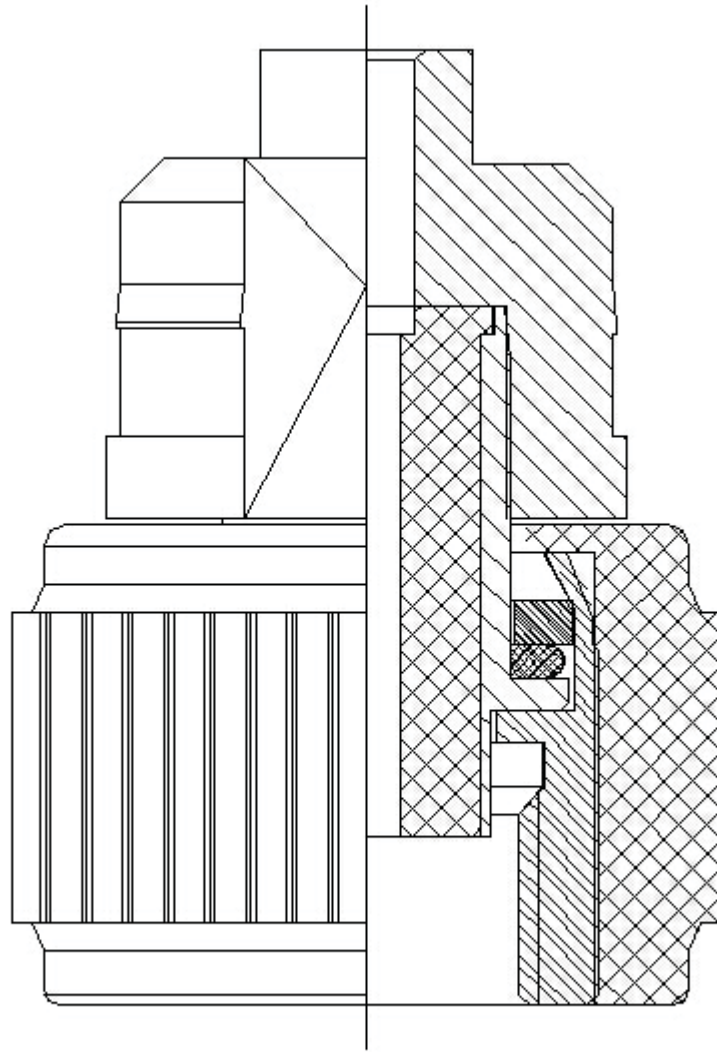
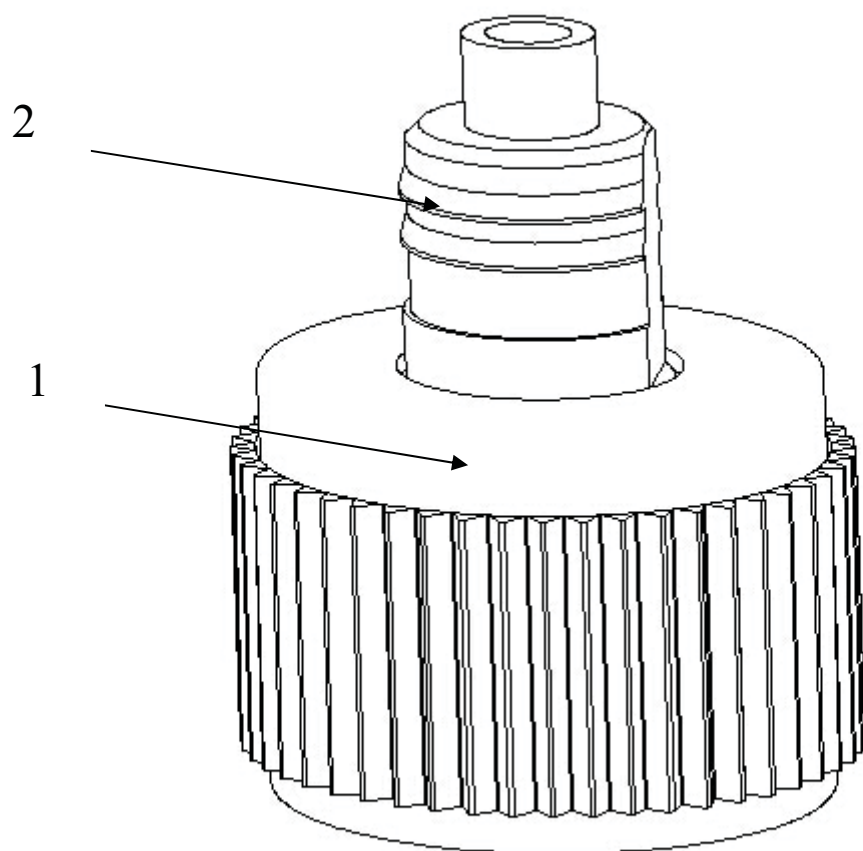


