



**BUREAU
VERITAS**

TEST REPORT

LAB NO. : (6608)127-0835(Revise)
DATE : June 19, 2009
PAGE : 1 OF 12

This report is amendment of
(6608)127-0835 dated May 14, 2008

APPLICANT : NANTONG FUJITSU MICROELECTRONICS CO.,LTD
NO.288,CHONGCHUAN ROAD,NANTONG,JIANGSU,CHINA
 申请人公司名称 : 南通富士通微电子股份有限公司
江苏省南通市崇川路 288 号

DATE OF SUBMISSION : May 6, 2008
 样品收取日期 : 2008 年 5 月 6 日

TEST PERIOD : May 6, 2008 to May 14, 2008
 所需工作周期 : 2008 年 5 月 6 日至 2008 年 5 月 14 日

NO. OF WORKING DAY(S) : 7
 所需工作日 : 7

SAMPLE DESCRIPTION : SOT89-LS[该样品由框架、银浆、金丝、塑封料、镀层组成; 该产品
 样品描述 所经过的主要组装工序为: 装片, 固化, 键合, 塑封, 后固化, 切筋, 去飞边, 电镀, 固化, 成形]
 SOT89-LS [This sample is made up of L/F, Ag paste, Au wire, EMC and plating. This sample passed below main assembly processes: DB, Cure, WB, Molding, PMC, Trim/Form, Deflash, Plating, Cure, Form]
 Style No.: SOT89-LS
 1) silvery metal 2) black plastic

SUMMARY OF TEST RESULTS 测试结果摘要

TEST REQUESTED 测试项目	PASS 通过	FAIL 不通过	REMARK 备注
Heavy Metals Test and Flame Retardants Test - Restriction of Hazardous Substances Directive (RoHS), 2002/95/EC 重金属测试和燃烧延缓剂测试-有关欧洲针对电子产品的指令(电子电器禁用某些有害物质指令), 2002/95/EC	√		
Halogen content 卤素含量测试			See results in page 8 结果见第 8 页
Total Antimony Content 总锑含量测试			See results in page 9 结果见第 9 页

REMARK 备注

If there are questions or concerns on this report, please contact the following persons:

若有任何疑问或咨询, 可通过下述联络方式与我们联系

General enquiry and invoicing
其他问题

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BUREAU VERITAS

CONSUMER PRODUCTS SERVICES DIVISION (SHANGHAI)

法国国际检验局 - 上海申美商品检测有限公司

PREPARED BY :

Jolly

制定:

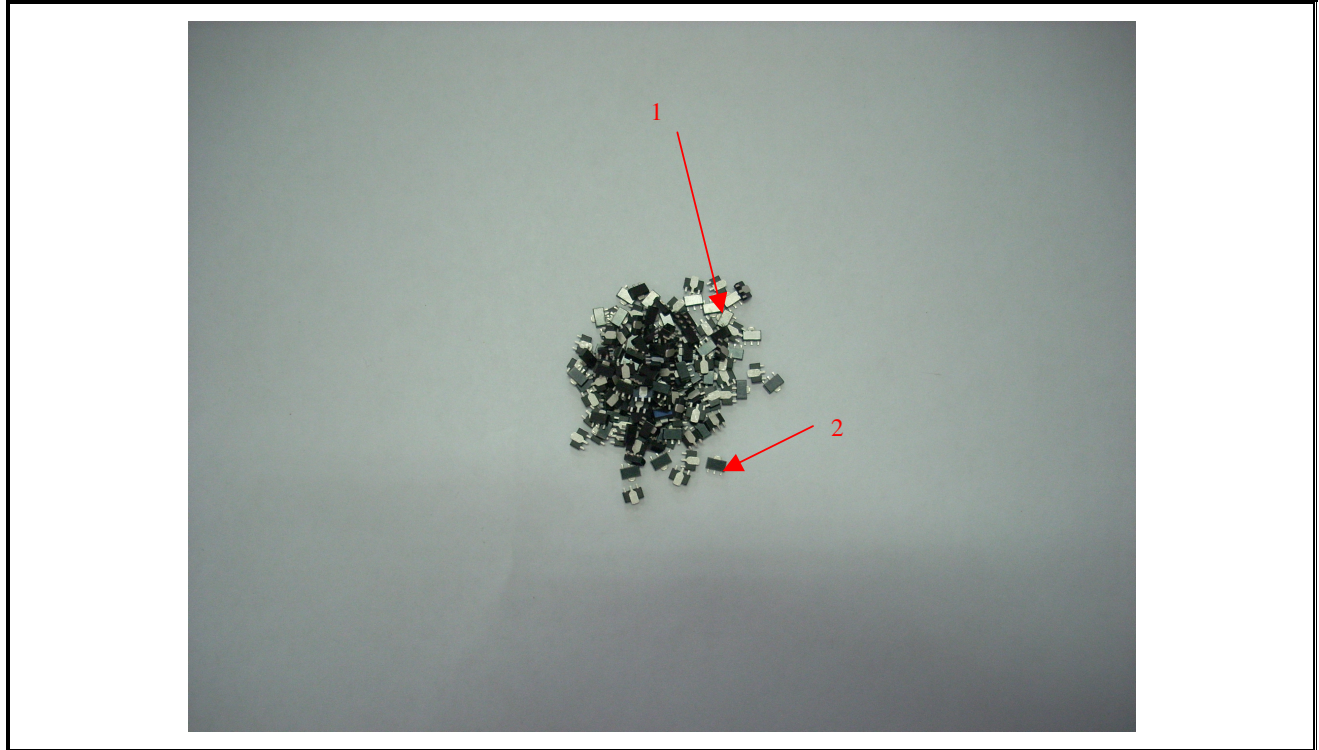
郭晔轩 Kevin Guo

化学实验室技术经理

CHEMICAL LABORATORY TECHNOLOGY MANAGER

RW/2008

Photo of the Submitted Sample





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TEST RESULT
测试结果

I. Heavy Metals Test and Flame Retardants Test - Restriction of Hazardous Substances Directive (RoHS), 2002/95/EC

I. 重金属测试和燃烧延缓剂测试-有关欧洲针对电子产品的指令（电子电器禁用某些有害物质指令），2002/95/EC

Compounds 化合物	Tested item (mg/kg) 测试项目 (mg/kg)	RoHS' Limits (mg/kg) RoHS' 建议最高界限 (mg/kg)
	1	
Lead (Pb) 铅(Pb)	10.6	1000
Mercury (Hg) 汞(Hg)	ND	1000
Cadmium (Cd) 镉(Cd)	ND	100
Chromium VI (Cr VI) 六价铬(Cr (VI))	Negative ^{a)}	Negative

Tested Item 测试项目	Conclusion 结论
1) SOT89-LS 引脚(silvery plastic)	PASS 通过



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Compounds 化合物	Tested item (mg/kg) 测试项目 (mg/kg)	RoHS' Limits (mg/kg) RoHS' 建议最高界限 (mg/kg)
	2	
Lead (Pb) 铅(Pb)	ND	1000
Mercury (Hg) 汞(Hg)	ND	1000
Cadmium (Cd) 镉(Cd)	ND	100
Chromium VI (Cr VI) 六价铬(Cr (VI))	ND	1000
Polybrominated Biphenyls (PBBs) : 多溴联苯(PBBs)		
Bromobiphenyls 一溴联苯	ND	/
Dibromobiphenyls 二溴联苯	ND	
Tribromobiphenyls 三溴联苯	ND	
Tetrabromobiphenyls 四溴联苯	ND	
Pentabromobiphenyls 五溴联苯	ND	
Hexabromobiphenyls 六溴联苯	ND	
Heptabromobiphenyls 七溴联苯	ND	
Octabromobiphenyls 八溴联苯	ND	
Nonabromobiphenyls 九溴联苯	ND	
Decabromobiphenyl 十溴联苯	ND	
Sum of PBBs 多溴联苯总和	ND	1000

TEST RESULT

测试结果

I. Heavy Metals Test and Flame Retardants Test - Restriction of Hazardous Substances Directive (RoHS), 2002/95/EC

I. 重金属测试和燃烧延缓剂测试 - 有关欧洲针对电子产品的指令 (电子电器禁用某些有害物质指令), 2002/95/EC

Compounds 化合物	Tested item (mg/kg) 测试项目 (mg/kg)	RoHS' Limits (mg/kg) RoHS' 建议最高界限 (mg/kg)
	2	
Polybrominated Diphenyl Ethers (PBDEs): 多溴联苯醚(PBDEs) :		
Bromodiphenyl ethers 一溴联苯醚	ND	/
Dibromodiphenyl ethers 二溴联苯醚	ND	
Tribromodiphenyl ethers 三溴联苯醚	ND	
Tetrabromodiphenyl ethers 四溴联苯醚	ND	
Pentabromodiphenyl ethers 五溴联苯醚	ND	
Hexabromodiphenyl ethers 六溴联苯醚	ND	
Heptabromodiphenyl ethers 七溴联苯醚	ND	
Octabromodiphenyl ethers 八溴联苯醚	ND	
Nonabromodiphenyl ethers 九溴联苯醚	ND	
Decabromodiphenyl ether 十溴联苯醚	ND	
Sum of PBDEs (Mono to Nona) 多溴联苯醚总和	ND	1000

