mg/kg	IEC 62321:2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	IEC 62321:2008, GC-MS	N.A.	--	1000
Monobromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Sum of PBDEs	mg/kg	IEC 62321:2008, GC-MS	N.A.	--	1000
Monobromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
DEHP	mg/kg	EN 14372:2004, GC-MS	N.A.	5	1000
DBP	mg/kg	EN 14372:2004, GC-MS	N.A.	5	1000
BBP	mg/kg	EN 14372:2004, GC-MS	N.A.	5	1000
DIBP	mg/kg	EN 14372:2004, GC-MS	N.A.	5	1000



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Test Result (No. 3):

Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium(Cd)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	100
Lead(Pb)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	1000
Mercury(Hg)	mg/kg	IEC 62321-4:2013, ICP-AES	N.D.	2	1000
Hexavalent Chromium(CrVI)	mg/kg	IEC 62321:2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	IEC 62321:2008, GC-MS	N.D.	--	1000
Monobromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Sum of PBDEs	mg/kg	IEC 62321:2008, GC-MS	N.D.	--	1000
Monobromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
DEHP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
DBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
BBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
DIBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000



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Test Result (No. 4):

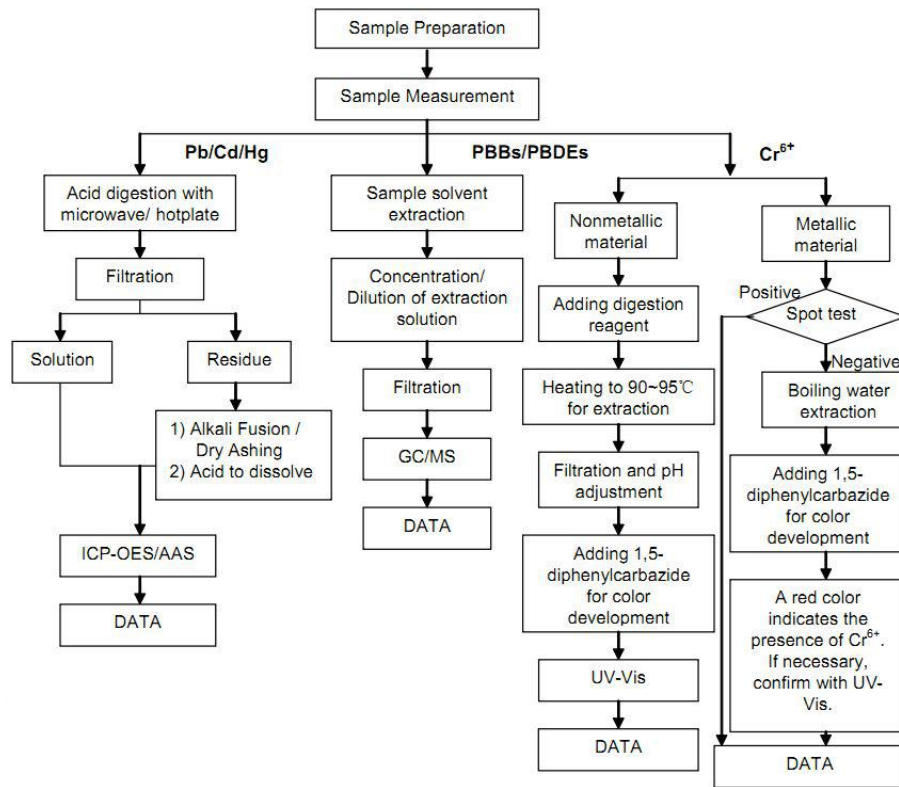
Test Item(s)	Unit	Test Method (Reference)	Result	MDL	Limit
Cadmium(Cd)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	100
Lead(Pb)	mg/kg	IEC 62321-5:2013, ICP-AES	N.D.	2	1000
Mercury(Hg)	mg/kg	IEC 62321-4:2013, ICP-AES	N.D.	2	1000
Hexavalent Chromium(CrVI)	mg/kg	IEC 62321:2008, UV-Vis	N.D.	2	1000
Sum of PBBs	mg/kg	IEC 62321:2008, GC-MS	N.D.	--	1000
Monobromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromobiphenyl	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Sum of PBDEs	mg/kg	IEC 62321:2008, GC-MS	N.D.	--	1000
Monobromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Dibromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tribromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Tetrabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Pentabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Hexabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Heptabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Octabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Nonabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
Decabromodiphenyl ether	mg/kg	IEC 62321:2008, GC-MS	N.D.	5	--
DEHP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
DBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
BBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000
DIBP	mg/kg	EN 14372:2004, GC-MS	N.D.	5	1000