说明书附图

---

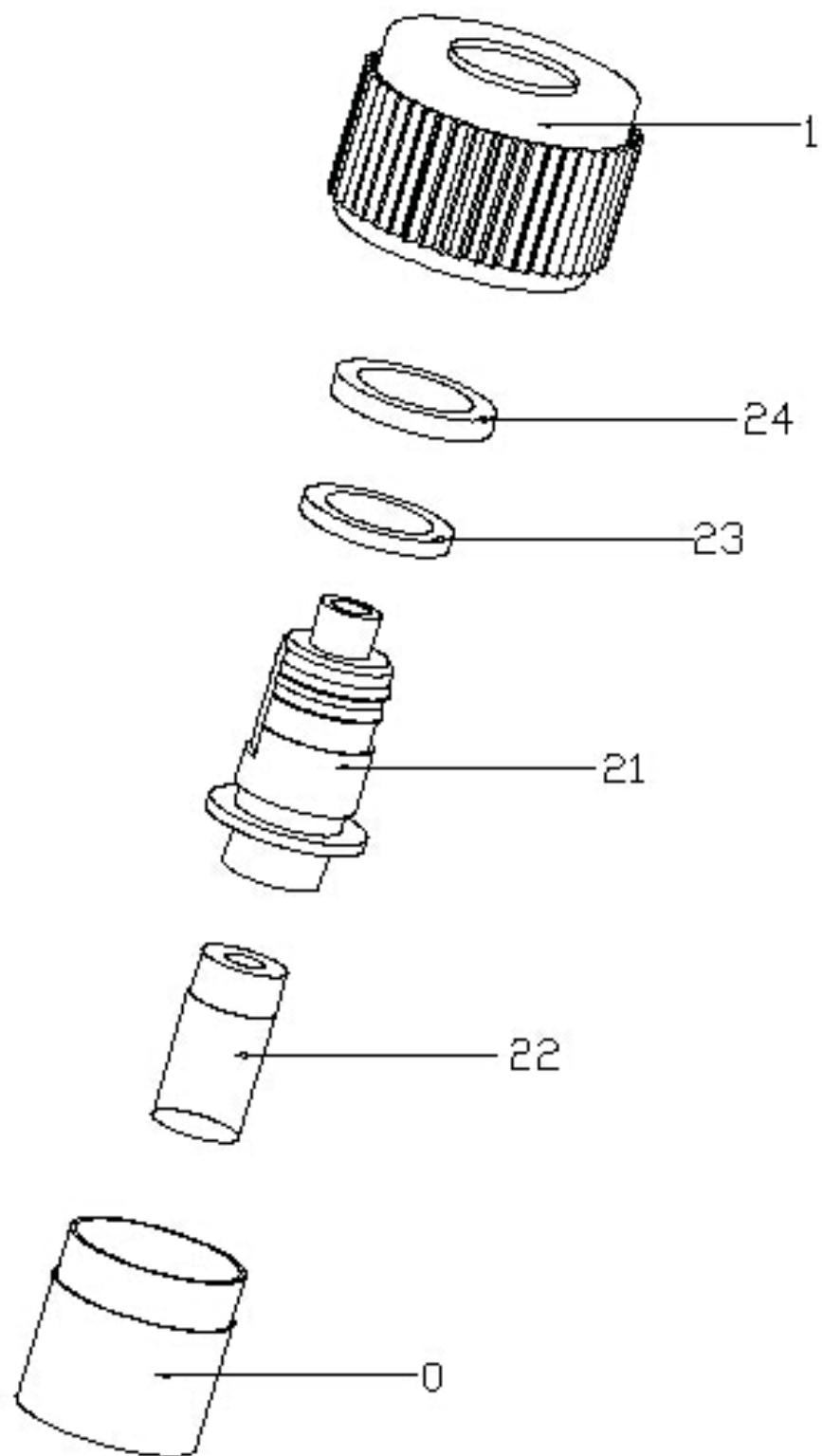


图一

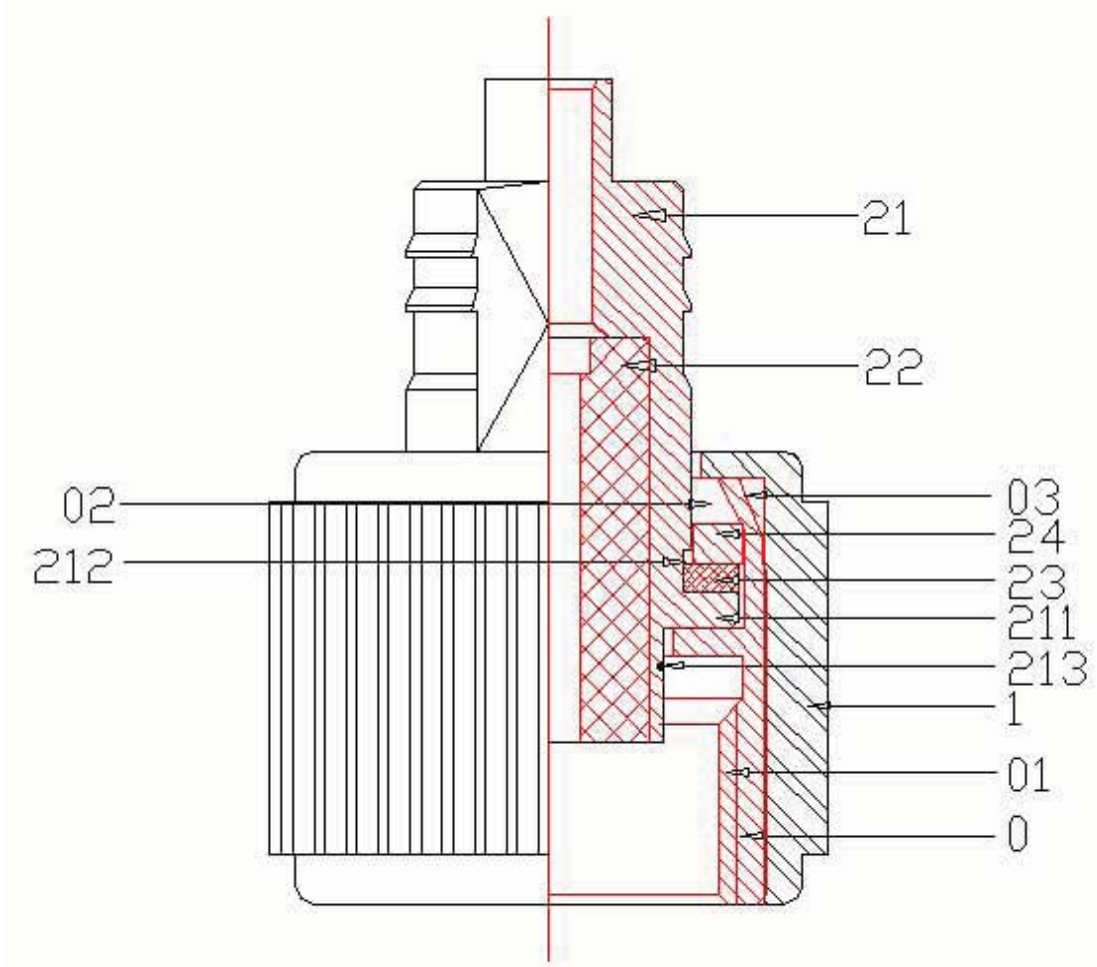


从

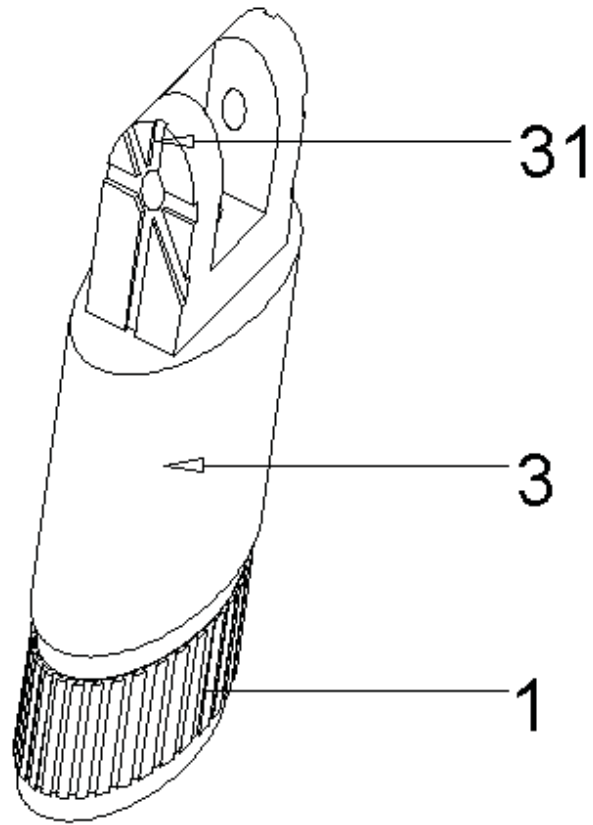
图二



图三



图四



图五

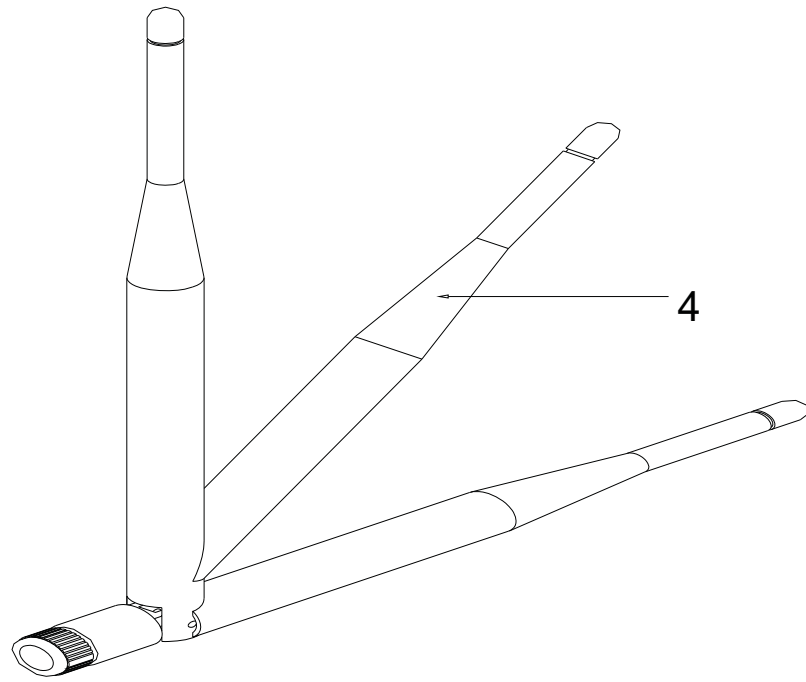


图 6



# 中华人民共和国国家知识产权局

518000



XQ26873501411

广东省深圳市福田区莲花北村宝莲大厦1栋18D

卞小磊

发文日:

2015年01月21日

2HS



申请号或专利号: 201420698027.8

发文序号: 2015011600078750

申请人或专利权人: 深圳市玉富同电子科技有限公司

发明创造名称: 天线摇杆连接器

## 办理登记手续通知书

根据专利法实施细则第54条及国家知识产权局第75号公告的规定, 申请人应当于2015年04月07日之前缴纳以下费用:

专利登记费	200.0元	
第1年度年费	600.0元	无费减 (减缓标记)
专利证书印花税	5.0元	
已缴费用	0元	
应缴费用	805.0元	

申请人按期缴纳上述费用的, 国家知识产权局将在专利登记簿上登记专利权的授予, 颁发专利证书, 并予以公告。专利权自公告之日起生效。

申请人期满未缴纳或者未缴足上述费用的, 视为放弃取得专利权的权利。

提示:

费用可以直接到国家知识产权局缴纳, 也可以通过邮局或者银行汇付。如通过邮局汇付, 收款人姓名: 国家知识产权局专利局收费处; 商户客户号: 110000860。如通过银行汇付, 开户银行: 中信银行北京知春路支行; 户名: 中华人民共和国国家知识产权局专利局; 账号: 7111710182600166032。

汇款时应当准确写明申请号、费用名称(或简称)及分项金额。未写明申请号和费用名称(或简称)的视为未办理缴费手续。

审查员: 姚燕

审查部门: 专利局初审及流程管理部

联系电话: 62356655



200602  
2010.4

纸件申请, 回函请寄: 100088 北京市海淀区蓟门桥西土城路6号 国家知识产权局专利局受理处  
电子申请, 应当通过电子专利申请系统以电子文件形式提交相关文件。除另有规定外, 以纸件等其他形式提交的文件视为未提交。



# 中华人民共和国国家知识产权局

518000

广东省深圳市福田区莲花北村宝莲大厦1栋18D  
卞小磊

发文日:

2015年01月21日

115



申请号或专利号: 201420698027.8

发文序号: 2014123100574370

申请人或专利权人: 深圳市玉富同电子科技有限公司

发明创造名称: 天线摇杆连接器

## 授予实用新型专利权通知书

1. 根据专利法第40条及实施细则第54条的规定, 上述实用新型申请经初步审查, 没有发现驳回理由, 现作出授予实用新型专利权的通知。

申请人收到本通知书后, 还应当按照办理登记手续通知书的规定办理登记手续。

申请人办理登记手续后, 国家知识产权局作出授予实用新型专利权的决定, 颁发相应的专利证书, 同时予以登记和公告。

期满未办理登记手续的, 视为放弃取得专利权的权利。

2. 授予专利权的实用新型专利申请是以申请人于申请日 2014 年 11 月 20 日提交的文本为基础。

3. 审查员依职权修改内容为:

注: 在本通知书发出后收到的申请人主动修改的申请文件, 不予考虑。

审查员: 李光磊

审查部门: 专利审查协作北京中心实用新型审查部

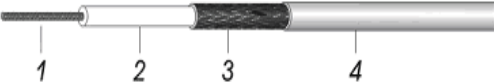
联系电话: 010-82246199



220601  
2010.2

纸件申请, 回函请寄: 100088 北京市海淀区蓟门桥西土城路6号 国家知识产权局专利局受理处收  
电子申请, 应当通过电子专利申请系统以电子文件形式提交相关文件。除另有规定外, 以纸件等其他形式提交的文件视为未提交。