Tested Item 测试项目	Conclusion 结论
2) SOT89-LS 本体(black plastic)	PASS 通过



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Remarks / 备注:

The result relates only to the tested item. The report shall not be reproduced except full without the written approval of the testing laboratory. Parameters which are not covered by the lab's testing scope are subcontracted to laboratories with government approval. The accreditation relates to competences given in the accreditation certificate.

测试结果仅代表被测样品。未经实验室书面许可，此报告不可被复制。对于本实验室未能涵盖的测试项目，实验室可以分包给其它政府承认的实验室。分包实验室的能力验证会在验证证书中注明。

Notes / 注释:

^{a)} Positive indicates the presence of Hexavalent Chromium on the tested areas and result be regarded as no comply with RoHS requirement. Negative indicates the absence of CrVI on the tested areas and result be regarded as comply with RoHS requirement.

阳性表示在测试区域内存在六价铬，且此结果被认为不符合 RoHS 要求。阴性表明测试区域中不存在六价铬，且此结果被认为符合 RoHS 要求。

^{b)} According to EU Directive 2005/717/EC DecaBDE is exempt
 根据欧盟指令 2005/717/EC，十溴联苯醚是豁免的。

^{c)} For Chromium VI of a metal composite sample by wet chemistry, each individual metal component was tested. 湿化学方法测试复合金属样品中六价铬时，每一个金属部分均被测试

< = less than / 少于

ND = not detected/ 不被检出

Negative = 阴性, Positive = 阳性

Exempted=豁免

Detection limits for regulated substances and limit of RoHS (in mg/kg) reference to 2002/95/EC

Regulated Substances 受限物质	Detection limit 检测限	RoHS' Limit (mg/kg) RoHS' 建议最高界限
Pb 铅	2	1000
Hg 汞	2	1000
Cd 镉	2	100
Cr VI 六价铬	2	1000
PBBs 多溴联苯 Bromobiphenyls Dibromobiphenyls Tribromobiphenyls Tetrabromobiphenyls Pentabromobiphenyls Hexabromobiphenyls Heptabromobiphenyls Octabromobiphenyls Nonabromobiphenyls Decabromobiphenyl	5 (each)	1000 (sum)
PBDEs 多溴联苯醚 Bromodiphenyl ethers Dibromodiphenyl ethers Tribromodiphenyl ethers Tetrabromodiphenyl ethers Pentabromodiphenyl ethers Hexabromodiphenyl ethers Heptabromodiphenyl ethers Octabromodiphenyl ethers Nonabromodiphenyl ethers Decabromodiphenyl ether	5 (each)	1000 (sum)

Test Method / 测试方法:

Wet Chemistry Tests – Reference to IEC 62321 Ed.1 (TC111/95/CDV), “Electrotechnical Products- Determination of Levels of Six Regulated Substances”: 湿化学方法 – 参照 IEC 62321 Ed.1 (TC111/95/CDV): 电子电器产品中六种限用物质浓度测定

Determination of Lead (Pb) and Cadmium (Cd) by ICP-OES technique. 铅/镉的含量由电感耦合等离子体-原子发射光谱仪测定。

Determination of Mercury (Hg) by ICP-OES, ICP-MS or AAS-VGA technique. 汞含量由电感耦合等离子体-原子发射光谱仪，电感耦合等离子体-质谱或者原子吸收光谱-氢化物发生装置测定。

Determination of Chromium (VI) (Cr VI) by spot test or colorimetric method. 六价铬含量由点测试或比色法测定。

Determination of PBBs and PBDEs by GC-MS. 多溴联苯和多溴联苯醚由气相色谱-质谱联用仪测定。

ANNEX

List of Exempted Specific Applications in RoHS Directive. (Will be updated according to the RoHS directive)