- Note:**
1. mg/kg= ppm
 2. N.D.= Not Detected(<MDL)
 3. MDL = Method Detection Limit
 4. -- = No Testing

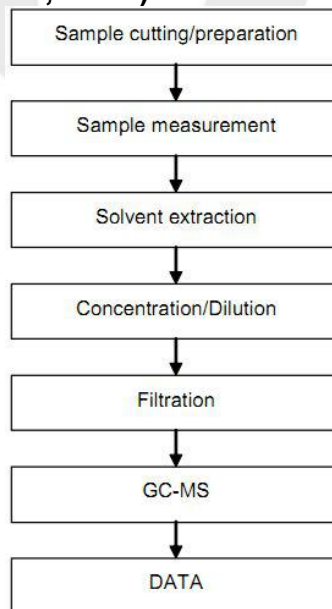


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Testing Flow Chart (Pb, Cd, Hg, Cr⁶⁺, PBBs, PBDEs):



Testing Flow Chart (DEHP, DBP, BBP, DIBP):



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Photo of Sample:

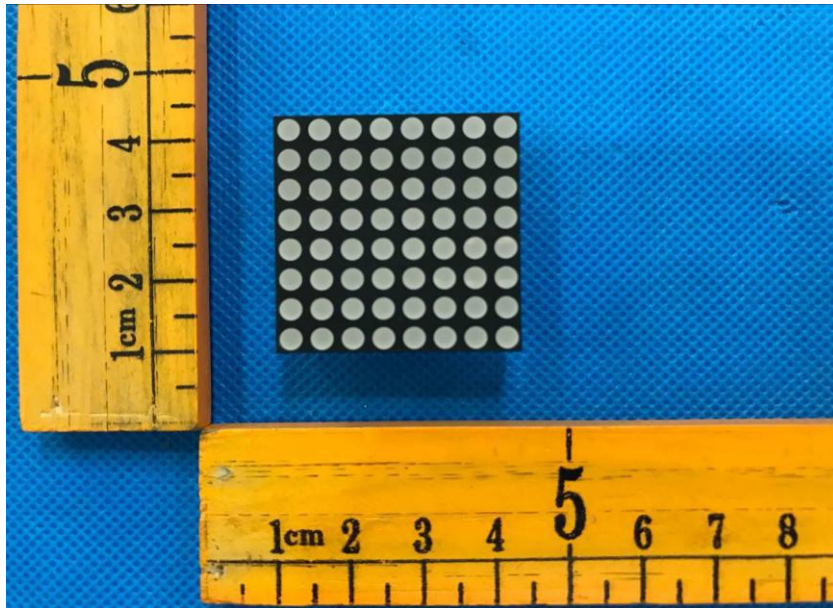


Photo 1

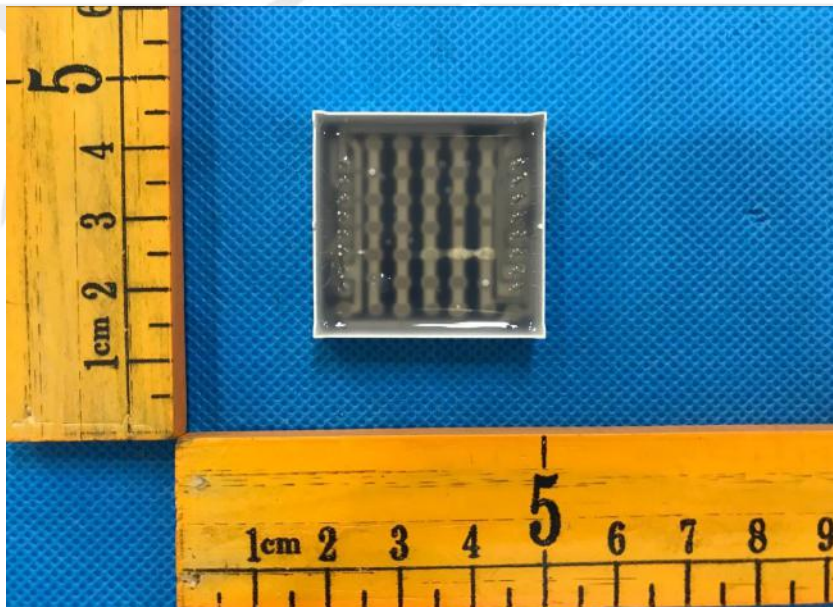


Photo 2

*** End of Report***