型号 Type	RF-1.13/50	料号 P/N	SY113/50-020(Gray)	
结构图 Structure drawing				
<b>结构特性 Structure characteristics</b>				
结构 Structure	项目 Item	标准值 Standard value		
①内导体 Inner conductor	材料 Material	镀银铜线 Silverplated copper wire		
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)	7/0.083		
	(绞合)标称外径(mm) (Intertwist)NOM.O.D.(mm)	0.249±0.02		
②绝缘层 Insulation	材料 Material	聚全氟乙丙烯 FEP		
	颜色 Color	透明 Clarity		
	标称外径(mm) NOM.O.D.(mm)	0.7±0.03		
③外导体 Outer conductor	材料 Material	镀锡铜线 Tinned copper wire		
	组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm)	4/0.05		
	标称外径(mm) NOM.O.D.(mm)	0.92±0.05		
	覆盖率(%) Coverage ratio(%)	90±5		
④护套层 Jacket	材料 Material	聚全氟乙丙烯 FEP		
	颜色 Color	灰 Gray		
	标称外径(mm) NOM.O.D.(mm)	1.13±0.05		
<b>电性能特性 Electrical characteristics</b>				
项目 Item	标准值 Standard value	项目 Item	频率 Frequency	标准值 Standard value 单位 Unit:dB/m
电容(pF/m) Capacitance(pF/m)	98	衰减 Attenuation	1GHz	≤2.2
速率(%) Velocity(%)	70		2GHz	≤3.1
阻抗(Ω) Impedance(Ω)	50±2		3GHz	≤3.8
驻波比 Standing wave ratio	≤1.3@0~6GHz		4GHz	≤4.4
最大工作电压(V) Max.operating voltage(V)	1000		5GHz	≤4.9
最大工作频率(GHz) Max.operating frequency(GHz)	6		6GHz	≤5.4
<b>可靠性 Dependability</b>				
项目 Item	单位 Unit	标准值 Standard value		
最小弯曲半径(一次) Min.bending radius static	mm	4		
最小弯曲半径(重复) Min.bending radius repeated	mm	—		
工作温度范围 Operating temperature	℃	-55~+200		
<b>包装 Packing</b>				
项目 Item	单位 Unit	标准值 Standard value		
包装方式 Packing mode	/	纸盘 Papery plate		
每盘长度 The length of each plate	m	500		
每盘接头数 Each connector plate number	/	≤3		
每段最短长度 The shortest length of each root	m	≥10		
<b>使用提示 Use tips</b>				
存储环境 Storage environment	温度: 30℃以下; 湿度: 20%~65%			
最佳保存周期 The best save cycle	2个月; 2个月以上作业性下降, 如上锡效果变差, 但电性能不受影响。夏季高温高湿环境开剥后需尽快流转			
加工温度 Processing temperature	260℃的极限情况下, 可短时间承受; 300℃以上分子通常带有等端基会分解; 400℃以上发生显著的热分解			
铁氟龙收缩 Teflon Shrink	固有材料特性。绝缘: 0.2mm以下; 护套: 0.3mm以下			
护套窜动 Jacket traverse	加工长度(护套残留长度)低于5cm易发生			
<b>其他 Other</b>				
特殊加工工艺, 请与供方协商后使用				

神宇通信科技股份有限公司

# 材 质 证 明

编订日期: 2011-12-26

公司名稱 Company Name	神宇通信科技股份有限公司	产品名称 Product Name	同轴电缆 Coaxial Cable	产品重量 Product Weight	3.017 g/m
神宇料号 SY Product No.	SY113/50-001	客户料号 Customer No.		E-Mail	<a href="mailto:shenyu@shenyucable.com">shenyu@shenyucable.com</a>
填写人部门 Dept.	品保部 QA	姓名 Name	徐君昱	聯絡電話 Telephone	0510-86279705

茲證明向貴公司銷售的產品和半成品中，使用之原材料，包裝材料以及生產工程中，不含有利慶科技(苏州)有限公司規定的相關禁止使用物質。另，向貴公司報告成品、半成品中使用的原材料、包裝材料以及生產工程中的添加劑成分如下所述：

使用材料(Use material)

項次 Item	零件名稱 Material Name	原料廠 Vendor	材質 Substance	重量(g) Weight	組成成份 Substance Composition	含百分比 Substance Amount	化驗報告NO. Test Report No.	限用物質含量(單位: PPM)																	
								鉛 (Pb)	鎘 (Cd)	汞 (Hg)	六價 鉻 (Cr+6)	PBB	PBD E	PCB s	多 氯 萘 PC	PCT	CP	甲 醛	石 綿 Asbes tos	AZO 偶 氮 類	有 機 錫	PV C			
1	导体	恒丰	镀银铜线	0.319	铜	10.36%	RLSHD000593720003	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
					银	0.21%		ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	绝缘	大金	FEP	0.757	FEP	25.09%		ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
3	编织	震雄	镀锡铜线	1.198	铜	38.52%		ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
					锡	1.19%		ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4.1	护套	大金	FEP	0.743	FEP	22.90%		ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4.2	色母料 (灰)	寇兰	FEP		FEP	1.72%		ND	ND	ND	ND	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

使用材料請貼圖示於此欄，並標項次：



化驗報告注意事項：

- (1) 須為通過ISO 17025認證過之公司所提供之化驗報告資料 (如SGS、ITS、ETC、BVQI)
- (2) 有效期限為一年
- (3) 報告內容&文字必須清晰，易辨別 (不可模糊不清)
- (4) 限用物質含量之未測項目請填” N/A ”，  
ND. =Not Detected (報告限定值)

蓋 章 處



## AVLV2.E318898 Appliance Wiring Material - Component

Page Bottom

### Appliance Wiring Material - Component

See General Information for Appliance Wiring Material - Component

**SHENYU COMMUNICATION TECHNOLOGY INC**

E318898

275 E WAIHUAN RD

JIANGYIN, JIANGSU 214400 CHINA

Table of Recognized Styles							
Single-conductor, thermoplastic insulation.							
<u>1226</u>	<u>1333</u>	<u>1591</u>	<u>1723</u>	<u>1857</u>	<u>1886</u>	<u>10064</u>	<u>10518</u>
<u>1227</u>	<u>1354</u>	<u>1592</u>	<u>1726</u>	<u>1858</u>	<u>1887</u>	<u>10072</u>	<u>11149</u>
<u>1330</u>	<u>1371</u>	<u>1708</u>	<u>1727</u>	<u>1859</u>	<u>1901</u>	<u>10111</u>	
<u>1331</u>	<u>1538</u>	<u>1709</u>	<u>1766</u>	<u>1860</u>	<u>1927</u>	<u>10248</u>	
<u>1332</u>	<u>1577</u>	<u>1710</u>	<u>1847</u>	<u>1882</u>	<u>10011</u>	<u>10362</u>	

Marking: Company name, voltage rating, temperature rating, conductor size, conductor material if other than copper, and use.  
Last Updated on 2010-11-09

[Questions?](#)

[Print this page](#)

[Notice of Disclaimer](#)

[Page Top](#)

Copyright ©2011 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2011 Underwriters Laboratories Inc.®"

An independent organization working for a safer world with integrity, precision and knowledge.



# 神宇通信科技股份有限公司

## 物质安全资料表 (MSDS)

### 一、物品和厂商资料

中英文物品名称:	同轴电缆 Coaxial Cable
物品编号:	Normal 系列
制造商或供应商名称、地址及电话:	神宇通信科技股份有限公司 江阴市东外环路 275 号/0510-86279705
紧急联络电话/传真电话:	0510-86278808/0510-86279701

### 二、成分辨识资料

纯物质:

中英文名称:	聚全氟乙丙烯 Fluorinated Ethylene Propylene 镀银铜线 Silverplated Copper 镀锡铜线 Tinned Copper
同义名称:	FEP/SC/TX
化学文摘社登记号码 (CAS No.):	FEP: 25067-11-2; Cu: 7440-50-8; Ag: 7440-22-4; Sn: 7440-31-5;
危害物质成分 (成分百分比):	/

危害物质:

危害物质	浓度或浓度范围 (单位: ppm)	
铅及其化合物 Pb	<1000	
镉及其化合物 Cd	<100	
汞及其化合物 Hg	<1000	
六价铬以及化合物 Cr	<1000	
卤素	氯 Cl<900	氯 Cl+溴 Br<1500
	溴 Br<900	
SVHC 15 种物质	禁止使用	

### 三、危害辨识资料

最重要危害效应:	健康危害效应:	在 260℃以上, 可能会有吸入分解气体的危险, 一定要安装排气装置。
	环境影响:	要按照废弃物处理及清扫法律法规处理, 绝对不可燃烧。
	物理性及化学性危害:	物理化学性能稳定, 不易降解, 不得擅自填埋。
	特殊危害:	无。
主要症状:	对人的神经系统产生损害。	
物品危害分类:	大气和水源。	

#### 四、急救措施

不同暴露途径之急救方法:	吸入:	到空气流通处换气。
	皮肤接触:	无。
	眼睛接触:	无。
	食入:	不消化, 排出。
最重要症状及危害效应:	无。	
就急救人员之防护:	对流换气。	
对医师之提示:	吸氧。	

#### 五、灭火措施

适用灭火剂:	通用。
灭火时可能遭遇之特殊危害:	避免分解气体吸入。
特殊灭火程序:	无。
消防人员之特殊防护装备:	防毒面具。

#### 六、泄漏处理方法

个人应注意事项:	粉状树脂。
环境注意事项:	不可填埋。
清理方法:	要按废弃物处理及清扫法律法规处理, 绝对不可燃烧。

#### 七、安全处置与储存方法:

处置:	避免高温和火源接触。
储存:	通风干燥处。

#### 八、暴露预防措施

工程控制:	无。	
控制参数:	八小时日时常平均容许浓度/ 短时间时量平均容许浓度/ 最高容许浓度:	无。
	生物指标:	无。
个人防护措施:	呼吸防护:	安装排气装置。
	手部防护:	无。
	眼睛防护:	无。
	皮肤及身体防护:	无。
卫生措施:	应将衣服上附着的灰尘抖落, 手脸洗净, 不要让其附着在香烟上。	