1. Mercury in compact fluorescent lamps not exceeding 5 mg per lamp.
2. Mercury in straight fluorescent lamps for general purposes not exceeding:
 - halophosphate 10 mg
 - triphosphate with normal lifetime 5 mg
 - triphosphate with long lifetime 8 mg.
3. Mercury in straight fluorescent lamps for special purposes.
4. Mercury in other lamps not specifically mentioned in this Annex.
5. Lead in glass of cathode ray tubes, electronic components and fluorescent tubes.
6. Lead as an alloying element in steel containing up to 0,35 % lead by weight, aluminium containing up to 0,4 % lead by weight and as a copper alloy containing up to 4 % lead by weight.
7. -Lead in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead),
 - Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications,
 - lead in electronic ceramic parts (e.g. piezoelectronic devices).(2005/747/EC)
8. Cadmium and its compounds in electrical contacts and cadmium plating except for applications banned under Directive 91/338/EEC amending Directive 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations(2005/747/EC)
9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in absorption refrigerators.
 - 9a. DecaBDE in polymeric applications(2005/717/EC)
 - 9b. Lead in lead-bronze bearing shells and bushes(2005/717/EC)
10. Within the procedure referred to in Article 7(2), the Commission shall evaluate the applications for:
 - Deca BDE,
 - Mercury in straight fluorescent lamps for special purposes,
 - Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission as well as network management for telecommunications (with a view to setting a specific time limit for this exemption), and
 - light bulbs,
11. Lead used in compliant pin connector systems(2005/747/EC)
12. Lead as a coating material for the thermal conduction module c-ring(2005/747/EC)
13. Lead and cadmium in optical and filter glass(2005/747/EC)
14. Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80 % and less than 85 % by weight(2005/747/EC)
15. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages(2005/747/EC)
16. Lead in linear incandescent lamps with silicate coated tubes(2006/310/EC)
17. Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications(2006/310/EC)
18. Lead as activator in the fluorescent powder (1 % lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi2O5:Pb) as well as when used as speciality lamps for diazo-printing reprography, lithography, insect traps, photochemical and curing processes containing phosphors such as SMS ((Sr,Ba)2MgSi2O7:Pb). (2006/310/EC)
19. Lead with PbBiSn-Hg and PbInSn-Hg in specific compositions as main amalgam and with PbSn-Hg as auxiliary amalgam in very compact Energy Saving Lamps (ESL). (2006/310/EC)
20. Lead oxide in glass used for bonding front and rear substrates of flat fluorescent lamps used for Liquid Crystal Displays (LCD). (2006/310/EC)
21. Lead and cadmium in printing inks for the application of enamels on borosilicate glass(2006/691/EC)
22. Lead as impurity in RIG (rare earth iron garnet) Faraday rotators used for fibre optic communications systems. (2006/691/EC)
23. Lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with NiFe lead frames and lead in finishes of fine pitch components other than connectors with a pitch of 0.65 mm or less with copper lead frames. (2006/691/EC)
24. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors. (2006/691/EC)
25. Lead oxide in plasma display panels (PDP) and surface conduction electron emitter displays (SED) used in structural elements; notably in the front and rear glass dielectric layer, the bus electrode, the black stripe, the address electrode, the barrier ribs, the seal frit and frit ring as well as in print pastes. (2006/691/EC)
26. Lead oxide in the glass envelope of Black Light Blue (BLB) lamps. (2006/691/EC)
27. Lead alloys as solder for transducers used in high-powered (designated to operate for several hours at acoustic power levels of 125 dB SPL and above) loudspeakers. (2006/691/EC)
28. Hexavalent chromium in corrosion preventive coatings of unpainted metal sheetings and fasteners used for corrosion protection and Electromagnetic Interference Shielding in equipment falling under category three of Directive 2002/96/EC (IT and telecommunications equipment). Exemption granted until 1 July 2007. (2006/692/EC)
29. Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC. (2006/690/EC)



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TEST RESULT
测试结果

II. Halogen (fluorine, chlorine, bromine, iodine) content

II. 卤素（氟、氯、溴、碘）含量

Compounds 化合物	Unit 单位	Result 结果	Laboratory Report Limit 实验室报告界限
		2	
Fluorine 氟	mg/kg	ND	100
Chlorine 氯	mg/kg	ND	50
Bromine 溴	mg/kg	ND	50
Iodine 碘	mg/kg	ND	100

Tested Item 2: 测试项目 2:	SOT89-LS 本体(black plastic)
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Note: mg/kg=milligram per kilogram

注释: mg/kg=毫克每千克

“<” = less than

“<” = 小于

Fluorine 氟/ Iodine 碘“ND” = less than 100 mg/kg

Chlorine 氯/ Bromine 溴“ND” = less than 50 mg/kg

Method: Sample was firstly combusted and absorbed with solvent, then analyzed by ion chromatography (reference to EN14582:2007 or IEC61189-2:2006).

