

APPROVAL SHEET

Customer: ALL

Customer P/N: _____

Connfly P/N: DS1037

Description: D-SUB RIGHT ANGLE(7.2mm)TYPE

File Number: CXAS-220224001

Customer Signature:

Quality Department	Engineer Department	Approved By
Date:	Date:	Date:

CONNFLY

Made By	Checked By	Approved By
JLZ	HZW	LJC
Date: 2022/2/24	Date: 2022/2/24	Date: 2022/2/24



CONNFLY ELECTRONIC CO., LTD

ADD: East Industry Zone KuangYan Town Cixi Ningbo China P.C:315321

Tel:+86-574-63508787 +86-574-63509600 Fax: +86-574-63510817

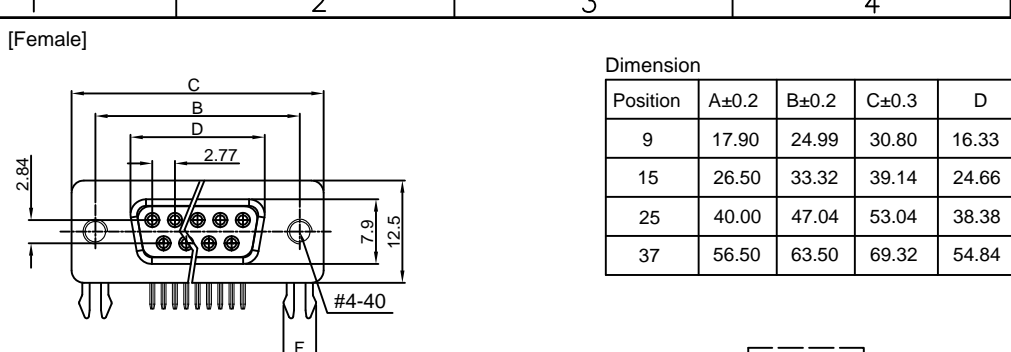
E-mail:sale@connfly.com

<http://www.connfly.com>

Materials Information

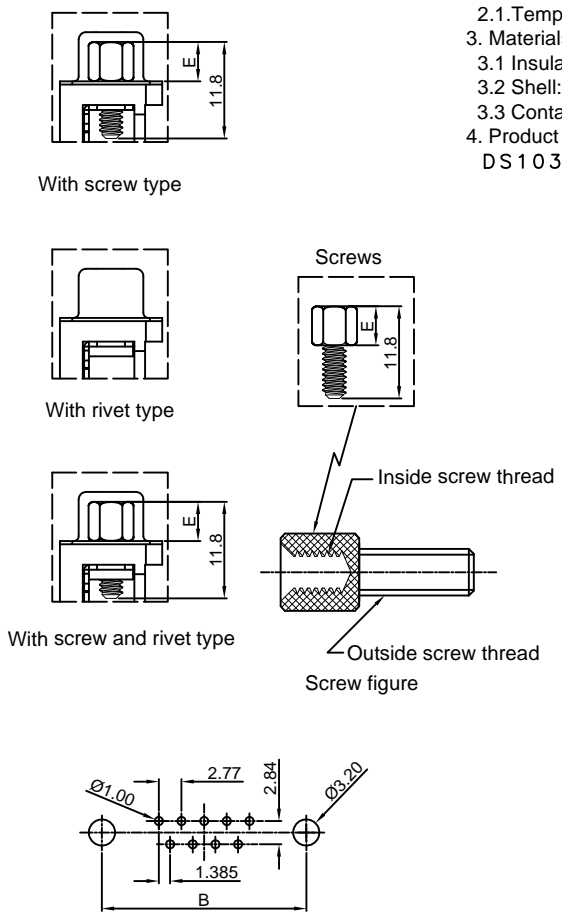
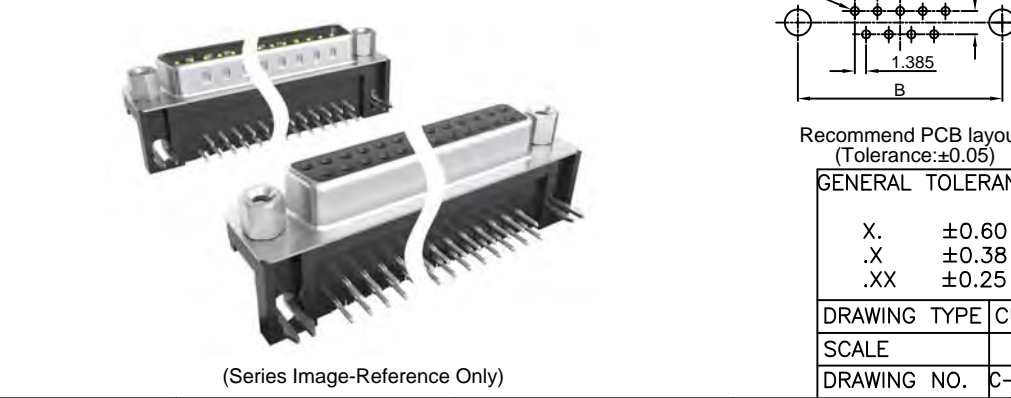
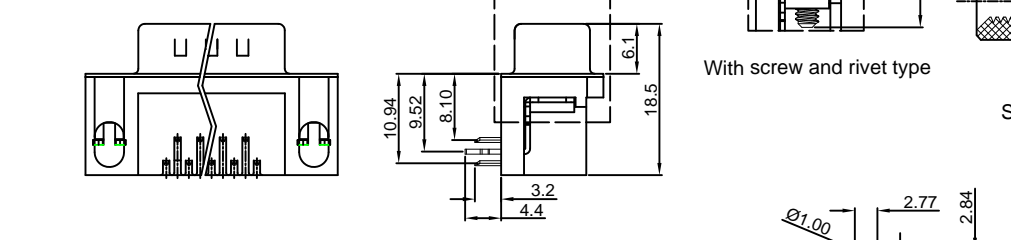
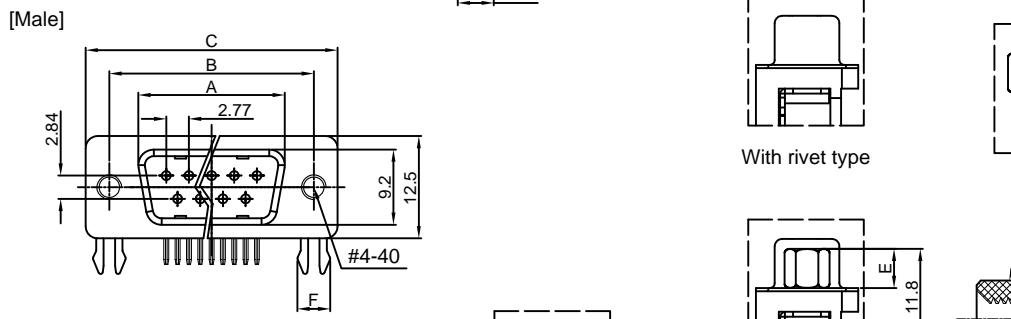
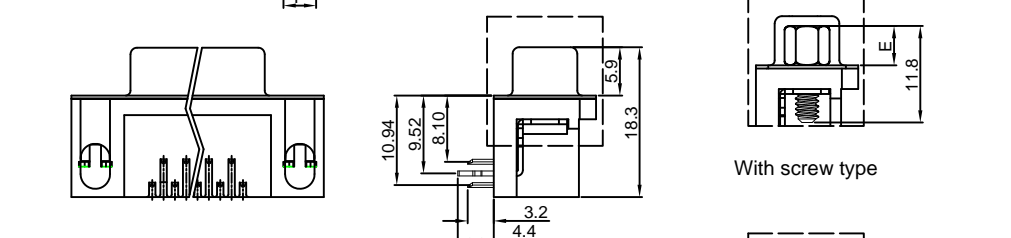
Item	Part Name	Materials	Finished
1	Contact	Brass	Seletive gold flash
2	Boardlock	Brass	Full tin
3	Shell	Steel	Full nickel
4	Screw	Copper alloy	Full nickel
5	Rivet	Copper alloy	Full nickel
6	Housing	PBT	UL 94 V-0 or HB
7	Cover	PBT	UL 94 V-0 or HB

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Dimension

Position	A±0.2	B±0.2	C±0.3	D
9	17.90	24.99	30.80	16.33
15	26.50	33.32	39.14	24.66
25	40.00	47.04	53.04	38.38
37	56.50	63.50	69.32	54.84



REV.	DESCRIPTION	DRAWN	CHECKED	APPROVED
A	NEW RELEASE	LJH 05/13/06'		LJC 05/13/06'
H	DRAWING UPDATE	JLZ 08/08/17'		

NOTES:

- Electrical characteristics:
 - Contact resistance: 20mΩ Max. Initial.
 - Dielectric withstanding voltage: 500V AC(rms) for 1 minute.
 - Insulation resistance: 1000MΩ Min.
- Environment characteristics:
 - Temperature range: -40°C~+105°C.
- Materials:
 - Insulator:PBT+Glass fiber
 - Shell:Steel
 - Contact:Copper alloy
- Product number code:
 DS1037-XXXXXX-XXX-XXX
 - Screw materials: F: Steel C: Copper alloy
 - Board lock materials: F: Steel C: Copper alloy
 - Insulator materials: 0: PBT UL94 V-0
 - Screw DIM. E: 4: 4.80mm 5: 5.80mm 6: 4.80mm(Inside thread M2.6*0.45p, outside thread unc#4-40) M3: 4.80mm(Inside thread M3.0, outside thread unc#4-40)
 - Board lock DIM. F: 7: 3.70mm
 - Contact plating: T: Selective gold flash Si: Full gold flash
 - Color of housing: K: Black
 - Screw type: A: With screw type B: With rivet type C: With screw and rivet type D: Rivet type with screws in bulk package E: With rivet type(N/A Thread)
 - Shell plating: N: Nickel
 - Connector type: M: Male F: Female
 - No. of contact: 09,15,25,37

GENERAL TOLERANCE		ANGLE TOLERANCE		PROJECTION	TITLE
X.	±0.60	X.	±5°		D-SUB Standard
.X	±0.38	.X	±3°	mm	Right Angle(7.2mm) Type
.XX	±0.25	.XX	±2°	SHEET SIZE	SERIES DS1037 SERIES
DRAWING TYPE		CUSTOMER		晨翔电子有限公司 CONNPLY ELECTRONIC CO. LTD	
SCALE		1:1 SHEET 1 OF 1			
DRAWING NO.		C-DS1037-XXXXXXX-XXX-H			



D-SUB Series
connector
Product Specification

DOC. No.:ZQ-IPS-DS1037

Rev.:A

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1.0 Scope : This specification covers the requirements for product performance and test methods of Connfly's D-SUB Series Connectors of the part numbers specified as bellow. Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

2.0 Rating :

2.1 Voltage Rating : 250 Vac (rms)

2.2 Temperature Range: operating : -40°C to +105°C :

3.0 Test Condition:

All tests shall be performed as bellow conditions unless otherwise specified.

3.1 Temperature range : +15°C to +35°C

3.2 Humidity range: 25% to 85%

3.3 Atmospheric Pressure : 86KPa to 106KPa

4.0 Test Methods and Requirements:

4.1 Examination of product:

Item	Test Description	Test Methods	Requirement
4.1.1	Examination of product (Outward Appearance Structure)	EIA 364-18 Shall be confirmed with eyes in accordance with each drawing. Shall be confirmed by using proper measuring instruments.	1).Outward appearance shall be good without such injurious problem 2).Structure shall be meet the design and dimensional requirements of drawing.



