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LABORATORY TESTINGS AND ANALYSIS CONSULTANCY



MS ISO/IEC 17025
TESTING
SAMM NO. 188

TEST REPORT

Report No : SP1110-0156

To : ITW MERITEX SDN. BHD.

Bayan Lepas Industrial Zone, Phase 3,
11900 Bayan Lepas,
Pulau Pinang.
Attn : Ms. Aileen Wong

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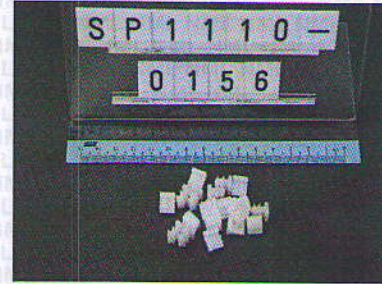
Date Of Issue : 18/10/2011

Customer's Sample Description :

TPR NATURAL END PLUG

Date Of Sample Received : 11/10/2011

Date Of Testing : 11/10/2011 To 18/10/2011



Objective of Test

To determine the concentration of Cadmium, Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyl (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) in accordance with EU Directive 2002/95/EC (RoHS).

Standard Method / Equipment / Technique Description

IEC 62321, Ed.1 : 2008 Electrotechnical Products - Determination of Levels of Six Regulated Substances (Cadmium, Lead, Mercury, Hexavalent Chromium, Polybrominated Biphenyls, Polybrominated Diphenyl Ethers)		
Standard Method	Method Description / Title	Flow Chart
IEC 62321, Ed.1, Section 8	Determination of Lead and Cadmium in polymers by ICP-OES, ICP-MS and AAS	Appendix H3
IEC 62321, Ed.1, Section 7	Determination of Mercury in polymers, metals and electronics by CV-AAS, CV-AFS, ICP-OES and ICP-MS	
IEC 62321, Ed.1 (Annex C)	Determination of Hexavalent Chromium (Cr(VI)) in polymers and electronics by the colorimetric method	Appendix I2
IEC 62321, Ed.1 (Annex A)	Determination of PBB and PBDE in polymers by Gas Chromatography - Mass Spectrometer (GC-MS)	Appendix J2

For NM LABORATORY SDN. BHD.

Test performed by : Bong Shin Yuan
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IKM No.A/2403/4343/2002



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Analysis Result

Parameters Tested	Analysis Results	Unit	Standard Method / Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Cadmium (as Cd)	Not Detectable (<0.5)	mg/kg	IEC 62321, Ed.1, Section 8 (ICP-AES)	0.5	100
Lead (as Pb)	Not Detectable (<1)			1	1000
Mercury (as Hg)	Not Detectable (<5)		5	1000	
Hexavalent Chromium (as Cr ⁶⁺)	Not Detectable (<1)		IEC 62321, Ed.1, (Annex C) (UV-VIS Spectrometer)	1	1000

Chemical compound	Analysis Result	Unit	Standard Method / Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Polybrominated Biphenyls (PBBs)	Monobromobiphenyl	mg/kg	IEC 62321, Ed.1 (Annex A) (GC/MS)	5	-
	Dibromobiphenyl				
	Tribromobiphenyl				
	Tetrabromobiphenyl				
	Pentabromobiphenyl				
	Hexabromobiphenyl				
	Heptabromobiphenyl				
	Octabromobiphenyl				
	Nonabromobiphenyl				
	Decabromobiphenyl				
Total PBBs				-	1000

Chemical compound	Analysis Result	Unit	Standard Method / Equipment Used	MDL; mg/kg	RoHS Limit; mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	Monobromodiphenyl ether	mg/kg	IEC 62321, Ed.1 (Annex A) (GC/MS)	5	-
	Dibromodiphenyl ether				
	Tribromodiphenyl ether				
	Tetrabromodiphenyl ether				
	Pentabromodiphenyl ether				
	Hexabromodiphenyl ether				
	Heptabromodiphenyl ether				
	Octabromodiphenyl ether				
	Nonabromodiphenyl ether				
	Decabromodiphenyl ether				
Total PBDEs				-	1000