#### 九、物理及化学性质

物质状态:	固体。	形状:	透明颗粒。
颜色:	透明。	气味:	无。
PH 值:	7。	沸点/沸点范围:	/
分解温度:	360℃。	闪火点:	/

自然温度:	/	爆炸界限:	/
蒸气压:	/	蒸气密度:	/
密度:	2.2 g/cm <sup>3</sup> 。	溶解度:	/

十、安全性及反应性:

安全性:	很稳定。
特殊情况下可能之危害反应:	高温或燃烧分解气体对人体神经系统的损害。
应避免之状况:	绝对不可燃烧。
应避免之物质:	金属钠及其强酸的混合物。
危害分解物:	气体及粉尘。

十一、毒性资料

危毒性:	/
局部效应:	/
致敏效应:	/
慢毒性或长期毒性:	/
特殊效应:	/

十二、生态资料

可能之环境影响/环境流布:	不降解, 禁填埋。
---------------	-----------

十三、废弃处置方法

废弃处置方法:	按废弃物处理及清扫法律法规要求送专业资质公司处置。
---------	---------------------------

十四、运送资料

国际运送规定:	/
联合国编号:	/
国内运送规定:	无。
特殊运送方法及注意事项:	无。

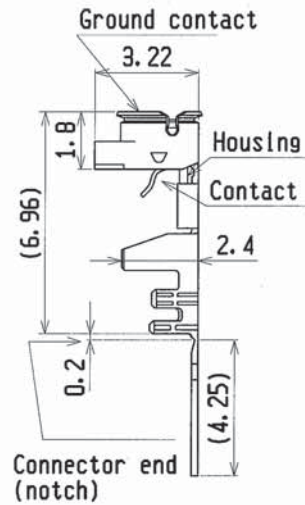
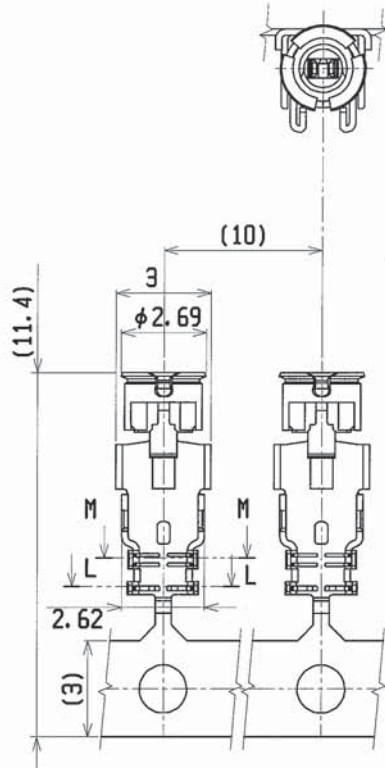
十五、法规资料

适用法规:	遵循欧盟 REACH 法规相关要求。
-------	--------------------

十六、其他资料

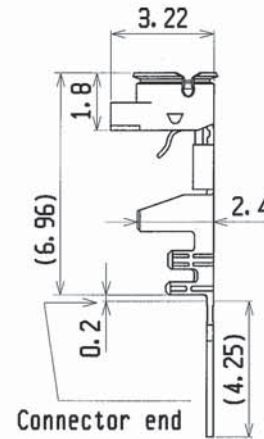
参考文献:	杜邦产品说明/SONY 限用物质标准。
制表单位:	名称: 神宇通信科技股份有限公司 地址/电话: 江阴市东外环路 275 号/TEL: 0510-86279705
制表人:	职称: 品保经理 姓名: 葛晓磊
制表日期:	2009/7/22

PART NO.  
20278-\*\*\*R-\*\*\*



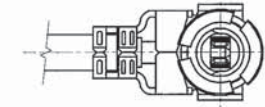
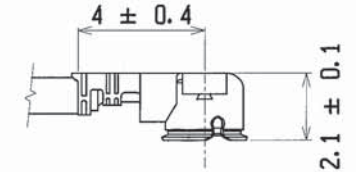
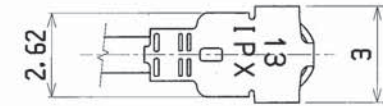
Part No. 20278-101R-08  
20278-102R-08  
20278-101R-13  
20278-102R-13  
20278-101R-32  
20278-102R-32

For hand tool  
(with notch)



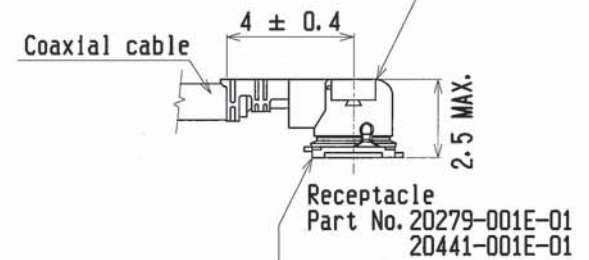
Part No. 20278-111R-08  
20278-112R-08  
20278-111R-13  
20278-112R-13  
20278-111R-32  
20278-112R-32

For semi auto  
termination machine  
(without notch)



Cable Ass'y

Plug  
P/N 20278-1\*\*R-08  
P/N 20278-1\*\*R-13  
P/N 20278-1\*\*R-32

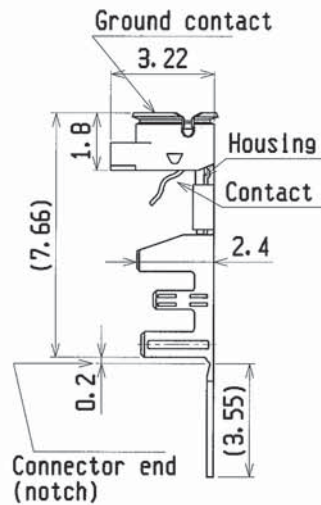
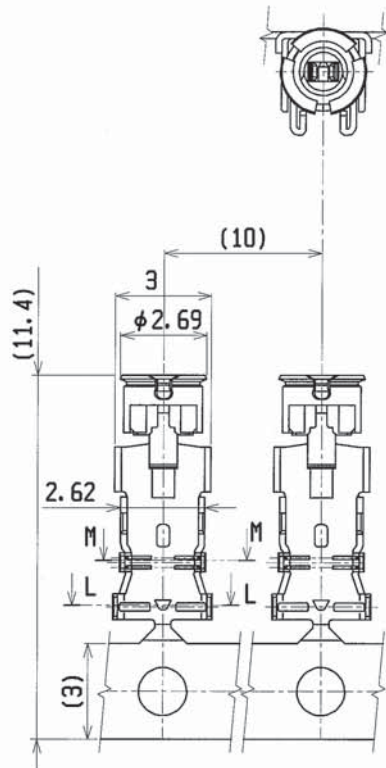


MATING

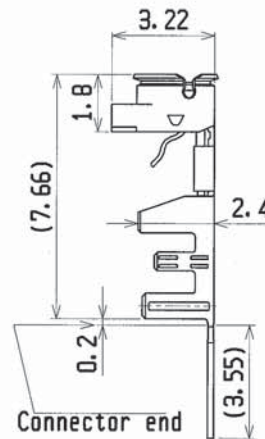
GENERAL TOLERANCE	
6 MAX.	±0.2
6 OVER MAX. 30	±0.3
30 OVER MAX. 120	±0.5
ANGLE	±2°

19C 208056	K.O	Feb/04/08	EK	DESIGN'D BY	DATE	<b>I-PEX</b> Interconnect and Packaging Electronics TOKYO, JAPAN	TITLE MHF series micro coaxial connector plug vertical (ground contact : gold plating)	General
18C 207346	K.O	Jul/10/08	E.K	K. Ohbayashi	JUN/13/01			
17C 205233	K.O	May/18/05	T.H	CHK'D BY	DATE	APP'D BY K. Katabuchi	DATE JUN/13/01	SHEET REV. 1/4 19C
16C 205024	K.O	Jan/20/05	T.H					
15C 204398	K.O	Nov/12/04	T.H			CUSTOMER COPY	PROJECTION	SCALE UNIT DWG. No. 6/1 mm 20278
REV	ECN	BY	DATE	APP				
REV. RECORD				SERIES No.		2814		

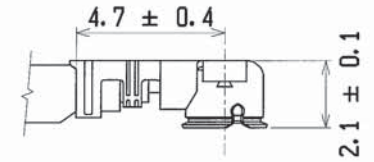
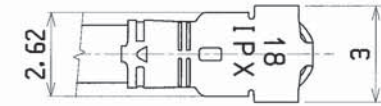
PART NO.  
20278-...R-...