方法: 将样品燃烧后用溶剂吸收，然后用离子色谱仪分析。

(参照 EN14582:2007 或 IEC61189-2:2006)



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TEST RESULT
测试结果

III. Total Antimony Content

III. 总锑含量测试

Compounds 化合物	Tested item (mg/kg) 测试项目 (mg/kg)	Laboratory Reporting Limit (mg/kg) 实验室报告界限 (mg/kg)
	2	
Antimony (Sb) 锑(Sb)	ND	5

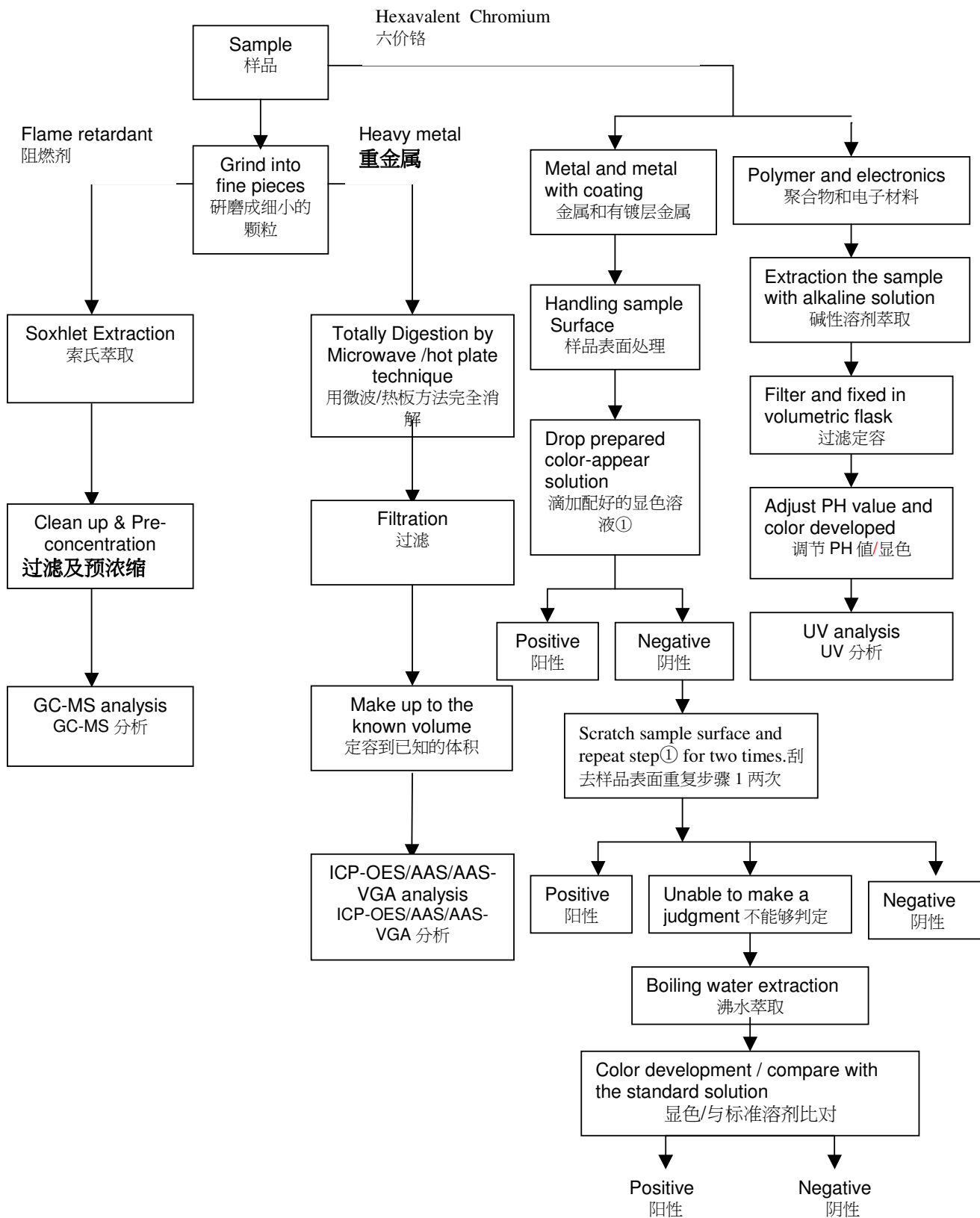
Tested Item 2: 测试项目 2:	SOT89-LS 本体(black plastic)
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Remarks:	Test methods: The sample is comminuted and digested with acid mixtures. Sb content is determined with ICP-AES technique (Reference: US EPA 3050B/3051/3052) ND = Not detected
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END