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4.2 Electrical Performance:

Item	Test Description	Test Methods	Requirement
4.2.1	Low Level Contact Resistance	<p>EIA 364-23 (or MIL-STD-1344A, Method 3002.1, Test Condition B)</p> <p>Subject mated contacts assembled in housing to 20mV maximum open circuit at 100 mA maximum</p> <p>The object of this test is to detail a standard method to measure the electrical resistance across a pair of mated contacts such that the insulating films, if present will not be broken or asperity melting will not occur.</p>	<p>1).Initial: 20 mΩ Maximum</p> <p>2).After test: 20 mΩ Maximum</p>
4.2.2	Insulation Resistance	<p>EIA 364-21 (or MIL-STD-202F, Method 302, Test Condition B)</p> <p>Test between adjacent contacts of mated and unmated connector assemblies.</p> <p>The object of this test procedure is to detail a standard method to assess the insulation resistance of D-SUB connectors. This test procedure is used to determine the resistance offered by insulation connector to a DC potential current through or on the surface of the members.</p>	<p>1).Initial: 1000 MΩ Minimum</p> <p>2).After test: 1000 MΩ Minimum</p>



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4.2 Electrical Performance: (Continued)

Item	Test Description	Test Methods	Requirement
4.2.3	Dielectric Withstanding Voltage	<p>EIA 364-20 (or MIL-STD-202F, Method 301, Test Condition B)</p> <p>Test between adjacent contacts of mated and unmated connector assemblies.</p> <p>The object of this test procedure is to detail a test method to prove that a D-SUB connector can operate safely at its rated voltage and withstand momentary over potentials due to switching, surges and/or other similar phenomena.</p>	<p>500 V AC for one minute at sea level</p> <p>1).No flashover or insulation breakdown</p>



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4.3 Mechanical Performance:

Item	Test Description	Test Methods	Requirement
4.3.1	Durability	<p>EIA 364-09</p> <p>Mate and unmate Connector assemblies for 500 cycles at maximum rated of 200 cycles per hour.</p> <p>The object of this test procedure is to detail a uniform test method for determining the effects caused by subjecting a D-SUB connector to the conditioning action of inserting and extraction, simulating the expected life of the connectors. Durability cycling with a gauge is intended only to produce mechanical stress. Durability performed with mating components is intended to produce both mechanical and wear stress.</p>	1).Shall meet visual requirement and electrical performances.
4.3.2	Connector Mating Force	<p>EIA 364-13</p> <p>Shall be measured with Tension gauge or Tension tester.</p> <p>Measure force necessary to mate assemblies at maximum rate of 12.5mm (or 0.492") per minute.</p> <p>The object of this test is to detail a standard method for determining the mechanical forces required for inserting a D-SUB connector.</p>	0.5*pos. Kgf maximum



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4.3 Mechanical Performance: (Continued)

Item	Test Description	Test Methods	Requirement
4.3.3	<p>Connector Unmating Force</p>	<p>EIA 364-13</p> <p>Shall be measured with Tension gauge or Tension tester.</p> <p>Measure force necessary to mate assemblies at maximum rate of 12.5mm (or 0.492") per minute.</p> <p>The object of this test is to detail a standard method for determining the mechanical forces required for extracting a D-SUB connector.</p>	<p>0.1*posKgf minimum</p>



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4.4 Environmental Performance:

Item	Test Description	Test Methods	Requirement
4.4.1	Salt Spray	MIL-STD-202F, Method 101D, Test Condition B Subject to 4 hours(Tin plated) or 8 hours(Gold plated) at 35°C with 5% Salt-solution concentration.	1).Shall meet visual requirement, show no physical damage.
4.4.2	Solderability	EIA 364-52 After half hour steam aging. The object of test procedure is to detail a uniform test methods for determining D-SUB connector solderability. The test procedure contained here utilizes the solder dip technique. It is not intended to test or evaluate solder cup, solder eyelet, other hand-soldered type or SMT type terminations.	The surface of the portion to be soldered shall at least 95% (tin plated only)covered with new solder coating.
4.4.3	Resistance to Soldering Heat	1) for WAVE SOLDERING : MIL-STD-202F, Method 210A, Test Condition B. Pre-heat : 80°C, 60 Seconds Temperature : 260±5 °C Immersion duration : 5 ± 1 sec.	1). No mechanical defect on housing or other parts.
		2) for MANUAL SOLDERING : MIL-STD-202F, Method 210A, Test Condition A. Pre-heat : No Temperature : 330 ± 10 °C Immersion duration : 3.5 ± 0.5 sec.	



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5.0 Test Sequence:

Test Group (a)		Sample Groups											
Test Item	Test Description	A	B	C	D	E	F	G	H	I	J	K	L
4.1.1	Examination of product	1,7	1,8	1,3	1,3	1,3							
4.2.1	Low Level Contact Resistance	2	5										
4.2.2	Insulation Resistance	3	6										
4.2.3	Dielectric Withstanding Voltage	4	7										
4.3.1	Durability		2										
4.3.2	Connector Mating Force	5	3										
4.3.3	Contact Unmating Force	6	4										
4.4.1	Salt Spray			2									
4.4.2	Solderability				2								
4.4.3	Resistance to Soldering Heat					2							
Number of Test Samples (Minimum)		5	5	5	5	5							

Notes:

- a. Samples shall be prepared in accordance with applicable manufacturer's instructions and shall be selected at random from current production.
- b. The numbers in the table indicate sequence in which tests are performed.
- c. Precondition samples with **5** cycles durability.
- d. All the tests shall be performed in the sequence, indicated by the number in the columns.
- e. Each test groups shall consist of minimum of eight connectors. A minimum of 30 contacts shall be selected and identified. Unless otherwise specified, these contacts shall be used for all measurements.
- f. this specification application to all series of D-SUB.

材质证明

MATERIAL FORMULATION CONFIDENTIAL REPORT

SUPPLIER:

TYPE OF MATERIAL: PBT(Poly Butylene Terephthalate)聚丁烯对苯二甲酸酯

Specification: PBT Bogen206

Description: PBT Bogen206 复合材料包含 PBT 树脂、玻璃纤维、阻燃剂、其它。

The raw material of PBT-Bogen206 compound contains PBT pure resin, glass fiber, flame retardant, and additives.

PBT 复合材料成分表

Chemical Composition of PBT Compound

规格 Grade		PBT FR NGF		
组成 Chemical Composition	Molecular Formula	CAS Number	含量 (%) Content(%)	
1	PBT 树脂 PBT Resin	$(\text{CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-O-C-O-C-O})_N$	26062-94-2	52~63
2	玻璃纤维 Glass Fiber	$\text{SiO}_2 \cdot \text{CaO} \cdot \text{Al}_2\text{O}_3$	65997-17-3	15~30
3	阻燃剂 Flame Retardant	$\text{C}_{21}\text{H}_6\text{Br}_9\text{N}_3\text{O}_3$	25713-60-4	12~15
4	色母/色粉 Few of Additives	—————	—————	0.5

ATTN: THE CONTENT OF CHEMICAL MATERIALS ARE IN LINE WITH INTERNATIONAL HALOGEN-FREE STANDARD

宁波长振铜业有限公司

NINGBO CITY CHANGZHEN COPPER CO.,LTD

产品质量证明书

PRODUCTSQUALITY GUARANTEE

2008年(YEAR) 1月(MONTH) 3日(DAY)

证明书号 GUARANTEE NO: 080103-1

(TO): 黄溪铜品

订货合同 编号 CONTRACT No	产品名称及规格 INEM No & SPECIFICATION											实发 REALDELIVERY		
	牌号 CODE	状态 CONDITION	名称 NAME			规格(mm) SPECIFICATION	长度(mm) LENGTH		重量(千克) WEIGHT (Kg)					
	Hphyl	正	铜合金			S47	/		4550.46			4550.46		
化学 成分 CHEMICAL COMPOSITION	元素 ELEMENT	铜 Cu	铅 Pb	铁 Fe	锡 Sn	铝 Al	镍 Ni	砷 As	镉 Cd	锌 Zn	铬 Cr ³⁺	汞 Hg	聚溴 联苯醚 PBB/PBDE	杂质总和 IMPURITY SUM
	含量(%) Concentration	82.7	2.92	0.33	0.28	0.012	—	—	0.004	余量	—	—	—	—
机械性能 MACHINERY PROPERTY	抗拉强度(σb) Mpa VOLTIMATE STRENGTH			延伸率(δ)% PERCENTAGE ELONGATION			硬度 HV	制造方法 MANUFACTURE METHOD			炉号			
	/			/			—	/			1245779			

产品技术条件
ARTICLE TECH CONDITION
按照GB/T5231-2001标准制造
GB/T5231-2001 STANDRD MADE

检验员签字INSPECTOR SIGNATURE *David* 质量检验公章 QUALITY INSPECTION SEAL

注：客户对该批产品质量有异议，请在该合格证书签发日起十日内提出，逾期责任自负。



宝山钢铁股份有限公司
BAOSHAN IRON & STEEL CO.,LTD.

制造厂: 宝钢分公司

Manufacturer: BAOSTEEL BRANCH

产品质量证明书

INSPECTION CERTIFICATE

上海市宝山区富锦路885号 邮编 201900

No.885 Fujin ROAD, BAOSHAN DISTRICT

201900 SHANGHAI, P. R. CHINA

TEL (021)26649104

FAX (021)26649104

订货单位 CUSTOMER	上海宝钢钢材贸易有限公司	产品名称 PRODUCT	冷轧钢带		
收货单位 PURCHASER	上海宝钢钢材贸易有限公司	代号 CUSTOMER'S NO.	000425	证书号 CERTIFICATE NO.	BGSAL0802240019200
标准 SPECIFICATION	Q/BQB 402 SPCC-SD FB PT.A-PW.A-PF.A	客户订单编号 CUSTOMER ORDER NO.			
		签发日期 DATE OF ISSUE	2008/02/24		
		许可证号 LICENSE NO.		合同号 CONTRACT NO.	L8E8500653

序号 NO.	钢卷/捆包号 COIL/PACK NO.	件数 QTY	炉号 HEAT NO.	规格及重量 MATERIAL DESCRIPTION				化学成分 CHEMICAL COMPOSITION % (熔炼分析 HEAT ANALYSIS)										拉伸试验 TENSILE TEST (G.L=L 2)			弯曲 BEND TEST	*01 硬度	*06 杯突	BH 值												
				厚度 THICK	宽度 WIDTH	长度 LENGTH	张数 SHEETS	重量 MASS	C	Mn	P	S	TAI	Ti	Al	Cu	Ni	Nb	N	O					屈服 Y.S.	抗拉 T.S.	伸长 EL									
																												mm	mm	mm	(kg)	x10 ²	x10 ²	x10 ³	x10 ³	x10 ³
1	8940193701	1	274293	0.40	1020	COIL		4644	3	18	11	8	38							231	357	40	OK	48												
2	8940193702	1	274293	0.40	1020	COIL		4831	3	18	11	8	38							231	357	40	OK	48												
3	8940193703	1	274293	0.40	1020	COIL		4456	3	18	11	8	38							231	357	40	OK	48												
合计 Total		3					14133																													

备注 REMARKS

注释 NOTES
 Y.S.= YIELD STRENGTH T.S.= TENSILE STRENGTH EL= ELONGATION G.L.= GAUGE LENGTH L1= 5.65SQRT(FO) L2= 50MM L3= 80MM L4=200MM L5=11.3SQRT(FO)
 *01:HRB *02:HRF *03:HR30T *04:HV *05:HR15T *06:ERICHSEN *07:HARDNESS

本产品已按上述要求进行制造和检验, 其结果符合要求, 特此证明。
 WE HEREBY CERTIFY THAT MATERIAL DESCRIBED HEREIN HAS MANUFACTURED AND TESTED WITH SATISFACTORY RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ABOVE MATERIAL SPECIFICATION.