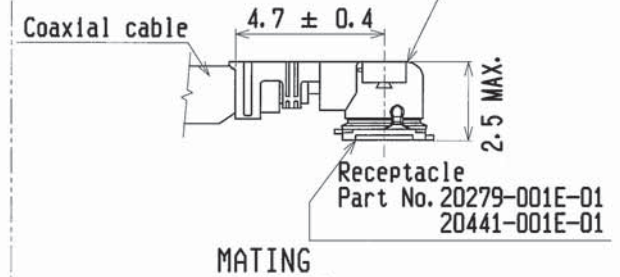
Part No. 20278-101R-18  
20278-102R-18  
For hand tool  
(with notch)



Part No. 20278-111R-18  
20278-112R-18  
For semi auto  
termination machine  
(without notch)



Plug  
P/N 20278-1...R-18



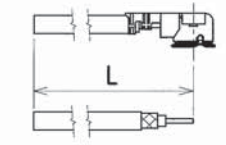
GENERAL TOLERANCE		
6 MAX.	±0.2	
6 OVER MAX. 30	±0.3	
30 OVER MAX. 120	±0.5	
ANGLE	±2°	

DESIGN D BY	DATE	<b>I-PEX</b> Interconnect and Packaging Electronics TOKYO, JAPAN	TITLE MHF series micro coaxial connector plug vertical (ground contact : gold plating)	General							
CHK' D BY	DATE										
APP' D BY	DATE										
REV	ECN	BY	DATE	APP	CUSTOMER COPY	PROJECTION	SCALE	UNIT	DWG. No.	SHEET	REV.
SERIES No.	2814										

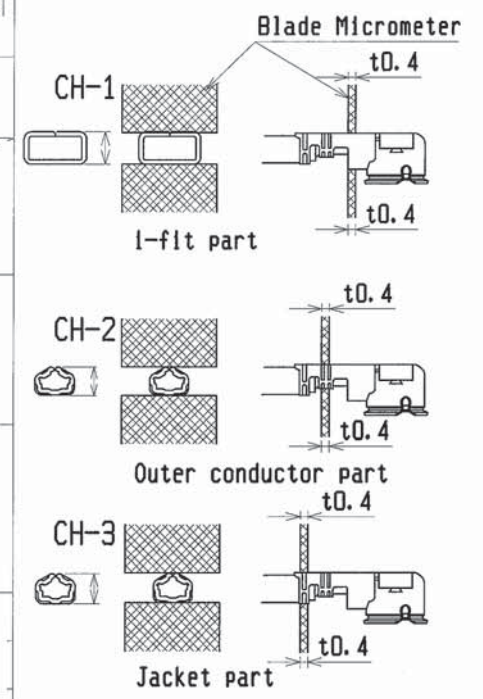


Part No. of non halogen free type	20278-101R-08 20278-111R-08	20278-101R-13 20278-111R-13	20278-101R-32 20278-111R-32	20278-101R-18 20278-111R-18
Part No. of halogen free type	20278-102R-08 20278-112R-08	20278-102R-13 20278-112R-13	20278-102R-32 20278-112R-32	20278-102R-18 20278-112R-18
Housing color	White	Black	Black	White
Applicable cable nominal dimension	2.09±0.1 1.25±0.1 1.16±0.1	2.09±0.1 1.25±0.1 1.16±0.1	2.09±0.1 1.25±0.1 1.16±0.1	2.09±0.1 1.25±0.1 1.16±0.1
Jacket Outer conductor silver or tin plating Dielectric core Inner conductor silver plating	 φ0.81 Nominal (φ0.65) φ0.4 Nominal ANG#36(7/0.05)	 φ1.13 Nominal (φ0.93) φ0.68 Nominal ANG#32(7/0.08)	 φ1.32 Nominal (φ1.12) φ0.66 Nominal ANG#32(7/0.08)	 RG178 B/U φ1.8 Nominal (φ1.35) φ0.84 Nominal ANG#30(7/0.102)
Braided shield of Outer conductor 外部導体の編組	Single / 1重編組	Single / 1重編組	Double / 2重編組	Single / 1重編組
P/N of hand Tool	90187-008C	90187-013C	90187-032C	90233-018
P/N of semi auto termination machine	90213-008C	90213-013C	90213-032C	90232-018
Sect. M-M				
Sect. L-L				
Crimp Height	CH-1	1.34~1.40	1.34~1.40	1.34~1.40
	CH-2	0.76~0.84	1.06~1.14	1.20~1.30
	CH-3	0.85~0.97	1.15~1.35	1.26~1.46
				1.34~1.40 1.41~1.49 1.70~1.80

Cable cut length



Crimp Height



NOTE-1  
中心導体, 外部導体への半田コーティングは不可  
Must not use solder coated  
Inner conductor and outer conductor.

DESIGN D BY	DATE	<b>I-PEX</b> Interconnect and Packaging Electronics TOKYO, JAPAN	TITLE MF series micro coaxial connector plus vertical (ground contact : gold plating)	General							
CHK' D BY	DATE										
APP' D BY	DATE										
REV	ECN	BY	DATE	APP	CUSTOMER COPY	PROJECTION	SCALE	UNIT	DWG. No.	SHEET	REV.
							-/-	mm	20278	3/4	19C

Notes

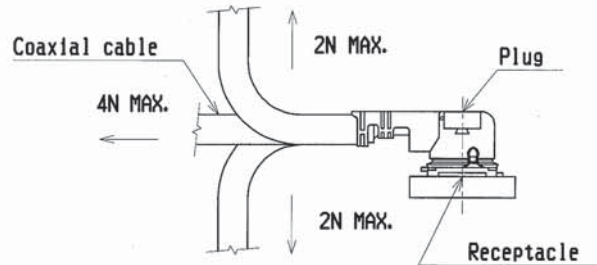
1. Material

- (1) Housing : PBT , UL94V-0
- (2) Contact  
phosphor bronze  
gold plating 0.1 $\mu$ m MIN.  
over nickel 1.27 $\mu$ m MIN.
- (3) Ground contact  
phosphor bronze  
gold plating 0.05 $\mu$ m MIN.  
over nickel 1.27 $\mu$ m MIN.

2. Packing : reel

3. Mating partner part No.  
: 20279-001E-01, 20441-001E-01

4. Permissible load of cable at mating



5. Suggestions for mating & unmating operation.

5-1 Mating.

Please mate the connector straightly to vertical direction as much as possible, adjusting the mating axis of plug and receptacle. As excessive slant angle mating may break the connector, please don't do it.

1. 材料

- (1)ハウジング:PBT, UL94V-0
- (2)コンタクト  
りん青銅  
金メッキ0.1 $\mu$ m MIN.  
下地 ニッケル1.27 $\mu$ m MIN.
- (3)グランドコンタクト  
りん青銅  
金メッキ0.05 $\mu$ m MIN.  
下地 ニッケル1.27 $\mu$ m MIN.

2. 梱包 : リール

3. カン合相手 part No.  
: 20279-001E-01, 20441-001E-01

4. コネクタかん合後のケーブルに対する荷重

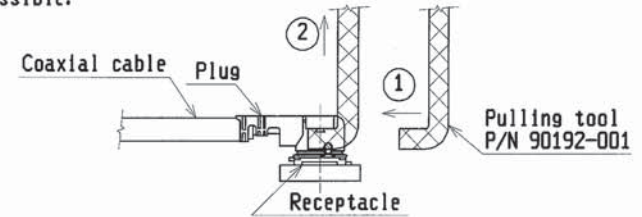
5. コネクタかん合時および抜去時の注意

5-1 コネクタ挿入時

PlugとReceptacleのかん合軸を合わせ、できるだけ垂直に挿入して下さい。極端な斜め挿入は行わないで下さい。コネクタ破損の原因となりますので、過度なこじり挿入は行わないで下さい。

5-2 Unmating.

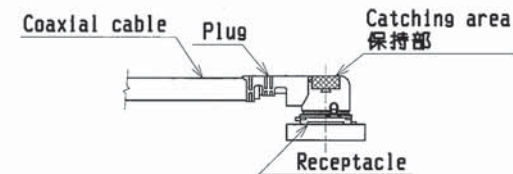
- (1) In case of unmating by pulling tool.  
Please use the pulling tool as the following drawing, and please pull plug to vertical direction as directly as possible.
- (2) In case of unmating directly by hand  
Please catch the catching area of plug, and please pull plug to vertical direction as directly as possible.



5-2 コネクタ抜去時

- (1) 抜去ジグを用いる場合  
下図のようにできるだけ垂直に引き抜いて下さい。
- (2) 手で直接引き抜く場合  
下図の保持部をつかみ、できるだけ垂直に引き抜いて下さい。

- (2) In case of unmating directly by hand  
Please catch the catching area of plug, and please pull plug to vertical direction as directly as possible.



5-3 Crimp over standards of outer conductor

Standards: Less than 10% from total numbers of outer conductor  
(Numbers of outer conductor's crimp over from outer conductor's barrel)

5-4 Caution about Heat shrinkage tubes

Please be careful not to melt housing when using heat shrinkage tubes. It will become cause of open circuit.

5-3 外部導体はみ出し量

外部導体はみ出し量規定 : 外部導体トータル本数の10%以下 (外部導体バレルの外はみ出し量)

5-4 熱収縮チューブについての注意

熱収縮チューブで外部導体を覆う場合は、導通不良の原因になりますので、熱によりハウジングを溶融させないよう注意してください。

6. 本コネクタは'Pb-free'である

6. This is 'Pb-free' connector.

GENERAL TOLERANCE	
6 MAX.	$\pm 0.2$
6 OVER MAX. 30	$\pm 0.3$
30 OVER MAX. 120	$\pm 0.5$
ANGLE	$\pm 2^\circ$

DESIGN'D BY	DATE	<b>I-PEX</b> Interconnect and Packaging Electronics TOKYO, JAPAN	TITLE MF series micro coaxial connector plug vertical (ground contact : gold plating)	General	
CHK'D BY	DATE				
APP'D BY	DATE				
REV. RECORD	CUSTOMER COPY	PROJECTION	SCALE UNIT	DWG. No.	SHEET REV.
SERIES No.	2814		-/ mm	20278	4/4 19C

No.06027-2  
Apr./01/'11

## 材料証明書 MATERIAL CERTIFICATE

当社製品には下記の材料が使われている事を証明致します。

WE HEREBY CERTIFY THAT THE FOLLOWING MATERIALS ARE USED IN OUR PRODUCT.