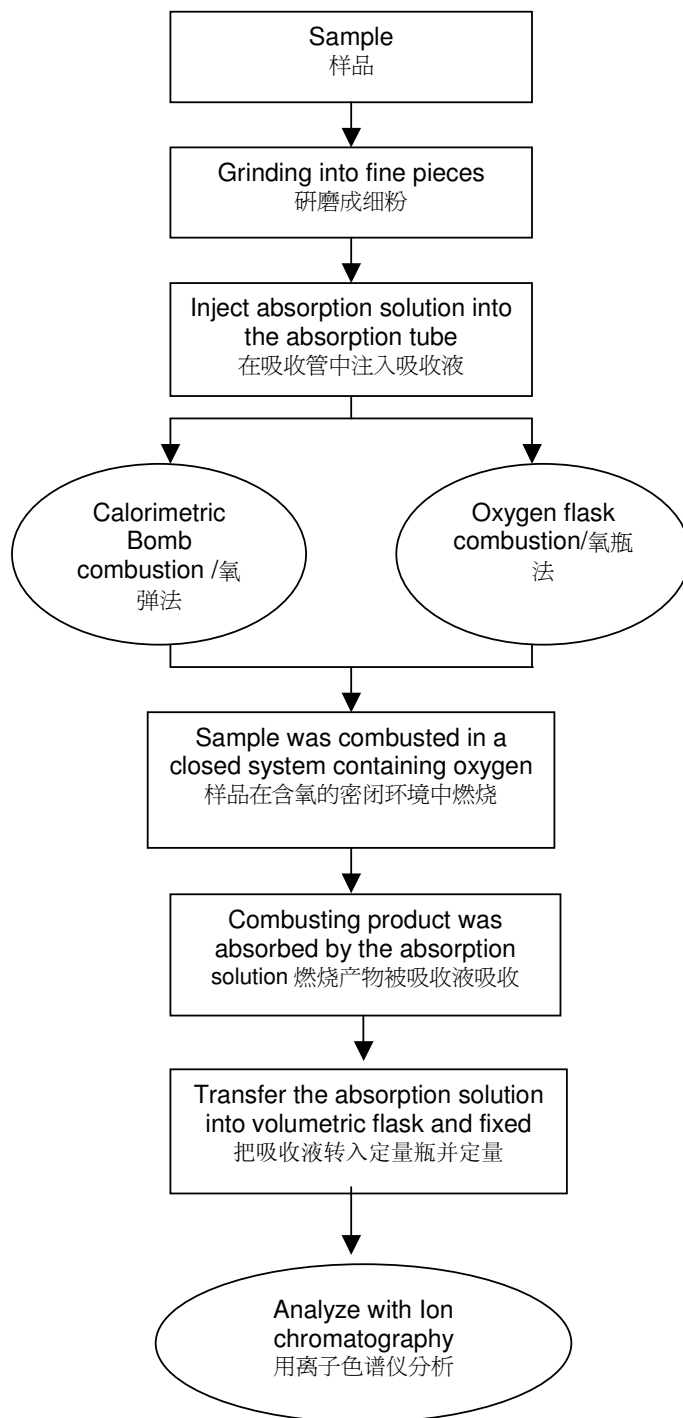
APPENDIX
附录

Test Procedures Flow Chart for the determination of total heavy metals, Hexavalent Chromium and flame retardants



APPENDIX
附录

**Test Procedures Flow Chart for the determination of total heavy metals, Hexavalent Chromium
and flame retardants**
卤素测试流程图



APPENDIX

附录

Flow chart of determination of heavy metals using different test methods