会验者 SURVEYOR TO

制造管理部部长 郑贻裕
 MANAGER OF MANUF.MANAGEMENT DEP.

服务热线 800-820-8590 021-26649888

MATERIAL SAFETY DATA SHEET

COMPANY: CONNPLY ELECTRONIC CO., LTD

PHONE: 0574-63506868

FAX: 0574-63509587

COMMERCIAL PRODUCT NAME:

1.1 Chemical Characterization: Polybutylene Terephthalate (PBT)

(CAS#30965-26-5) fired retarded with a bromine containing polymer (Brominated epoxy resin, CAS#68928-70-1) and antimony oxide (CAS#1309-64-4), glass fiber (CAS#65997-17-3) filled.

1.2 Form: Granules

1.3 Color: All Color

1.4 Odor: None

2 Physical Data and Safety Data

2.1 Melting Point (°C) : 225°C

2.2 Density @ 25°C : 1.40-1.65g/cm³ ASTM D 1505

2.3 Vapor Pressure: Not applicable

2.4 Viscosity: Not applicable

2.5 Solubility in Water: Insoluble

2.6 PH value: Not applicable

2.7 Flash Point: Not applicable

2.8 Ignition Temperature (°C) : 450°C, estimated

2.9 Explosion: Not sensitive to impact and static discharge.

2.10 Thermal Decomposition: None under 400°C

2.11 Hazardous Decomposition Products: Processing fumes evolved at recommended processing conditions contain trace levels of THF (tetrahydrofuran) and may also contain trace levels of hydrogen bromide

2.12 Stability: Stable under recommended conditions of storage and handling.

2.13 Reactivity: Not reactive under recommended conditions of storage, handling, processing and use.

2.14 Conditions to Avoid: No not exceed temperature recommended. Purgings should be collected in small shapes to allow for rapid cooling.

3 Transport GGVSEE/IMDG Code: UN No:

ICAO/IATA-DGR: GGVE/GGVS:

RID/ADR: ADNDR:

DOT Hazard Class: Not Regulated

Proper Shipping Name: Not Regulated

Identification Number: Not Listed

TDGA: Not Listed

4 Regulations

TSCA Status: This product complies with Chemical Substance Inventory requirements of US EPA Toxic Substances Control Act (TSCA).

WHMIS Classification: Not a controlled product.

Commercial Product Name: PBT

5 Protective Measures, Storage and Handling

5.1 Storage:

Store in a cool and dry place. Keep containers tightly closed to prevent moisture absorption and contamination.

5.2 Handling:

Follow recommendations in processing guide. Prevent contact with skin and eyes. Provide adequate ventilation.

5.3 Personal Protective Equipment

Respiratory protection—dust mask

Eye protection—safety glasses

Hand protection—thermal protective gloves should be worn around molten plastic

5.4 Industrial Hygiene:

A continuous supply of fresh air to the workplace together with removal of processing fumes through exhaust systems is recommended.

5.5 Protection Against Fire and Explosion:

Large, molten masses of plastic may ignite spontaneously in air.

Water quenching of plastic fires is recommended

5.6 Disposal:

Product is not a RCRA hazardous waste. Recycling is encouraged.

Dispose of using good manufacturing practices under local regulations for your area.

6 Measures in Case of Accidents and Fires

6.1 After Spillage/Leakage? Gas Leakage:

Sweep up and dispose in proper containers to prevent slipping hazards.

6.2 Fire Extinguishing Media:

Suitable—water spray and foam. Water is the best.

Not recommended—carbon dioxide and dry chemicals.

6.3 First Aide:

If molten polymer contacts the skin or eyes, cool rapidly with cold water. DO NOT use solvent for removal.

DO NOT attempt to remove the polymer from the skin!

Obtain IMMEDIATE medical attention.

6.4 Fire Fighting: Approved pressure demand breathing apparatus and protective clothing should be used for all fires.

7 Information on Toxicity

Product not considered primary eye and skin irritan.

8 Information on Ecological Effects

We recommend this material be disposed of by properly scrubbed incineration or recycling. Not expected to present any significant ecological problem.

9 Further Information:

None

物质安全资料表

Material Safety Data Sheet

1. 物品与厂商资料(Product and Company Identification)

物料中(英)文名称(Product Name)	黄铜合金
物料编号(Product Code)	C2600~C2801
化学分类(Cheical Classification)	铜(Copper) 锌(Zinc)
公司介绍(Manufacture)	
1. 制造商 / 供应商名称(Name)	宁波晨翔电子有限公司
2. 制造商 / 供应商地址(Address)	浙江省慈溪市匡堰镇东工业区
3. 电话(Phone Number)	+86-574-63508787
4. 传真(Phone Number)	+86-574-63510817
5. 紧急联络电话(Emergency Phone No.)	+86-574-63509600
6. 联络人(Emergency Phone No.)	LJC

2. 成份辨识资料(Composition, Information on Ingredients)

成份名称 (Component-Chemical Name & Common Names)	化学文摘社登记号码 (CAS No.)	浓度与浓度范围 (成分百分比)Percentage(%)
Cu	7440-50-8	59-71.5
Zn	7440-66-6	28.5-41
Pb	7439-91-1	<0.1
Fe	7439-89-6	<0.07

3. 危害辨识资料(Hazard Identification)

最重要危害效应(Most Important Health Hazards and Reactions)	
1. 紧急概要(Emergency Overview)	None
2. 健康危害效应 (Health Hazards and Reactions)	None
3. 环境影响(Environmental Impact)	None
4. 物理性及化学性危害 (Physical and Chemical Hazards)	No Physical and Chemical Hazards
5. 特殊危害(Specific Hazards)	None
主要症状(Cardinal Symptoms)	None
危害物质分类(Hazard Classification)	None

4. 急救措施(First Aid Measures)

不同暴露途径之急救方法(First Aid Measures for Different Kinds of Exposures)	
1 眼睛接触(Eye Contact)	大量冲水接触部位至少 15 分钟后，立即送医
2. 皮肤接触(Skin Contact)	以肥皂及清水冲洗干净。
3. 吸入 (Inhalation)	将患者移至通风处、注意保暖并送医
4. 食入(Ingestion)	None
最重要症状及危害概要 (Most Important Symptoms and Hazard Reactions)	None
对急救人员之防护 (Protection to First-Aid attendants)	None
对医师之提示 (Suggestions to Doctors)	None

5. 灭火措施(Fire fighting Measures)

适用灭火剂 (Suitable Extinguishing Media)	不可燃物、不适用
灭火时可能遭遇之特殊危害 (Special Hazards in Fire)	不可燃物、不适用
特殊灭火程序 (Special Fire-Fighting Procedures)	不可燃物、不适用
消防人员之特殊防护设备 (Required Special Protective Equipment for Fire-Fighting)	不可燃物、不适用

6. 溢漏处理方法 (Accidental Release Measures)

个人注意事项(Personal Precautions)	固体物质、不适用
环境注意事项(Environmental Precautions)	固体物质、不适用
清理方法(Methods for Cleaning)	固体物质、不适用

7. 安全处置方法 (Handling and storage)

处置(Handling)	<ol style="list-style-type: none"> 1. 板材制品之边缘及断面易割伤应小心处置 2. 单位体之重量大，易造成操作不当之压伤吊挂搬运须注意，避免造成危险
储存(Storage)	<ol style="list-style-type: none"> 1. 储存于干燥通风良好室内处所或具有湿度控制之空间 2. 严禁暴露于室外或温湿度高之密闭空间

8. 暴露预防措施 (Exposure Controls, Personal Protection)

工程控制(Engineering Measures)	机械加工场所中，会产生烟雾及粉层，须要有通风设备装置。
控制参数(Control Parameters)	None
个人防护设备(Personal Protection Equipment)	长时间暴露于粉层及烟雾的工作环境下，应防护
卫生措施(Hygiene Measures)	None

9. 物理及化学特性(Physical and Chemical Properties)

成分(Component)	
1. 物质形态(State of substance)	依制成品形状
2. 颜色(color)	金色光泽金属
3. 外观(Appearance)	Solid
4. 气味(Odor)	None
5. PH 值(PH Value)	None
6 沸点(Boiling Point)	Cu2567-2595 Zn 907
7. 闪火点(Flashpoint)	None applicable
8. 分解温度(Decomposing Temperature)	904-954
9. 自段鸿昆度(Self-Igniting Temperature)	None
10. 蒸气棒(Vapor Pressure)	1.0mmHg@1628 度

10安全性及反应性

安定性(Stability)	一般情况下相当安定, 活性小
特殊状况下可能之危害反应(Possible Hazard Reaction Under Special Conditions)	None
应避免之状况(Conditions to Avoid)	None
应避免之物质(Materials to Avoid)	酸类
危害分解物(Hazardous Decomposition Products)	None

11. 毒性资料(Toxicological Information)

急毒性(Acute Toxicity)	铜粉末超过 3500ug / kg, 急性中毒症状为呕吐、无力感及胃疼。
局部效应(Local Effects)	None
致敏感性(Sensitivity)	None
慢毒性及长期毒性(Chronic or Long Term Toxicity)	铜金属之慢性中毒对肝及肾有危害
特殊效应(Special Reactions)	铜金属之慢性中毒对眼睛接触有危害

12. 生态资料(Ecological Information)

可能之环境影响(Possible Environmental Impact/Environments Run-offs)	水中的铜浓度, 在 0. 015-3. 0mg / l, 尤其是在软水中, 会有报告对许多类鱼、甲壳类的动物及软体动物、浮游生物具中毒性
--	--

13. 废弃处理方式(Disposal Considerations)

产品废弃处置方式(Product Discard Disposal Method)	本产品不属于危害性废弃物, 须丢时可以委托回收商予以回收再生处理
包装废弃处理(Packing Disposal Method)	None

14. 运送资料(Transport Information)

国际运送规定(International Transportation Regulations)	
1. 美国交通部、49CFR 分级	None
2. 运, IM 分级	None
3. 航运, TATA 分级	None
联合国编号(UN Reference No.)	None
国内运送规定 (Domestic Transportation Regulation)	None
特殊运送方法及注意事项 (Special Transportation Methods and Precaution)	运送时本产品不要直接与水接触, 并且要注意会有滑落、翻落的危险发生

15. 法规资料(Regulatory Information)

适用法规(Applicable Regulation)	通常无特定法令规定, 但是在会产生粉层的场所必须遵守劳工安全卫生法劳工作业环境空气中有害物质容许浓度标准
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16. 其它资料(Other Information)

参考文献(Reference Document)	工业技术研究院环境与安全技术发展中心
制表单位(Department)	宁波晨翔电子有限公司
制造商及供应商地址	浙江省慈溪市匡堰镇东工业区
电话	+86-574-63508787
制表者(Made By)	JLZ
制表日期(Data Prepared)	2016-12-20

MATERIAL SAFETY DATA SHEET(物质安全数据表)

一、物料与供货商资料:

物品名称: 螺丝、铆钉铜材
物品代码: C3771 C3603
化学名称: Cu-Sn-Zn 金属合金
类别: 金属混合物
供货商名称: 慈溪市骅杰电子有限公司
供货商地址: 浙江省慈溪市慈东工业园区 B74
联络电话: 0574-63215395 传真: 0574-63215396
供货商网址: www.huajie.cc
紧急联络电话: 0769-85429395

二、物质构成成份:

化学名称	铜 (Cu)
CAS 编号	7440-50-8
比例	C3771 (Cu+Sn+Zn) >99.5% C3603 (Cu+Sn+Zn) >99.7%

化学名称	锡 (Sn)
CAS 编号	7440-31-5
比例	C3771 5.5-7.0% C3603 7.0-9.0%

化学名称	锌 (Zn)
CAS 编号	
比例	

OHSA: 本产品 在固体时不具危险性。其粉尘及烟雾: 具有危险性

三、危害识别数据:

警告:
长时间暴露粉尘及烟雾的工作环境下, 对于眼睛、呼吸系统、皮肤会造成刺激伤害, 必须配戴保护器具, 包括护目镜, 适当衣物, 必须要保护全部身体, 身体被接触部位, 必须彻底清洗干净。

种类的名称	铜、锡、锌之混合物
危险标示类别	金属粉尘或烟雾对皮肤、眼睛造成刺激性且对肺部有毒性, 但金属成品本身不具危害性。
危险系数 (粉尘及烟雾)	健康: 1; 可燃: 0 (0=低、4=极高)

四、急救措施:

对于粉尘及烟雾危害:

眼睛接触	以大量纯净水冲洗上下眼皮内部 (至少 15 分钟), 若眼睛被刺激不适者, 立即送医院检查。
食入时	大量喝水并催吐, 迅速送医院检查

皮肤接触	以清水清洗干净
吸入时	送至通风良好较阴凉处休息，以毛布保暖，严重者迅速送医院检查诊断。

五、火灾及爆炸危害资料：

燃烧性资料：

爆炸性	无
可燃性	无
燃烧性	无
闪火点	不适用
自燃性	不适用

灭火剂：

灭火方式：使用灭火剂于材料表面即可

消防建议：

注意粉尘可能导致爆炸或产生可燃能气体

六、泄漏的处置：

本产品在加工时产生粉尘时，有可能产生爆炸，必须将火源移除，也唯有粉尘型态时才可能产生泄露，所以必须装设吸尘装备，过滤空气中之粉尘，以降低其粉尘浓度。

泄露于空气中	不适用
泄露于水中	不适用
泄露于地面中	不适用

七、处置和储藏：

处置：操作处所需整理整顿，干燥通风，以避免灰尘、潮湿

储藏：避免放置于潮湿或酸性物质或酸性气体之场所

八、预防措施：

个人防护设备：工作制服 呼吸保护：口罩 手部保护：防护手套 眼部保护：配戴防护目镜 皮肤和身体：工作制服
卫生措施：1、工作场所严禁吸烟或饮食 2、处理本物质后须彻底洗手 3、维持工业场所清洁

九、物理和化学属性：

外观	浅黄色光泽的固体金属
熔点	1000-1075℃
沸点	无资料
比重	8.9
蒸气压	不适用
溶解度	不适用
PH 值 25℃	不适用

十、安全性和反应性：

非活性物质

十一、毒性信息：

严重毒物：无

局部影响：无

致过敏性：无

持续长期：无

特定影响：无

十二、生态信息：

本产品的成品对生态不具毒性：

分解性：无资料

突变性：本产品没资料显示会造成突变性

鱼毒性：水中的铜溶度，在 0.015-3.0mg/l,尤其中软水中,会有报告会对许多种类的鱼、贝壳类的动物及软体动物、浮游生物具有毒性。

十三、废弃处理：

本产品不属于危害性废弃物，须丢弃时可以委托回收商予以回收再生处理。

十四、运输资料：

运送时本产品不要直接与水接触，并且要注意会有掉落危险存在。

十五、法规资料：

通常无特定法令规定，但是在会产生粉尘的场所必须遵守劳工安全卫生法劳工作业环境空气中有害物质容许浓度标准。

十六、其它资讯：

本 MSDS 内容资料应被所有使用、运输、储存或使用本产品之公司/人员充分了解与接受，并其应用使用、加工、制程式管理与本产品有关之作业规定上，本 MSDS 资料内容在编订时尽可能将最新资料纳入。

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Client name : NINGBO CONNFLY ELECTRONIC CO., LTD

Client address : NO.125 ZHANTENG ROAD EAST INDUSTRY ZONE KUANGYAN TOWN CIXI NINGBO
CHINA

Sample Name : PBT PLASTIC(BLACK)

The above sample(s) and information were provided by the client.

SGS Job No. : NBIN2202001300PC

Sample Receiving Date : Feb 14, 2022

Testing Period : Feb 14, 2022 to Feb 18, 2022

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

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

Conclusion : Based on the performed tests on submitted sample(s), the results of Cadmium, Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) and Phthalates such as Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Ashley Zhang

Ashley Zhang

Approved Signatory

scan to see the report



NGBMR22000317502



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Test Results:

Test Part Description:

SN ID.	Sample No.	SGS Sample ID	Description
SN1	2	NGB22-0003175-0001.C002	BLACK SOLID GRAINS

Remarks:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015 and IEC 62321-8:2017, analysis was performed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	Limit	Units	MDL	2
Cadmium(Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	ND
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND
Sum of PBBs	1000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND



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Test Item(s)	Limit	Units	MDL	2
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1000	mg/kg	-	94
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	94
Dibutyl Phthalate(DBP)	1000	mg/kg	50	ND
Benzyl Butyl Phthalate(BBP)	1000	mg/kg	50	ND
Bis-(2-ethylhexyl) Phthalate(DEHP)	1000	mg/kg	50	ND
Diisobutyl Phthalate(DIBP)	1000	mg/kg	50	ND

Notes:

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

IEC 62321 series is equivalent to EN 62321 series

https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(2) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.



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Ningbo Branch Chemical Laboratory

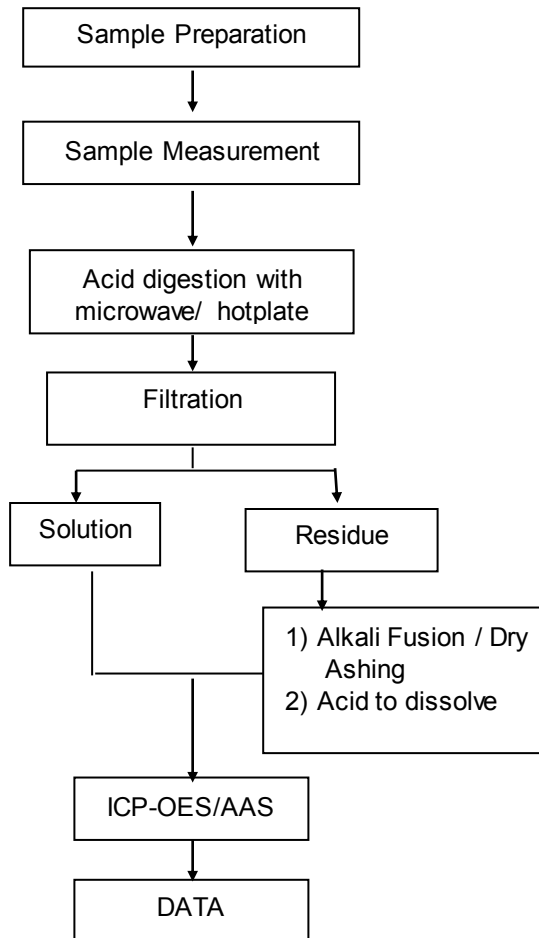
No.1177, Lingyun Road, Hi-Tech Zone, Ningbo, Zhejiang, China 315040 tE&E (86-574)89070249
中国·浙江·宁波高新区凌云路1177号 邮编: 315040 tHL (86-574)89070271 tML (86-574)89070242 sgs.china@sgs.com

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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

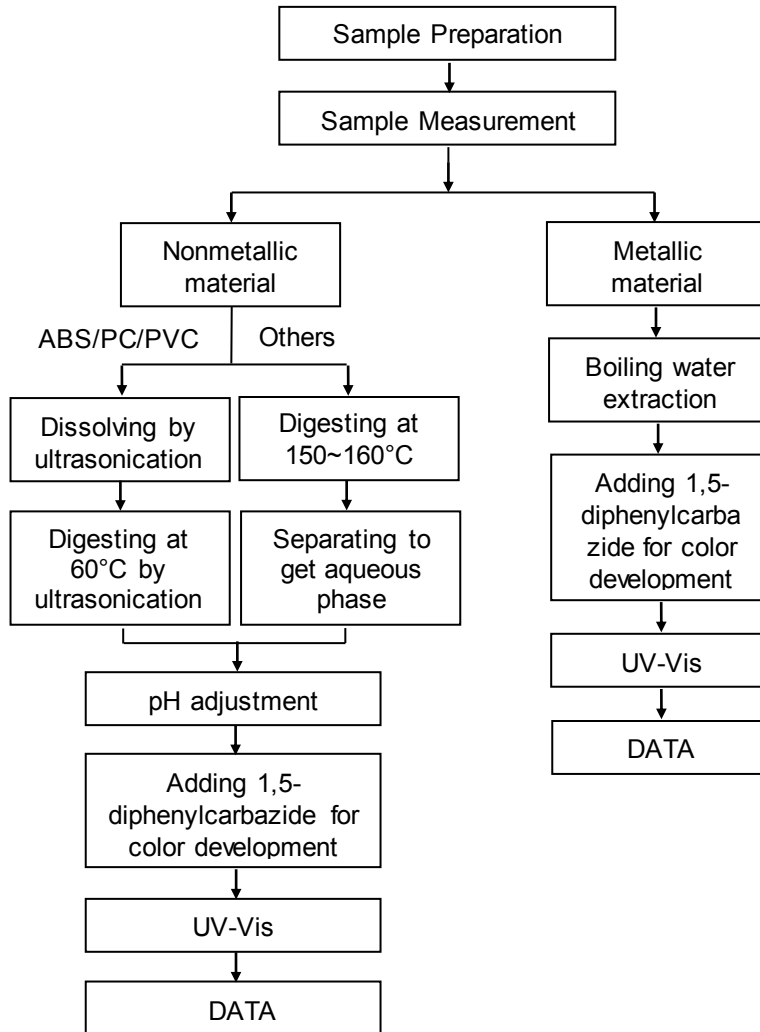


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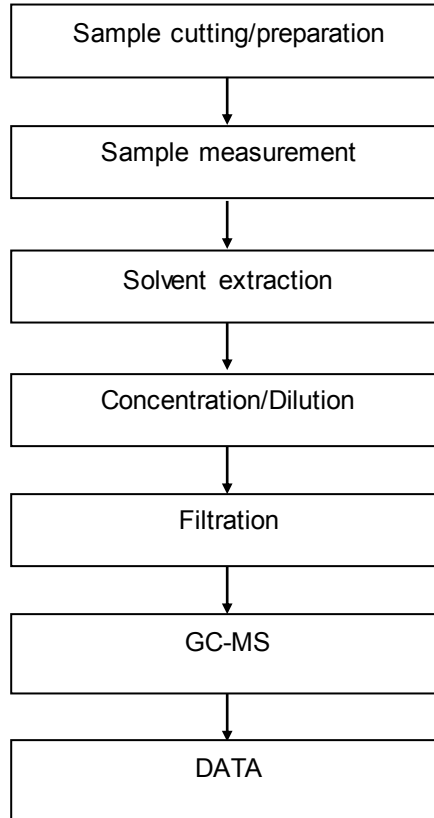
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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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Phthalates Testing Flow Chart