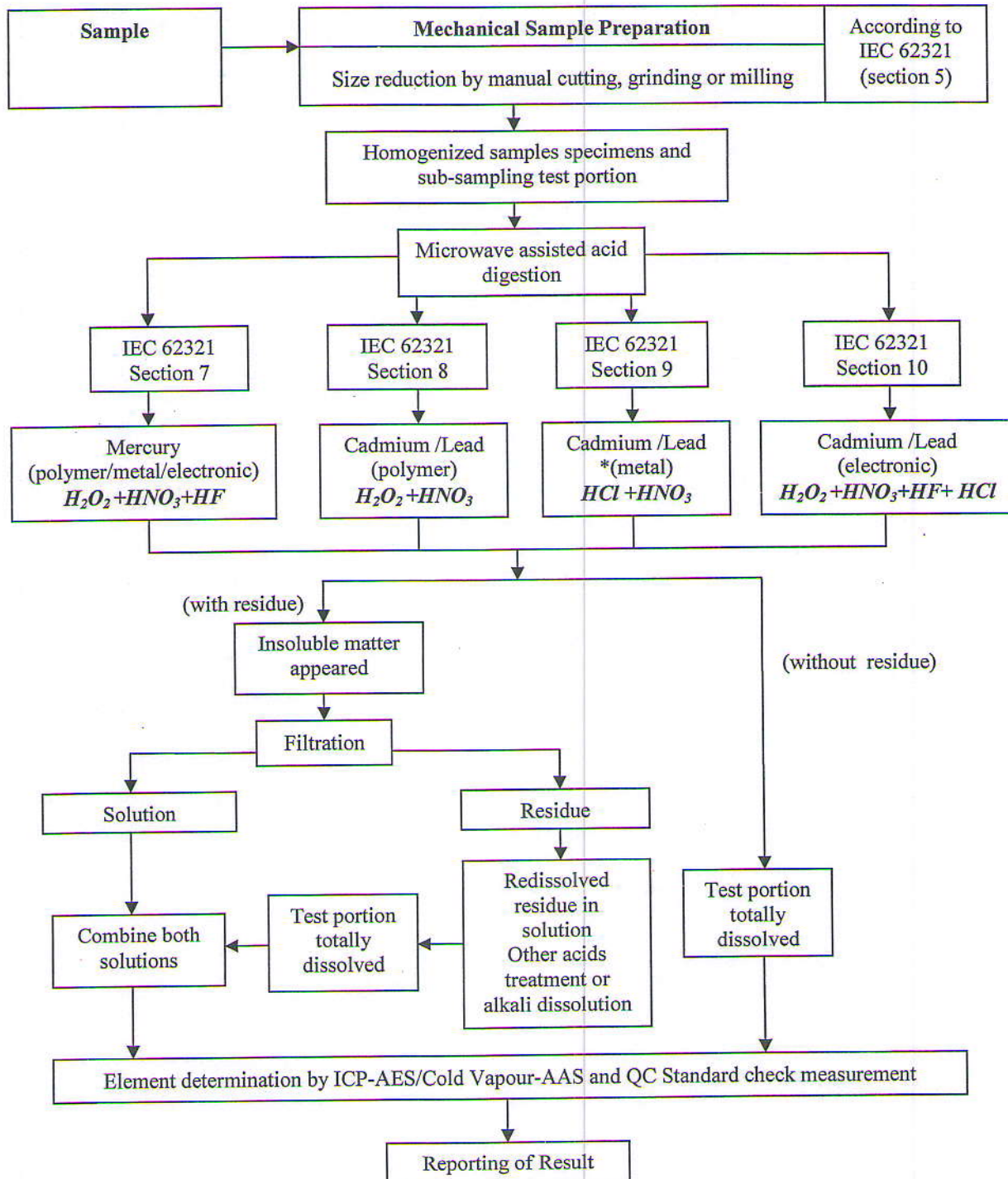
Remark : The test portion was "Totally Dissolved" for Cadmium, Lead & Mercury test by using pre-conditioning method as mentioned above.

Conclusion : The analysis results **not exceeded** the maximum concentration values for Cd, Pb, Hg, Cr⁶⁺, PBB and PBDE as stipulated in amendment 2005/618/EC of EU Directive 2002/95/EC (RoHS).