PRODUCT NAME : MHF series micro coaxial connector Plug & Receptacle

PRODUCT Part No. : 20278-\*\*\*R-08,-13,-32,-18

20351-\*\*\*R-37

20279-001E-01,20314-001E-01

Plug , Non halogen free type

	部品 COMPONENT	材料/MATERIAL			UL94難燃性 UL94 FLAME CLASS	ULファイルNo. UL FILE No.
		材質名 MATERIAL	型名 CAT No.	材料メーカ MANUFACTURE R		
1	Housing	PBT	DURANE X3116	WINTECH POLYMER LTD.	V-0	E213445
2	Contact	Phosphor bronze	C5210-H	JX Nippon Mining & Metals Co.,Ltd	-----	-----
				HARADA METAL INDUSTRY Co.,Ltd		
				Mitsubishi Materials Co.,Ltd		
3	Ground Contact	Phosphor bronze	C5191-1/2H	HARADA METAL INDUSTRY Co.,Ltd	-----	-----

※ 添付資料 : ULカード写し / UL Card Copy

株式会社アイペックス  
I-PEX Co.,Ltd.

APPROVAL	CHECK	ORIGINATOR
E.Kawabe	T.Takano	H.Minegishi
Apr./01/'11	Apr./01/'11	Apr./01/'11

## Plug, halogen free type

	部品 COMPONENT	材料/MATERIAL			UL94難燃性 UL94 FLAME CLASS	ULファイルNo. UL FILE No.
		材質名 MATERIAL	型名 CAT No.	材料メーカ MANUFACTURER		
1	Housing	PBT	DURANEX 310NF	WINTECH POLYMER LTD.	V-0	E213445
2	Contact	Phosphor bronze	C5210-H	JX Nippon Mining & Metals Co.,Ltd	-----	-----
				HARADA METAL INDUSTRY Co.,Ltd		
				Mitsubishi Materials Co.,Ltd		
3	Ground Contact	Phosphor bronze	C5191-1/2H	HARADA METAL INDUSTRY Co.,Ltd	-----	-----

※ 添付資料 : ULカード写し / UL Card Copy

## Receptacle

	部品 COMPONENT	材料/MATERIAL			UL94難燃性 UL94 FLAME CLASS	ULファイルNo. UL FILE No.
		材質名 MATERIAL	型名 CAT No.	材料メーカ MANUFACTURER		
1	Housing	LCP	VECTRA E130i	Polyplastics Co.,Ltd	V-0	E106764
2	Contact	Brass	C2680R-0	JX Nippon Mining & Metals Co.,Ltd	-----	-----
3	Ground Contact	Phosphor bronze	C5191-1/2H	HARADA METAL INDUSTRY Co.,Ltd	-----	-----

Component - Plastics

E213445

**WINTech POLYMER LTD**

18-1 KONAN 2-CHOME, MINATO-KU, TOKYO 108-8280 JP

**3116(e)**

Polybutylene Terephthalate (PBT), "Duranex", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.75	V-0	4	0	130	-	130
	1.5	V-0	3	0	130	120	130
NC, BK	3.0	5VA	2	0	130	120	130

Comparative Tracking Index (CTI): **2**Dimensional Stability (%): **0.0**High-Voltage Arc Tracking Rate  
(HVTR): **3**High Volt, Low Current Arc Resis (D495): **6**Dielectric Strength (kV/mm): **23**Volume Resistivity ( $10^x$  ohm-cm): **16**

(e) - Virgin and regrind up to 50 by weight incl. have the same basic material characteristics above a minimum thickness of 0.75 mm

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents.  
ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2000-11-15

Last Revised: 2003-10-24

Underwriters Laboratories Inc®

**IEC and ISO Test Methods**

Test Name	Test Method	Units	Thickness	
			Tested (mm)	Value
Flammability	IEC 60695-11-10, IEC 60695-11-20	Class (color)	0.75	V-0 (ALL)
			1.5	V-0 (ALL)
			3.0	5VA (NC, BK)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m <sup>2</sup>	-	-
ISO Izod Impact	ISO 180	kJ/m <sup>2</sup>	-	-
ISO Charpy Impact	ISO 179-2	kJ/m <sup>2</sup>	-	-

Underwriters Laboratories Inc®

Component - Plastics

E213445

**WINTECH POLYMER LTD**

18-1 KONAN 2-CHOME, MINATO-KU, TOKYO 108-8280 JP

**XFR 4840 GF10, 310NF**

Polybutylene Terephthalate (PBT), "Duranex", furnished as pellets

Color	Min Thk (mm)	Flame Class	Flame		RTI		RTI Str
			HWI	HAI	Elec	Imp	
ALL	0.75	V-0	1	0	130	125	125
	1.5	V-0	1	0	130	125	125
	3.0	V-0	1	0	130	125	125

Comparative Tracking Index (CTI): 1  
 High-Voltage Arc Tracking Rate (HVTR): 0  
 Dielectric Strength (kV/mm): 24

Dimensional Stability (%): -  
 High Volt, Low Current Arc Resis (D495): 5  
 Volume Resistivity (10<sup>x</sup> ohm-cm): 14

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 2006-07-24

Last Revised: 2010-10-04

Underwriters Laboratories Inc®

**IEC and ISO Test Methods**

Test Name	Test Method	Units	Thickness	Value
			Tested (mm)	
Flammability	IEC 60695-11-10	Class (color)	0.75	V-0 (ALL)
			1.5	V-0 (ALL)
			3.0	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m <sup>2</sup>	-	-
ISO Izod Impact	ISO 180	kJ/m <sup>2</sup>	-	-
ISO Charpy Impact	ISO 179-2	kJ/m <sup>2</sup>	-	-

Underwriters Laboratories Inc®

Component - Plastics

E106764

**POLYPLASTICS CO LTD**

VECTRA DIV, 18-1 KONAN 2-CHOME, MINATO-KU, TOKYO 108-8280 JP

**E130i(d)(e)(f1)**

Liquid Crystal Polymer (LCP), thermotropic aromatic, "Vectra", furnished as pellets

Color	Min Thk (mm)	Flame Class	RTI		RTI		RTI Str
			HWI	HAI	Elec	Imp	
NC, BK	0.75	V-0	2	4	240	220	240
	1.5	V-0	1	4	240	220	240
	3.0	V-0	0	4	240	220	240

Comparative Tracking Index (CTI): 4

Dimensional Stability (%): 0

High-Voltage Arc Tracking Rate  
(HVTR): 0

High Volt, Low Current Arc Resis (D495): 5

Dielectric Strength (kV/mm): 39

Volume Resistivity (10<sup>6</sup> ohm-cm): 16

(d) - Virgin and regrind up to 50% by weight incl., have the same basic material characteristics in NC and BK with a minimum thickness of 0.80mm.

(e) - Regrind from 26-50% by weight inclusive has an Impact RTI of 180°C at thicknesses greater than 1.5mm.

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents.  
ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1992-08-19

Last Revised: 2008-07-03

Underwriters Laboratories Inc®

**IEC and ISO Test Methods**

Test Name	Test Method	Units	Thickness	
			Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.75	V-0 (NC, BK)
			1.5	V-0 (NC, BK)
			3.0	V-0 (NC, BK)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m <sup>2</sup>	-	-
ISO Izod Impact	ISO 180	kJ/m <sup>2</sup>	-	-
ISO Charpy Impact	ISO 179-2	kJ/m <sup>2</sup>	-	-

Underwriters Laboratories Inc®

# MATERIAL SAFETY DATA SHEET (MSDS)

Issued: Dec 20, 2007

Revised: Dec 20, 2007

File No. 2302

## 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

CHEMICAL PRODUCT NAME : DURANEX XFR4840  
NAME OF COMPANY : WinTech Polymer Ltd.  
SECTION IN CHARGE : Quality Assurance Dept.  
ADDRESS : 2-18-1 Konan, Minato-ku, Tokyo,108-8280 Japan  
TELEPHONE NUMBER : 03-6711-8605  
FACSIMILE NUMBER : 03-6711-8616

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE/PREPARATION : Preparation RATION  
COMMON CHEMICAL NAME : Polybutyleneterephthalate  
SYNONYMS : Polybutyleneterephthalate(PBT)  
INGREDIENTS AND COMPOSITION : PBT  $\geq$  80%, Phosphorus Flame retardant and others  $\leq$  20%  
CHEMICAL FORMULA :  $\{ \text{C}_6\text{H}_4\text{C}_6\text{H}_4\text{O}_2 \text{ (C}_2\text{H}_4\text{O)}_n$   
SERIAL No IN OFFICIAL GAZETTE : 7-1039 (base resin)  
(Law Concerning Examination and Regulation of Manufacture, etc., of Chemical Substances)  
CAS No : 2 4 9 6 8 - 1 2 - 5 (base resin)

## 3. HAZARDS IDENTIFICATION

PHYSICAL AND CHEMICAL HAZARDS : Not applicable  
HUMAN HEALTH EFFECTS : Not applicable  
ENVIRONMENTAL EFFECTS : Not applicable  
PHYSICAL AND CHEMICAL HAZARDS : It is inflammable substance and combustible if an igniting source is existent. Neither dangerous reaction, fire nor explosion can be caused under normal conditions.  
THE CLASSIFICATION : Not applicable

## 4. FIRST-AID MEASURES

INGESTION : Help to vomit as much as possible. If sick feeling continues, and ask a physician for advice.  
INHALATION : When a gas generated from the molten polymer, especially fume generated during combustion or heat, has been inhaled, remove fresh air without delay and wait until the victim is recovered. If sick feeling continues, ask a physician for advice.  
SKIN CONTACT : Cool the contacted skin with clean water without delay, if a contact with the polymer in a molten form. Do not force to remove the solid resin on the skin. If any burns are observed on the skin, ask a physician for advice.