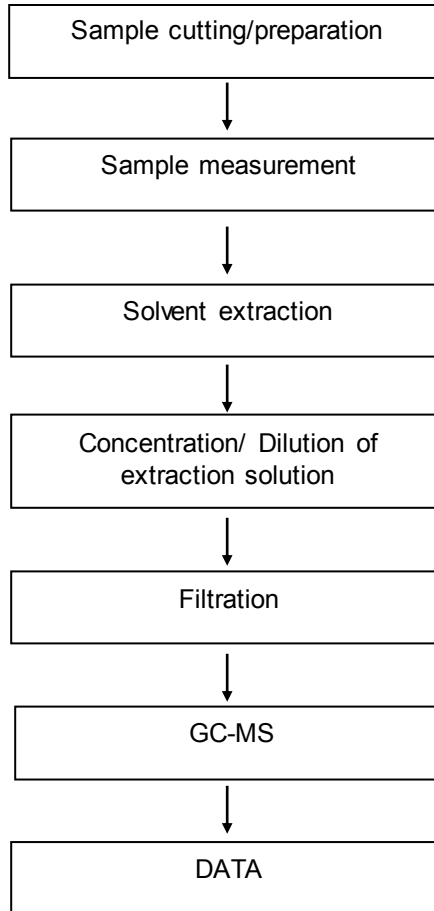


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PBBs/PBDEs Testing Flow Chart



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Sample Photo:



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Test Report

No.: NGBEC22000082711

Date: Jan 19, 2022

Page 1 of 6

NINGBO CONNFLY ELECTRONIC CO., LTD
NO.125 ZHANTENG ROAD EAST INDUSTRY ZONE KUANGYAN TOWN CIXI NINGBO CHINA

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

SGS Job No. : NP22-000068
Sample Receiving Date : Jan 10, 2022
Testing Period : Jan 10, 2022 to Jan 19, 2022
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Ashley Zhang

Ashley Zhang

Approved Signatory



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Test Results:

Test Part Description:

SN ID.	Sample No.	SGS Sample ID	Description
SN1	A11	NGB22-0000827-0001.C011	Cooper metal

Remarks:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-1:2015, analysis was performed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Units	MDL	A11
Cadmium(Cd)	100	mg/kg	2	ND
Lead(Pb)	1000	mg/kg	2	158
Mercury(Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) ▼ = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive -



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unavoidable coating variations may influence the determination.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



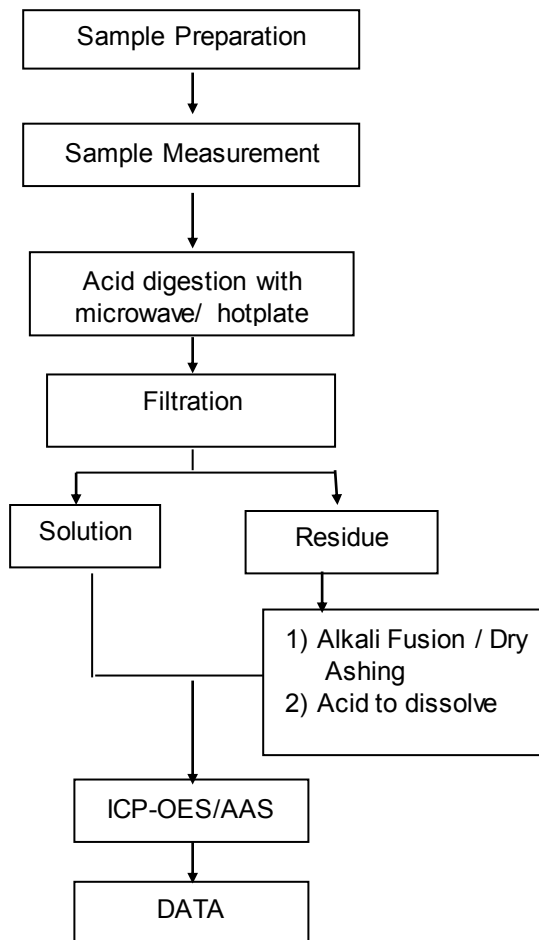
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

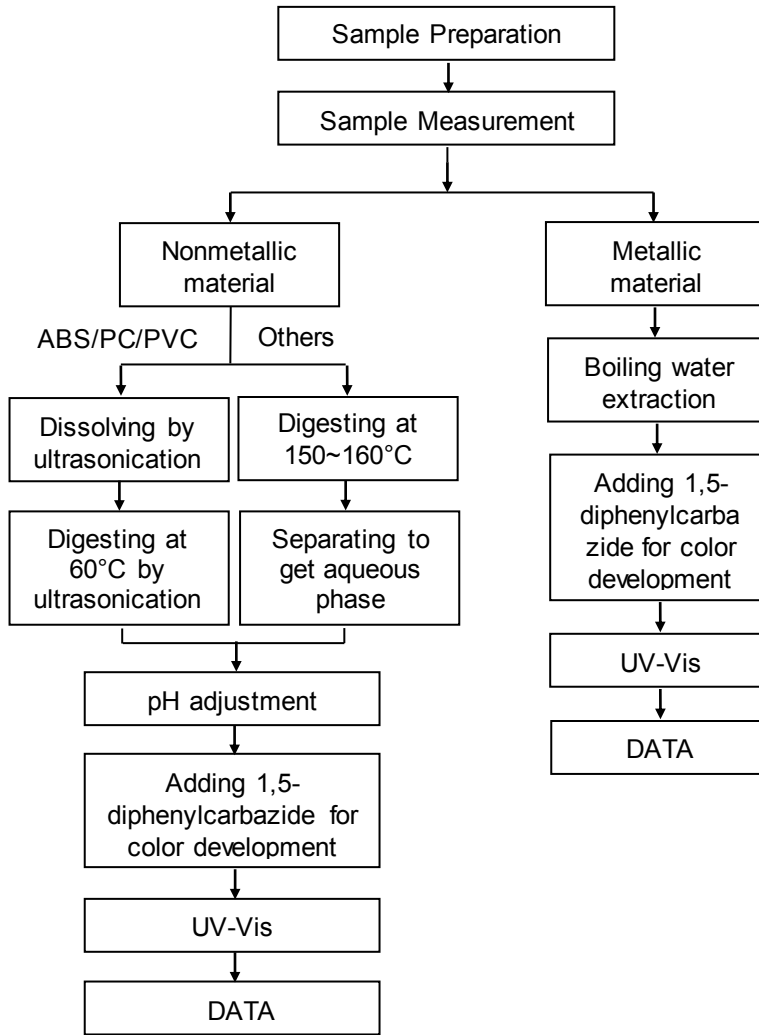


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



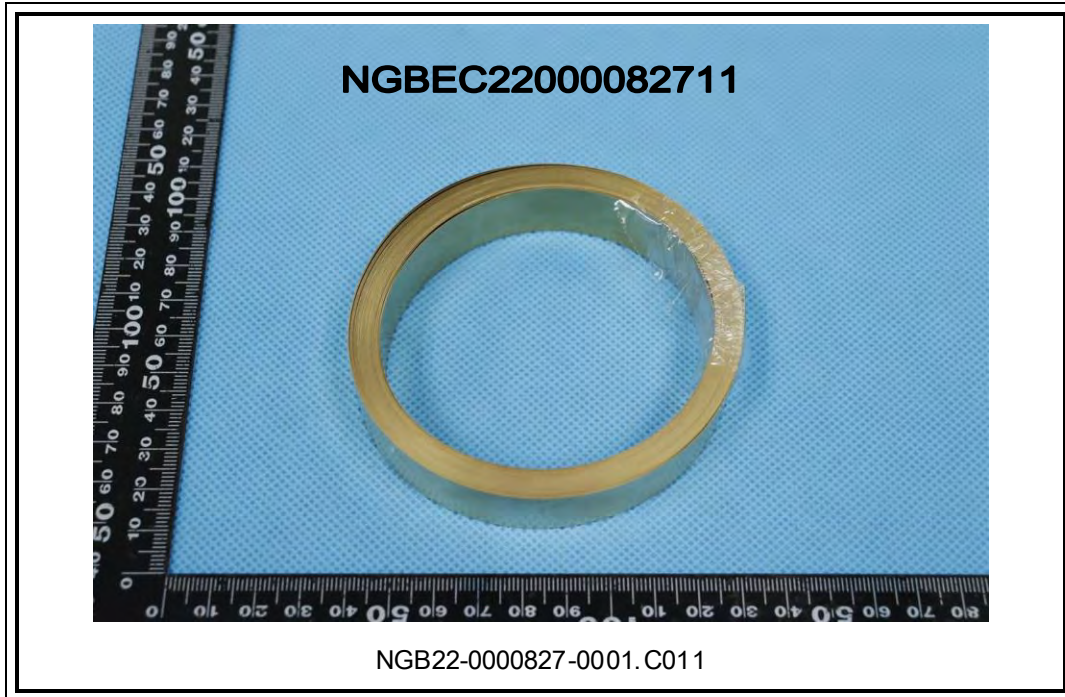
Test Report

No.: NGBEC22000082711

Date: Jan 19, 2022

Page 6 of 6

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Test Report

No.: NGBEC22000082712

Date: Jan 19, 2022

Page 1 of 6

NINGBO CONNFLY ELECTRONIC CO., LTD
NO.125 ZHANTENG ROAD EAST INDUSTRY ZONE KUANGYAN TOWN CIXI NINGBO CHINA

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

SGS Job No. : NP22-000068
Sample Receiving Date : Jan 10, 2022
Testing Period : Jan 10, 2022 to Jan 19, 2022
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Ashley Zhang

Ashley Zhang

Approved Signatory

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Test Results:

Test Part Description:

SN ID.	Sample No.	SGS Sample ID	Description
SN1	A12	NGB22-0000827-0001.C012	Silvery metal

Remarks:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-“ = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-1:2015, analysis was performed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Units	MDL	A12
Cadmium(Cd)	100	mg/kg	2	ND
Lead(Pb)	1000	mg/kg	2	ND
Mercury(Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) ▼ = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive -



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unavoidable coating variations may influence the determination.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



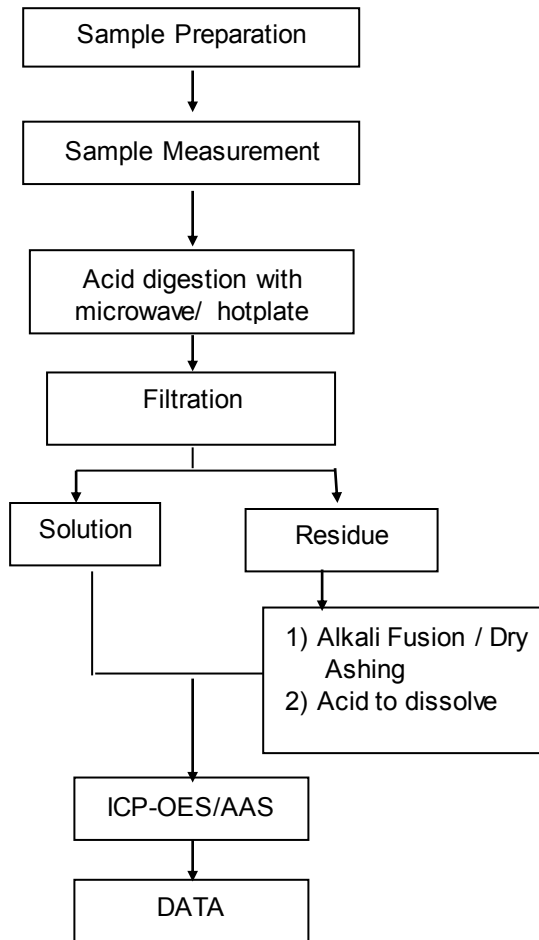
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