- End of Report -



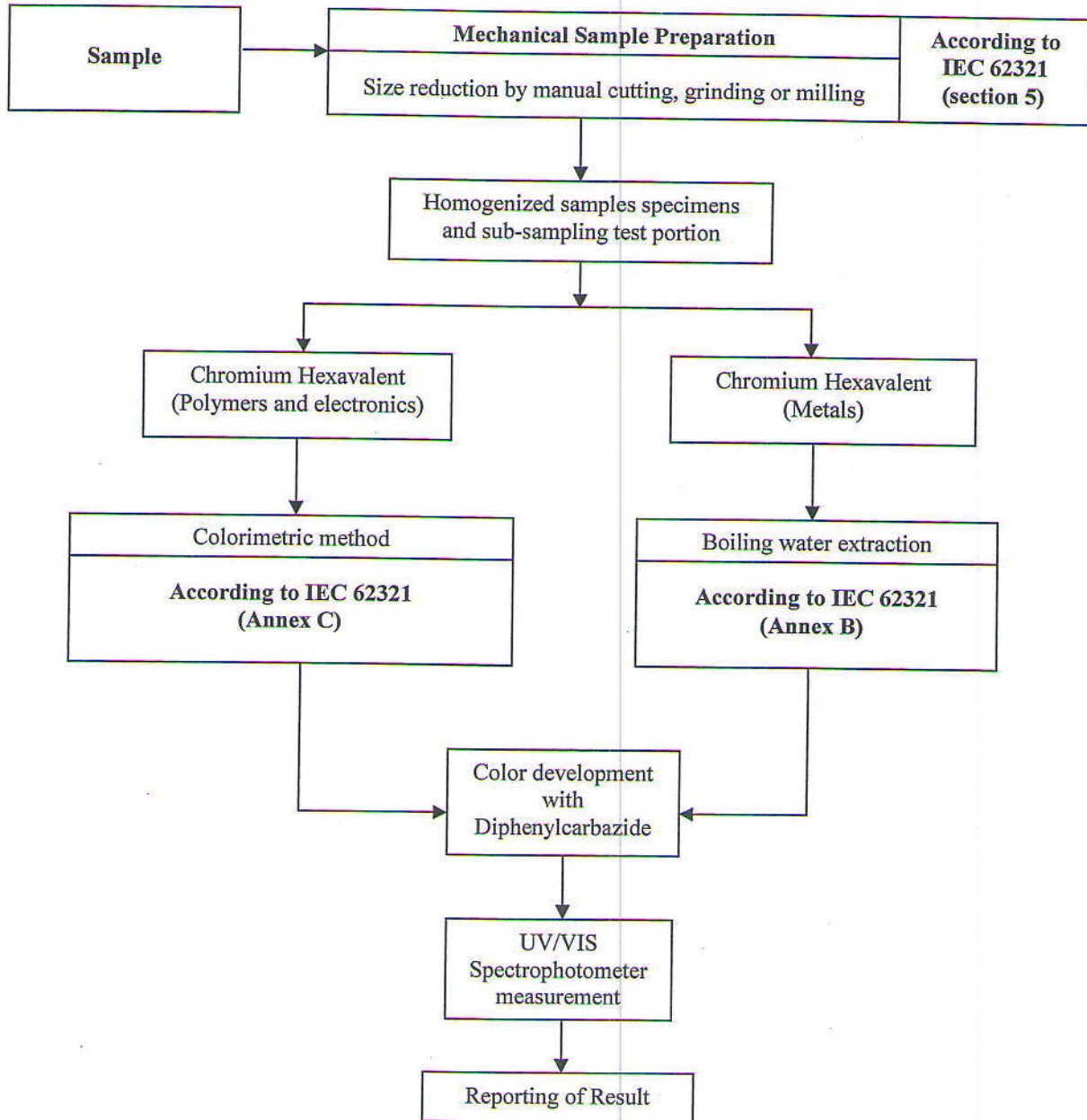
Appendix H3 : Flow chart for method IEC 62321



* Type of Sample	Acid Mixture
Common method of sample digestion	2HCL + HNO ₃
Sample contains Sn	3 HCL + 1 HNO ₃
Sample contains Zr, Hf, Ti, Ta, Nb or W	1 HNO ₃ + 3HF



Appendix I2: Flow chart for method IEC 62321 (Annex B and C)





Appendix J2 : Flow chart for method IEC 62321 (Annex A)