EYE CONTACT : Cool and rinse the eye with clean water for at least 15 minutes when the eyes had contact with molten polymer. In case of wearing contact lenses,remove the lenses as soon as possible,and ask a physician for advice. When the eye had contact with the polymer in an ordinary solid form,rinse the eye with clean water without delay. If the discomfort persists,ask a physician for advice.

---

#### 5. FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA : Water,form fire-extinguishing agent,powder fire-extinguishing agent,and carbon dioxide gas.

SPECIFIC METHODS : Extinguish the fire with water. A method of extinguishing an ordinary fire may be applied. Do not apply water directly to processing machines.

SPECIFIC HAZARDS : Incomplete combustion leads to generation of toxic gases such as carbon monoxide or tetrahydrofuran,in addition to carbonic acid gas and water.

SPECIAL EQUIPMENT FOR THE PROTECTION OF FIREFIGHTERS : In case the fire gained force,use a gas mask or other protective equipment.

---

#### 6. ACCIDENTAL LEAKAGE MEASURES

PERSONAL PRECAUTIONS : When pellets were spilled on the road or floor,wipe them off with a besom or cleaner not to cause slipping.

ENVIRONMENTAL PRECAUTION : Handle the spillage in accordance with provisions given in the "Resin pellet spillage preventive manual",in order to prevent intakes by marine animals and birds.

---

#### 7. HANDLING AND STORAGE

HANDLING : This resin in a pellet form will neither ignite nor explode at room temperatures.

HANDLING 2 : For molding work,effective means for local exhaust are required to discharge gases generated by melt processing.

HANDLING 3 : Avoid inhaling of gases generated in moulding work. Do not directly touch resin of high temperature.

HANDLING 4 : Avoid retaining hot resin in the processing machines for many hours.

HANDLING 5 : This pellets spilled on the floor are likely to cause slipping. Remove such spillage at any times.

STORAGE : Keep the substance away from any fire or heat sources for the sake of safe storage.

RECOMMENDED PACKAGING MATERIALS : No information.

---

#### 8. EXPOSURE CONTROL / PERSONAL PROTECTION

CONTROL CONCENTRATION : None at present

PERMISSIBLE CONCENTRATION : OSHA PEL/1985  
Max. permissible concentration of inactive powder 15mg/m<sup>3</sup>  
- ditto - (Aspiration ) 5 mg/m<sup>3</sup>  
ACGIH TLV/1992 1993  
Exposure limit of the powder TWA 10 mg/m<sup>3</sup>

ENGINEERING MEASURE : When handling dust: Use totally enclosed containers resisting dust explosion.  
When heat melted in molding: Effective local ventilation must be provided.

PERSONAL PROTECTIVE EQUIPMENT	:	
RESPIRATORY PROTECTION	:	Wear a dust-proof mask.
EYE PROTECTION	:	Wear protective glasses or goggles.
HAND PROTECTION	:	Wear heat-resisting gloves against burns, when handling molten polymer.
SKIN & BODY PROTECTION	:	Wear long sleeve clothes against burns, when handling molten polymer.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE etc.	:	Pellet
BOILING POINT	:	Not applicable
VAPOUR PRESSURE	:	Not applicable
VOLATILITY	:	Not applicable
SUBLIMATION	:	None
MELTING POINT	:	228°C
DENSITY	:	1.32g/cm <sup>3</sup>
SOLUBILITY	:	Insoluble in water
FLASH POINT	:	300°C or higher
IGNITION POINT	:	300°C or higher
EXPLOSION PROPERTY	:	Not applicable
INFLAMMABILITY	:	None
REACTIVITY WITH WATER	:	None
OXIDIZABILITY	:	None
SELF-REACTIVITY	:	None
DUST EXPLOSIVENESS	:	Upper explosion limit : Not applicable. Lower explosion limit : 35g/m <sup>3</sup>

#### 10. STABILITY AND REACTIVITY

STABILITY AND REACTIVITY	:	Stable for normal storage or handling.
--------------------------	---	--

#### 11. TOXICOLOGICAL INFORMATION

SKIN CORROSIVE PROPERTIES	:	No finding.
SENSITIZING & IRRITANT EFFECTS	:	Gas generated in drying or melting is irritating eyes and skins.
ACUTE TOXICITY (INCLUDING LD50)	:	No finding.
SUBACUTE TOXICITY	:	No finding.
CHRONIC TOXICITY	:	No finding.

CARCINOGENECITY : No finding.

MUTAGENECITY(Mi : No finding.  
cro  
organisms,chromoso  
mal aberration)

REPRODUCTIVE : No finding.  
TOXICITY

TERATOGENICITY : No finding.

OTHERS(Including : No finding in this report means that there will be no hazard in  
generation of general,but no proving data available at the time of reporting.  
hazardous gases by  
reaction with  
water,for ezample)

OTHER CAUTIONS : With regard to dust,the maximum permissible concentration and limits  
are fixed by OSHA and ACGIH.

---

#### 12. ECOLOGICAL INFORMATION

BIODEGRADABILITY : No finding.

BIOACCUMULATION : No finding.

FISH TOXICITY : No finding.

---

#### 13. DISPOSAL CONSIDERATION

WASTE FROM : This is designated as waste plastics among industrial wastes by the  
RESIDUES Wastes Disposal Law. Disposal waste pellets through licensed wastes  
handlers or local autonomous bodies if they are handling wastes  
disposal.

WASTE FROM : When disposed by incineration,use the well controlled incinerators in  
RESIDUES 2 accordance with the Wastes Disposal Law,Air Pollution Control Law and  
Water Pollution Prevention Law.

---

#### 14. TRANSPORT CONSIDERATION

UN : Not applicable  
CLASSIFICATION  
NUMBER

OTHER CAUSIONS : Handle with care so as not to give damages to containers or not to be  
subjected to wetting.

OTHER CAUSIONS : Secure the containers firmly so as not to cause collapsing.  
2

---

#### 15. REGULATORY INFORMATION

WASTE DISPOSAL : Waste plastics among industrial wastes.  
LAW

---

#### 16. OTHER INFORMATION

HANDLING OF THE : This MSDS is the English version translated from the Japanese MSDS  
DETAILS GIVEN which is prepared for domestic use.  
ABOVE Details given above are based on references, information and data  
available at this moment, but no warranty can be made on exactness of  
these details. They are also prepared on the assumption that the  
product will be handled in a normal way. For special handling, adequate  
safety and environmental measures should be taken in respect to its  
applications. Our products are not specifically intended for implants for  
medical and dental applications, and therefore they are not  
recommended for such applications.  
"No finding" in this report means that there will be no hazard in general,  
but no proving data is available at the time of reporting.

WHERE TO CALL : WinTech Polymer Ltd. Quality Assurance Dept.  
FOR FURTHER : Tel. No 03-6711-8605  
INFORMATION



深圳市沃尔核材股份有限公司  
SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD.

## 材质证明书

我司 RSFR-H 无卤环保热缩套管 是一种阻燃型的热收缩套管，组成材料为聚烯烃加适量阻燃剂和助剂。产品中铅（Pb）、镉（Cd）、汞（Hg）、六价铬（Cr<sup>6+</sup>）、多溴联苯（PBBs）、多溴联苯醚（PBDEs）等环境物质含量符合欧盟 RoHS 2002/95/EC 及日本 Sony-SS-00259 环保要求。其主要成分如下：

原料名称			使用目的	含量	供应商	CAS.NO.
中文	英文	分子式				
聚烯烃	Polyolefin	(CH <sub>2</sub> CH <sub>2</sub> ) <sub>n</sub>	主剂	50%	北京有机	9002-88-4
氢氧化镁	Magnesium Hydroxide	Mg(OH) <sub>2</sub>	阻燃剂	35%	锦昊辉	1309-42-8
磷系阻燃剂	Phosphorus	(NH <sub>4</sub> PO <sub>3</sub> ) <sub>n</sub>	阻燃剂	10%	上海海以	7723-14-0
色母粒	Pigment	色母+填充剂	着色剂	5%	华万彩	—
油墨	Printing Ink	—	印字	—	上海捷信	—

深圳市沃尔核材股份有限公司  
2012年1月15日



公司地址：深圳市坪山新区兰景北路沃尔工业园 邮编：518118  
电话：0755-28299167 传真：0755-28299164  
网址：http://www.woer.com E-mail: qc@woer.com



**Underwriters  
Laboratories Inc.®**

455 East Trimble Rd  
San Jose, CA 95131-1230 USA  
www.ul.com  
tel: 1 408 754 6500  
fax: 1 408 689 0500

06SC04380  
E203950 - YDPU2/YDPU8

January 11, 2006

**SHENZHEN WOER HEAT SHRINKABLE MATERIAL CO LTD.**  
Shenzhen, CHINA

Attention: Mr. Yorway Shore  
Subject: Flexible Heat Shrinkable Polyolefin tubing with liner - Cat. No. SBRS, using modified grade liner grade, rated 105C, 600V, All Colors Except Clear, VW-1 Flame, 1.0 to 42.0 mm recovered ID.

Dear Mr. Shore:

**NOTICE OF AUTHORIZATION TO APPLY THE UL RECOGNITION MARK**

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

UL's investigation of your product has been completed under project number 06SC04380 and the product was determined to comply with the applicable requirements.

This fax temporarily supplements the UL Follow-Up Services Inspection Procedure and serves as authorization to apply the UL Recognized Marking only at the factories under UL's Follow-Up Service Program to the products which are constructed as described below:

Identical to Cat. No. SBRS, as described above and in the attached Description pages which were submitted for this investigation. The UL Records covering the initial testing of this product can be found in the UL Follow-Up Services Inspection Procedure, File E203950, Volume 2, Section 3.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Recognition Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Recognition Mark may be withdrawn.