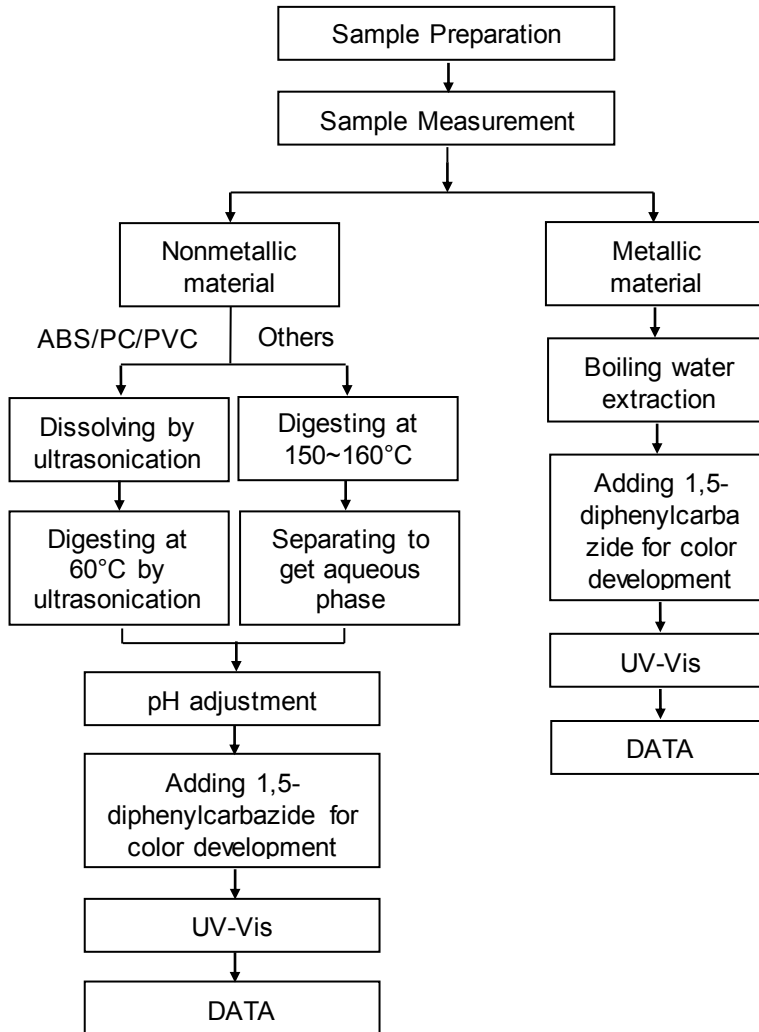


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



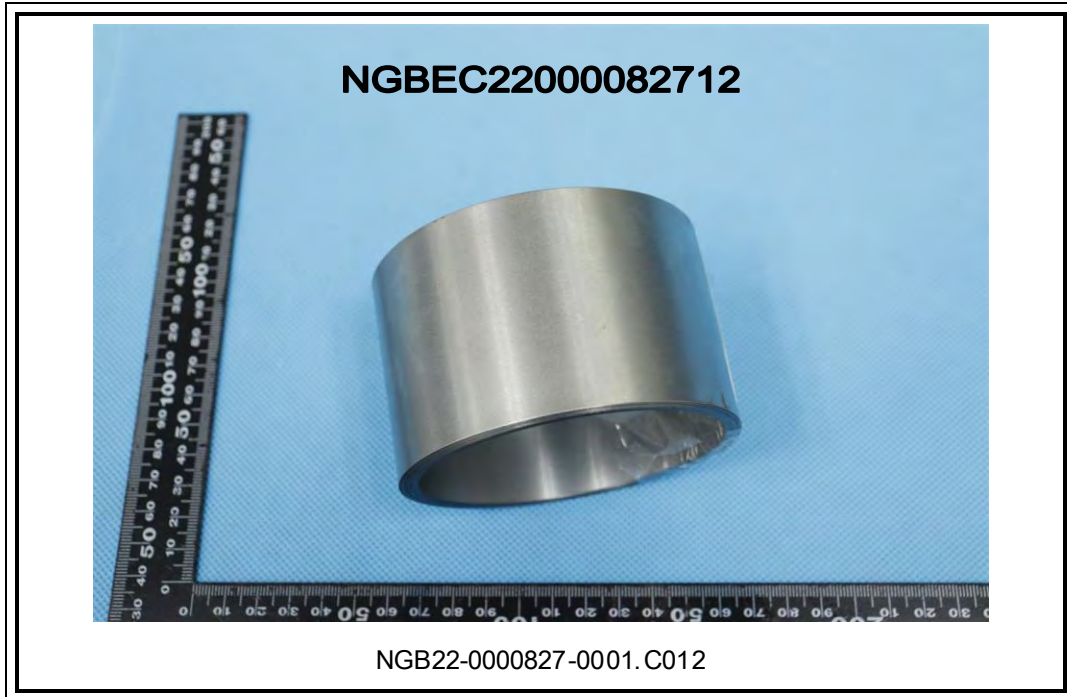
Test Report

No.: NGBEC220000827 12

Date: Jan 19, 2022

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Test Report

No.: NGBEC22000082701

Date: Jan 19, 2022

Page 1 of 6

NINGBO CONNFLY ELECTRONIC CO., LTD
NO.125 ZHANTENG ROAD EAST INDUSTRY ZONE KUANGYAN TOWN CIXI NINGBO CHINA

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

SGS Job No. : NP22-000068
Sample Receiving Date : Jan 10, 2022
Testing Period : Jan 10, 2022 to Jan 19, 2022
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Ashley Zhang

Ashley Zhang

Approved Signatory

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Test Results:

Test Part Description:

SN ID.	Sample No.	SGS Sample ID	Description
SN1	A1	NGB22-0000827-0001.C001	Silvery metal

Remarks:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-1:2015, analysis was performed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Units	MDL	A1
Cadmium(Cd)	100	mg/kg	2	25
Lead(Pb)	1000	mg/kg	2	31534*
Mercury(Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) ▼ = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination.



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Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

(3) ▲ = According to the declaration from the client, Lead (Pb) in sample is exempted by EU RoHS directive 2011/65/EU based on |ANNEX III 6(c)|: Copper alloy containing up to 4 % lead by weight.



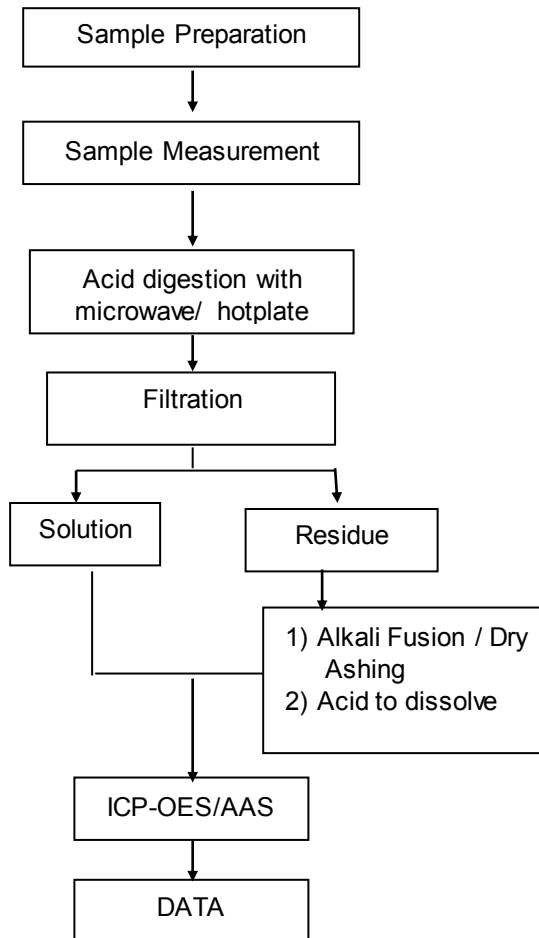
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

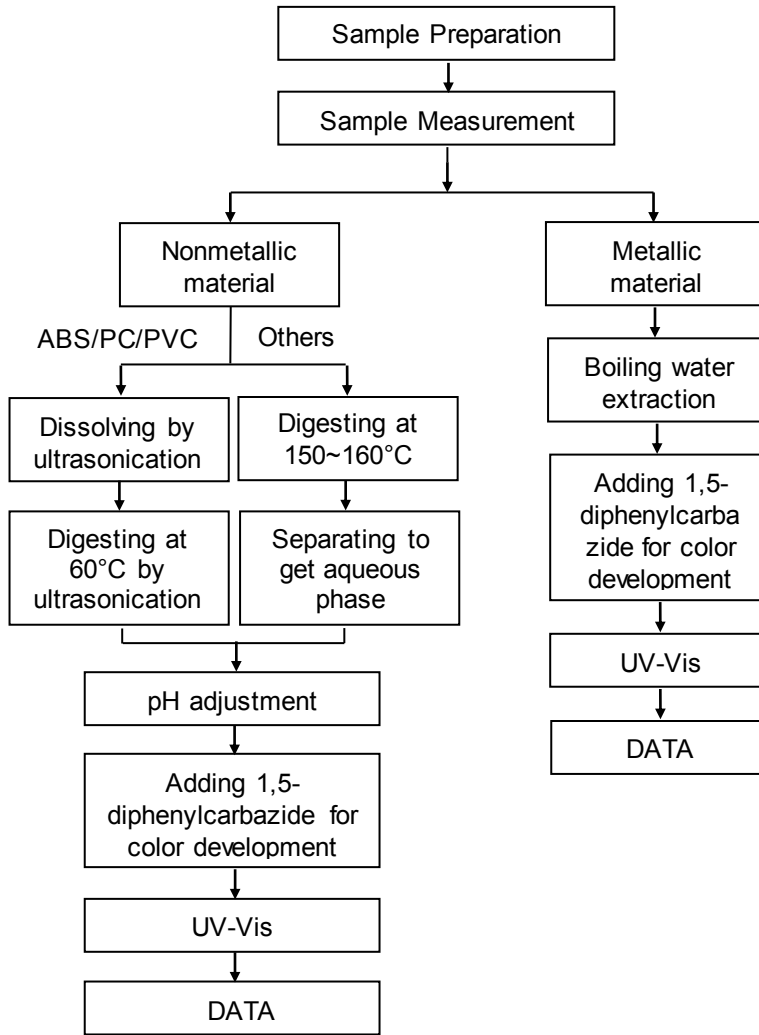


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



Sample Photo:



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Test Report

No.: NGBEC22000082702

Date: Jan 19, 2022

Page 1 of 6

NINGBO CONNFLY ELECTRONIC CO., LTD
NO.125 ZHANTENG ROAD EAST INDUSTRY ZONE KUANGYAN TOWN CIXI NINGBO CHINA

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

SGS Job No. : NP22-000068
Sample Receiving Date : Jan 10, 2022
Testing Period : Jan 10, 2022 to Jan 19, 2022
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Ashley Zhang

Ashley Zhang

Approved Signatory



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Ningbo Branch Chemical Laboratory

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中国·浙江·宁波高新区凌云路1177号 邮编: 315040 t HL (86-574)89070271 t ML (86-574)89070242 sgs.china@sgs.com

www.sgsgroup.com.cn
sgs.china@sgs.com

Test Results:

Test Part Description:

SN ID.	Sample No.	SGS Sample ID	Description
SN1	A2	NGB22-0000827-0001.C002	Silvery metal

Remarks:

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) “-” = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013 and IEC 62321-7-1:2015, analysis was performed by ICP-OES and UV-Vis .

