



TEST REPORT

Report No : JB1201-0034

To : **ASJ COMPONENTS (M) SDN.BHD.**
Plo 37440 Jalan Perindustrian Senai 3,
Kawasan Perindustrian Senai Fasa II,
81400 Senai,
Johor Darul Takzim.
Attn : Ms.Noraini

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Date Of Issue : 16/01/2012

Customer's Sample Description :
CHIP RESISTOR 0603



Date Of Sample Received : 10/01/2012
Date Of Testing : 10/01/2012 To 16/01/2012

Objective of Test

- (i) To determine the concentration of Cadmium, Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyl (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) in accordance with EU Directive 2011/65/EU (RoHS).
- (ii) Determination of Bromine, Chlorine, Iodine and Fluorine content for the above sample.

Standard Method / Equipment / Technique Description

Standard Method	Method Description / Title	Flow Chart
USEPA Method 3052	Microwave assisted acid digestion of siliceous and organically based matrices	Appendix A3
USEPA Method 6010B	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)	
USEPA Method 3060A	Alkaline digestion for Hexavalent Chromium	Appendix B2
USEPA Method 7196A	Colorimetric by UV/Vis Spectroscopy	
USEPA Method 3540C	Soxhlet Extraction	Appendix C2
GC-MS	Gas Chromatography-Mass Spectrometry	
BS EN 14582 : 2007	Characterization of waste - Halogen and sulfur content - oxygen combustion in closed systems and determination methods.	Appendix G2
Ion Chromatography	Direct Injection Ion Chromatography analysis	

For NM LABORATORY SDN. BHD.

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Analysis Result

Parameters Analysed	Analysis Results	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Cadmium (as Cd)	Not Detectable (<0.5)	mg/kg	USEPA Method 3052 USEPA Method 6010B	0.5	100
Lead (as Pb)	1838			1	1000
Mercury (as Hg)	Not Detectable (<2)			2	1000
Chromium Hexavalent (as Cr ⁶⁺)	Not Detectable (<1)		USEPA Method 3060A USEPA Method 7196A	1	1000

Chemical compound	Analysis Result	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Polybrominated Biphenyls (PBBS)	Monobromobiphenyl	Not Detectable (<5)	USEPA Method 3540C GC-MS	5	-
	Dibromobiphenyl	Not Detectable (<5)			
	Tribromobiphenyl	Not Detectable (<5)			
	Tetrabromobiphenyl	Not Detectable (<5)			
	Pentabromobiphenyl	Not Detectable (<5)			
	Hexabromobiphenyl	Not Detectable (<5)			
	Heptabromobiphenyl	Not Detectable (<5)			
	Octabromobiphenyl	Not Detectable (<5)			
	Nonabromobiphenyl	Not Detectable (<5)			
	Decabromobiphenyl	Not Detectable (<5)			
	Total PBBS				

Chemical compound	Analysis Result	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	Monobromodiphenyl ether	Not Detectable (<5)	USEPA Method 3540C GC-MS	5	-
	Dibromodiphenyl ether	Not Detectable (<5)			
	Tribromodiphenyl ether	Not Detectable (<5)			
	Tetrabromodiphenyl ether	Not Detectable (<5)			
	Pentabromodiphenyl ether	Not Detectable (<5)			
	Hexabromodiphenyl ether	Not Detectable (<5)			
	Heptabromodiphenyl ether	Not Detectable (<5)			
	Octabromodiphenyl ether	Not Detectable (<5)			
	Nonabromodiphenyl ether	Not Detectable (<5)			
	Decabromodiphenyl ether	Not Detectable (<5)			
	Total PBDEs				

Note : The test portion was ashed before the pre-conditioning method for Cadmium & Lead test as mentioned above.

Conclusion : The analysis results **not exceeded** the maximum concentration values for Cd, Hg, Cr⁶⁺, PBB and PBDE as stipulated in EU Directive 2011/65/EU (RoHS) **except for Pb.**



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LABORATORY TESTINGS AND ANALYSIS CONSULTANCY



MS ISO/IEC 17025
TESTING
SAMM NO. 188

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Analysis Result

Parameters Analysed		Analysis Results	Unit	Standard Method/Technique/ Equipment Used	MDL; mg/kg
Halogen content	Bromine (as Br)	Not Detectable (<5)	mg/kg	BS EN 14582 : 2007 (Ion Chromatography)	5
	Chlorine (as Cl)	Not Detectable (<5)			5
	Iodine (as I ⁻)	Not Detectable (<5)			5
	Fluorine (as F ⁻)	Not Detectable (<5)			5

- End of Report -