Test Item(s)	Limit	Units	MDL	A2
Cadmium(Cd)	100	mg/kg	2	ND
Lead(Pb)	1000	mg/kg	2	25
Mercury(Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25
- (2) ▼ = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive -



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unavoidable coating variations may influence the determination.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



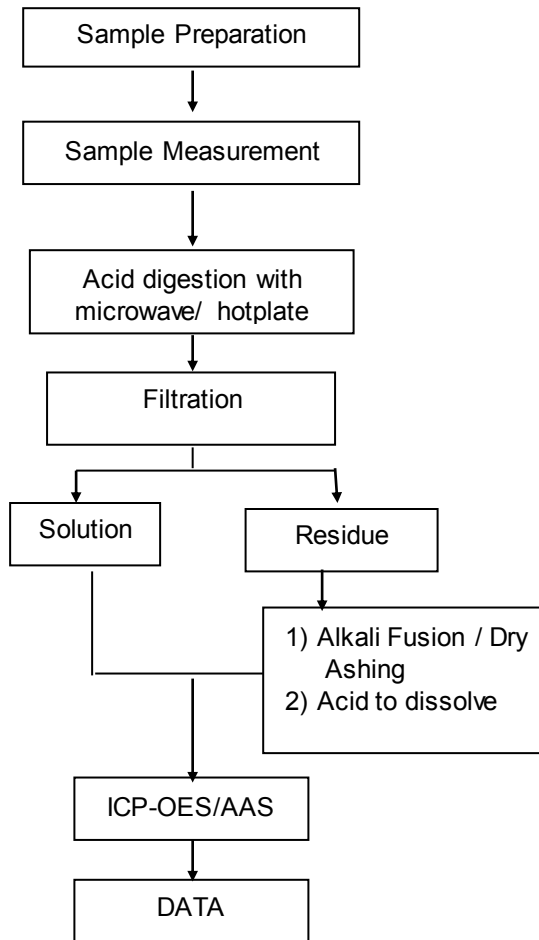
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

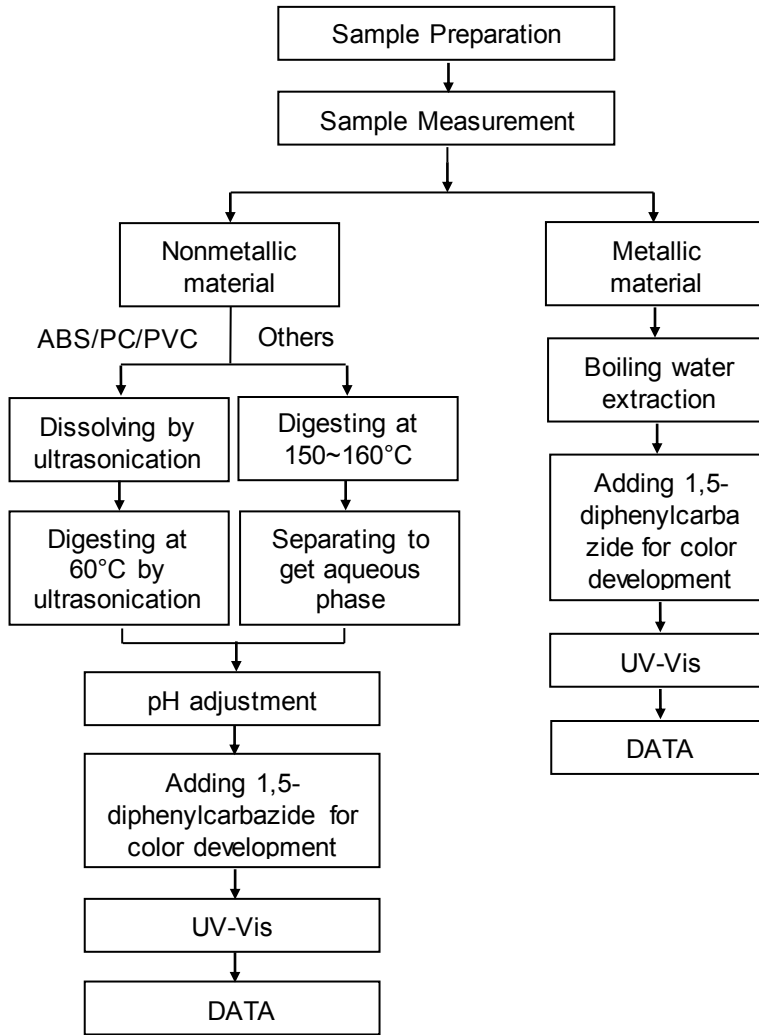


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



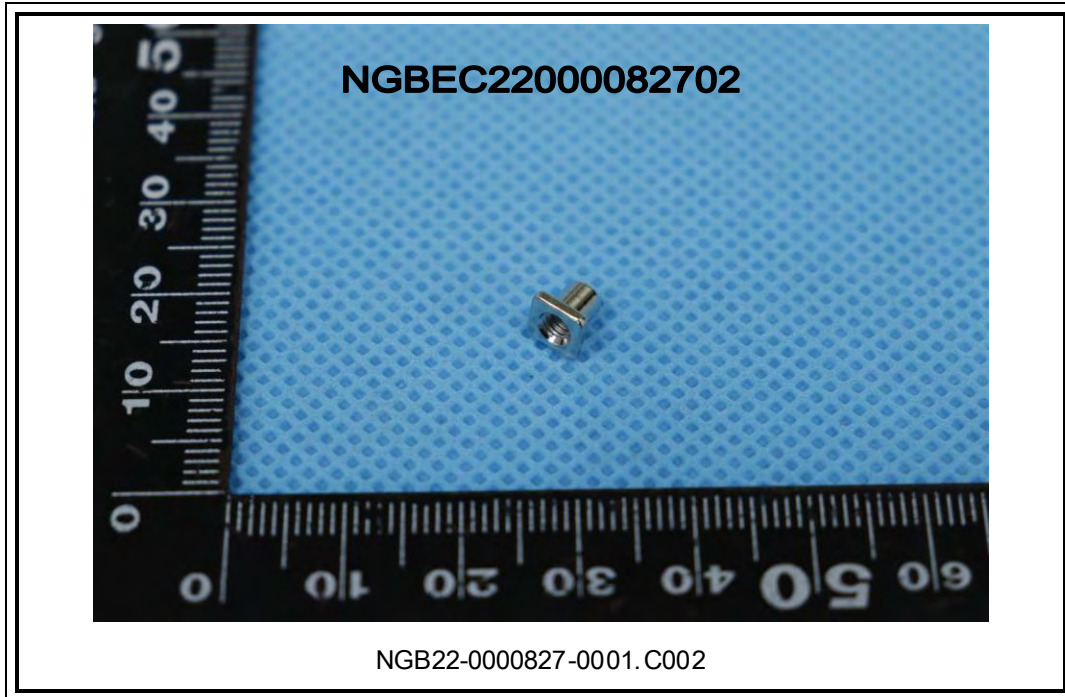
Test Report

No.: NGBEC22000082702

Date: Jan 19, 2022

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Ningbo Branch Chemical Laboratory

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中国·浙江·宁波高新区凌云路1177号 邮编: 315040 tHL (86-574)89070271 tML (86-574)89070242 sgs.china@sgs.com

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

SGS Job No. : NP21-002432 - NB
Date of Sample Received : 25 May 2021
Testing Period : 25 May 2021 - 31 May 2021
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Kell Li

Kell Li

Approved Signatory

scan to see the report



NGBEC2102417205



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Test Report

No. NGBEC2102417205

Date: 31 May 2021

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	NGB21-024172.003	Golden metal

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013 and IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>003</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	9
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. (2) IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25.
- (3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI)
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.

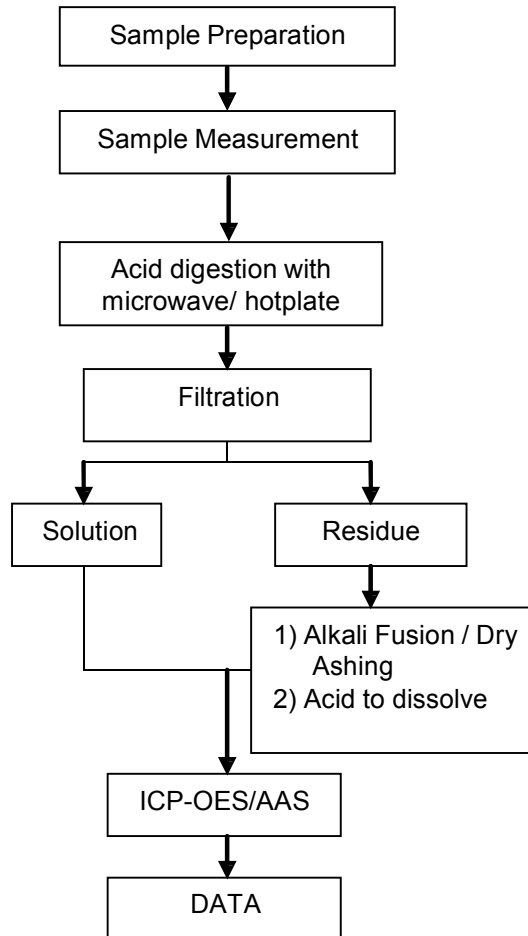


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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

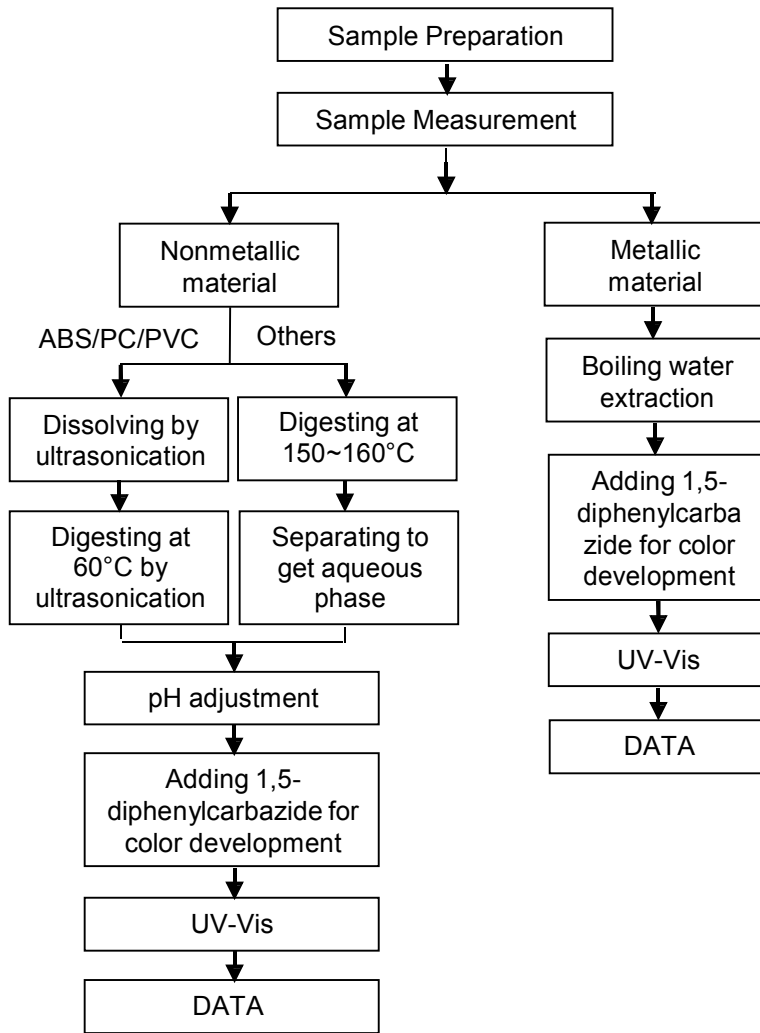


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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

SGS Job No. : NP21-002432 - NB
Date of Sample Received : 25 May 2021
Testing Period : 25 May 2021 - 31 May 2021
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Kell Li

Kell Li

Approved Signatory



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Test Report

No. NGBEC2102417201

Date: 31 May 2021

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	NGB21-024172.001	Silvery metal

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013 and IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	10
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. (2) IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25.
- (3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI)
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



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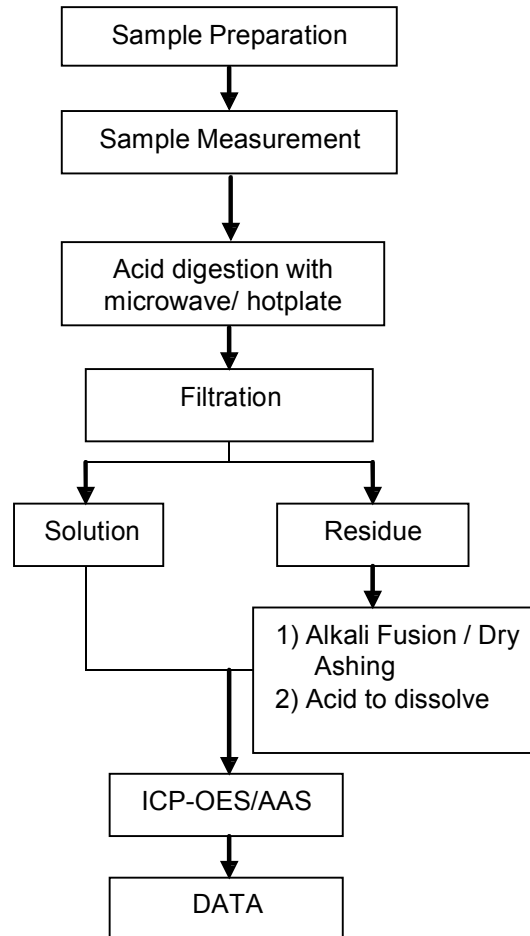
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Elements (IEC62321) Testing Flow Chart

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.

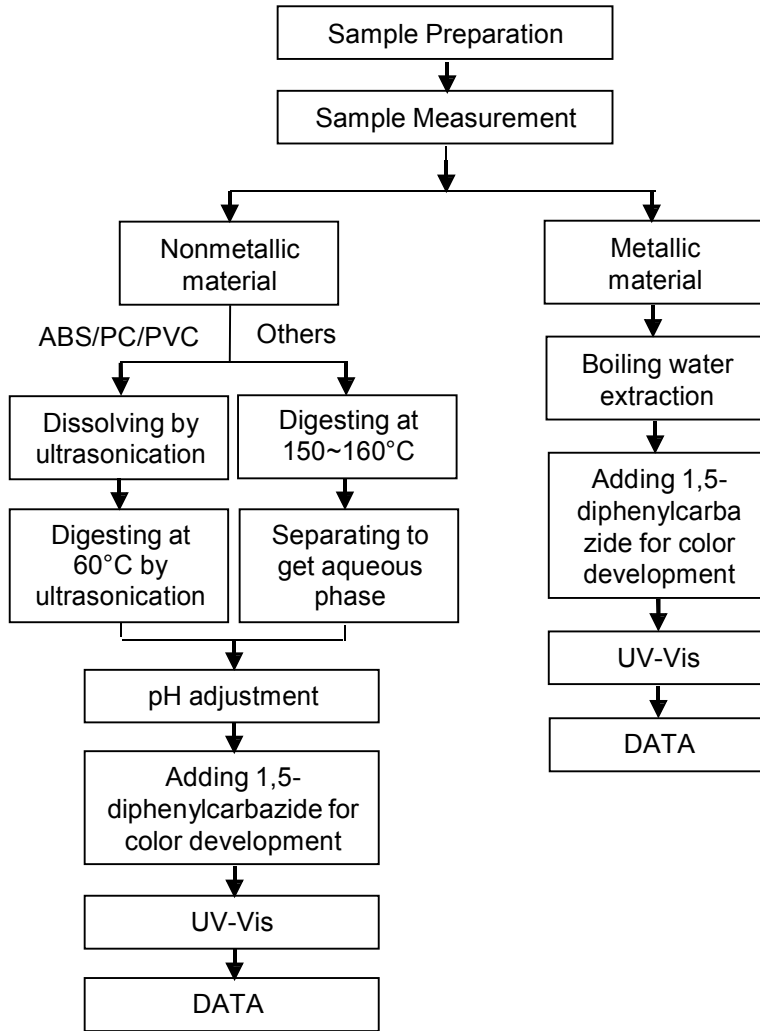


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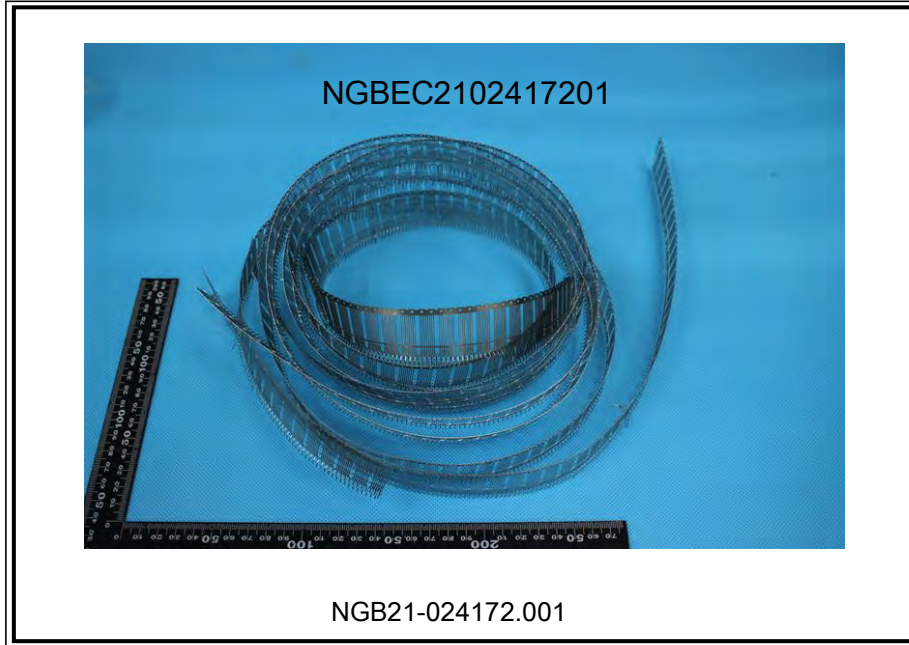
Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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

SGS Job No. : NP21-002432 - NB
Date of Sample Received : 25 May 2021
Testing Period : 25 May 2021 - 31 May 2021
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted sample(s), the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Ningbo Branch

Kell Li

Kell Li

Approved Signatory

scan to see the report



NGBEC2102417203



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Test Report

No. NGBEC2102417203

Date: 31 May 2021

Page 2 of 5

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	NGB21-024172.002	Silvery metal

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method : With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013 and IEC 62321-7-1:2015, analyzed by ICP-OES and UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1000	mg/kg	2	10
Mercury (Hg)	1000	mg/kg	2	ND
Hexavalent Chromium (Cr(VI))▼	-	µg/cm ²	0.10	ND

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. (2) IEC 62321 series is equivalent to EN 62321 series
https://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25.
- (3) ▼ = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI)
 b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating
 c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive - unavoidable coating variations may influence the determination
 Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



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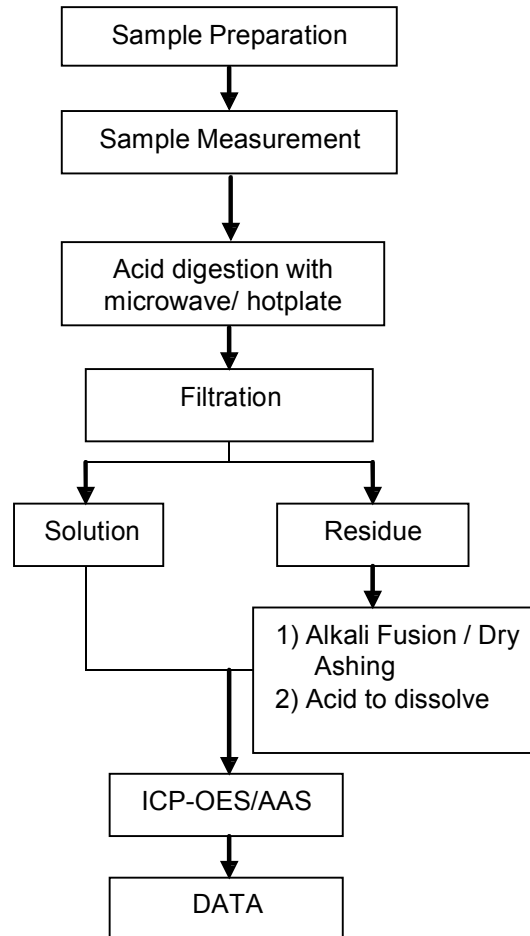
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Elements (IEC62321) Testing Flow Chart

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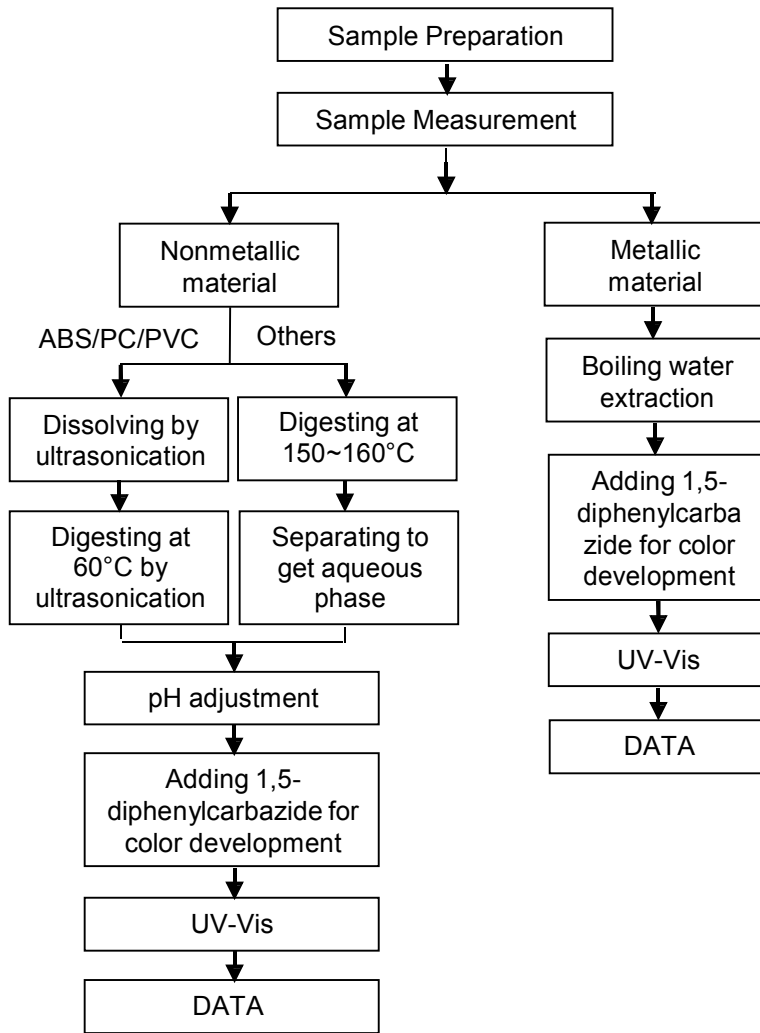


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Hexavalent Chromium (Cr(VI)) Testing Flow Chart



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