Very truly yours,

Reviewed by:

CELESTE CAPULONG (x 56567)  
Project Handler  
Conformity Assessment Services

JANEANN MATULICH (x 56654)  
Lead Engineering Associate  
Conformity Assessment Services

An independent organization working for a safer world with integrity, precision and knowledge.



# 物质安全资料表

## MATERIAL SAFETY DATA SHEET

### 一、物品与厂商资料 Article and supplier information:

物品名称: 环保热缩套管 H Article: Heat shrinkable tube (WOER)
规格型号: Spec: black plastics w/white printing
供货商名称: 昆山中石信电子有限公司 Supplier: KUNSHAN JONESES ELECTRONICS CO. LTD

### 二、成分资料 Composition and information on ingredients:(G 管) 混合物 Admixture

化学性质: 环境物质(CHEMICAL PROPERTIES: ENVIRONMENT MATERIALS)			
英文名称 (English name)	中文名 Chinese name	含量 Content	测试方法 Test method
Cadmium	镉 (Cd)	≤ 100ppm	EN1122: 2001
Lead	铅 (Pb)	≤ 1000ppm	EPA3050B
Chromium (VI)	铬 (Cr) VI	≤ 1000ppm	EPA7196A、EPA3060A
Mercury	汞 (Hg)	≤ 1000ppm	EPA3052
Polybrominated Biphenyls (PBBS)	多溴联苯	≤ 1000ppm	EPA3540C EPA3550C
Polybrominated Diphenylethers (PBDES) except DecaBDE	多溴联苯醚(不含十溴联苯醚)	≤ 1000ppm	EPA3540C EPA3550C

### 三、辨别资料 DISCERN INFORMATION:

最重要的危害项目 KEY HAZARD ITEM	健康危害效应: 点燃后在短时间内会熄灭, 有少量烟雾产生, 对人体呼吸道产生轻微伤害。 Health hazard note: Be fired for a moment and will be flameout, it will produce a little smoke, the smoke will hazard breath a little.
	环境影响: 危害空气。Environment hazard note: If be fired and pollute the air.
	物理性及化学性危害: 常态是管状, 在 90-125℃ 预热收缩。Physics and chemistry characteristic: it normal is pipe and will shrink at 90-125℃, that perhaps is harmful.
	特殊危害: 如果火烤、烟熏, 烟雾会冲击眼睛、呼吸系统, 对人体产生伤害。 Specific hazard: if be fired or sootiness, it will produce smoke and smoke hurt eyes breath.
主要症状: 眼睛流泪, 喷嚏, 咳嗽, 在呼吸新鲜空气会减轻相应症状。 Main symptom: lachrymation, sneeze, cough. It will be good after breathing fresh air.	
物品燃烧危险: 必须在点燃时会短时间燃烧。 Fireproofing characteristic: It can flame for a moment after leaving fire.	

### 四、急救措施 FIRST—AID MEASURES:

不同暴露途径之急救方法: First-aid measures: 吸入: 在正常操作下没有吸入的危险。Normal it is no harmful for breath. If be fired, and breath the smoke 皮肤接触: 正常接触时对皮肤无损伤。由于此管易划伤, 建议操作时戴手套。 Skin touch: Normal it is no harmful for skin
---

眼睛接触: 无影响 Normal it is no harmful for eyes. If be fired , the smoke hurt eyes a little, leave the smoke and eyes will come to comfort.
食入: 不能食用 Can't be eat.
最重要及危害效应: 吸入燃烧烟雾, 冲击呼吸系统。Key symptom: Be fired ,the smoke choke the breath.
对急救人员之防护: 配戴呼吸防护装置。First aid defend: Get on gas mask
对医师之提示: 对呼吸系统严重症者, 应不断吸入新鲜空气来减轻症状。 Doctor suggest: If breath a lot of smoke ,must breath more fresh air , it can help you to reduce the symptom.

#### 五、FIRE-FIGHTING MEASURES:

适用灭火剂: 不能长时间燃烧, 使用粉末灭火器。Fire-fighting material medical: Dust farina powder
灭火时可能遭遇之特殊危害: 燃烧可产生少量烟雾, 冲击人体呼吸系统。 During fire-fighting, special hazard: Be fired ,produce a little smoke , and it can choke the breath
特殊灭火程序: 无。Special fire-fighting program: No special program
消防人员之特殊防护设备: 正常消防设备。Fire-fighter special dependence: Normal fire-fighting device

#### 六、GIVEAWAY TRANSACT METHOD:

个人应注意事项: 无 Person notice: No
环境注意事项: 无 Environment notice: No
清理方法: 无 Cleaning method: No special method

#### 七、安全处理与储存方法 SAFETY AND DEPOSIT METHOD

处置: 常温下用纸箱包装, 不要放置在太阳光下直射。 Treatment: At normal temperature ,paper box package, no sun straight shine
储存: 常温下用纸箱包装好放置在凉荫处。 Deposit: At normal temperature paper box package, no sun straight shine

#### 八、物理及化学性质 PHYSICAL AND CHEMICAL PROPERTIES:

物质状态: 软质套管。State: Soft pipe	形状: 套管状 Shape: Pipe
颜色: 黑色及彩色。Color: Manifold color	气味: 无味 Smell: No
分解温度: 125℃预热收缩, 不会分解。 Decompose temperature:125℃ shrink, but don' t decompose	闪点: 阻燃 Flash point: Fire-resistant
自然温度: 常温 Normal temperature	爆炸界限: 无 Explode rate: No

#### 九、稳定性及反应性 STABILITY AND REACYIVITY:

稳定性: 不能分解。Stability: No decompose
特殊状况下可能之危害反应: 有火的话, 此种产品会短时间燃烧, 产生烟雾。Special condition, perhaps hazard: If has fire, the production can be fired for a moment and produce a little smoke
应避免之状况: 高温放置会收缩。 Please avoid the condition: At heat temperature condition the production will shrink
应避免之物质: 火种 Please avoid the condition: Fire
危害分解物: 烟雾。Hazard decompose material: Smoke

#### 十、毒性资料 TOXICOLOGICAL INFORMATION:

急毒性: 无 Rapid virulence: No
局部效应: 无 Part effect: No
致敏感性: 无 Cause hypersusceptibility : No
慢毒性或长期毒性: 无 Slowly or long-term virulence: No
特殊效应: 无 Special effect: No



十一、生态效应 ECOLOGICAL INFORMATION:

可能之环境影响/环境流: 该产品不会在自然界分解, 对动植物及水生物不会产生危害。

Perhaps environment effect: The production can't decompose at nature condition, so it can't hazard the animal and plant.

十二、处置注意事项 DISPOSAL CONSIDERATIONS:

废弃处置方法: 这些物品将统一收集给废品收购站, 作相应环保处理。

Trash disposal: Collect and treat for the environment.

十三、运送资料 TRANSPORTATION INFORMATION:

国际运送规定: 无 World wild transportation rule: No

联合国编号: 无 U.N. code: No

国内运送规定: 无 Transportation in china rule: No

特殊运送方法及注意事项: 避免挤压变形, 利器损伤。 Special transportation method and notice: Avoid extrusion distortion, edge tool hurt

十四、法规资料 REGULATORY INFORMATION:

适用法规: UL224 Comply rule or law: UL224

十五、其它资料 OTHER INFORMATION:

参考文献: SGS 检测报告 Reference : SGS Test Report

(以上内容如有歧义以中文为准 If the Chinese and English content have some different things, the Chinese content is right)

昆山中石信电子有限公司  
套管品质部  
2009年 09月 27日

# APPROVAL SHEET


深圳市环协科技有限公司

**ShenZhenHuanXieTechnologyco.ltd**

Customers:

Date 2016.03.09

Customer P/N	
Huan-Xie P/N	B020-SMA-C-003
Production Descriptio	<b>Cable Assembly</b>
Version	B

<b>Approved By</b>	<b>Approved By Huan-</b>
	

APPROVAL	CHECK	ORGANIZER
肖清岭	付云龙	琚芬

深圳市环协科技有限公司

**ShenZhenHuanXieTechnologyco.ltd**

地址:深圳市宝安区松岗镇沙浦围工业大道62号

TELL: 0755-33508731

FAX: 0755-33508732

# 深圳市环协科技有限公司

ShenZhenHuanXieTechnologyco. l td

## Table of Contents

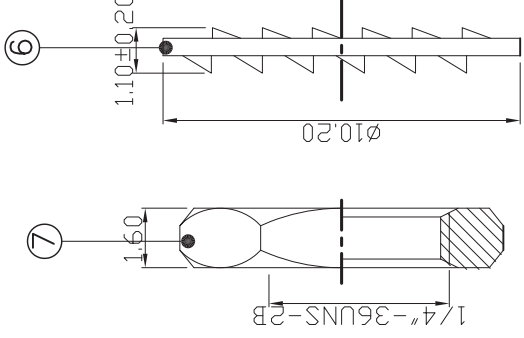
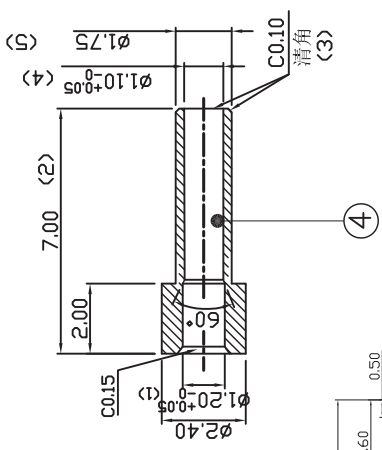
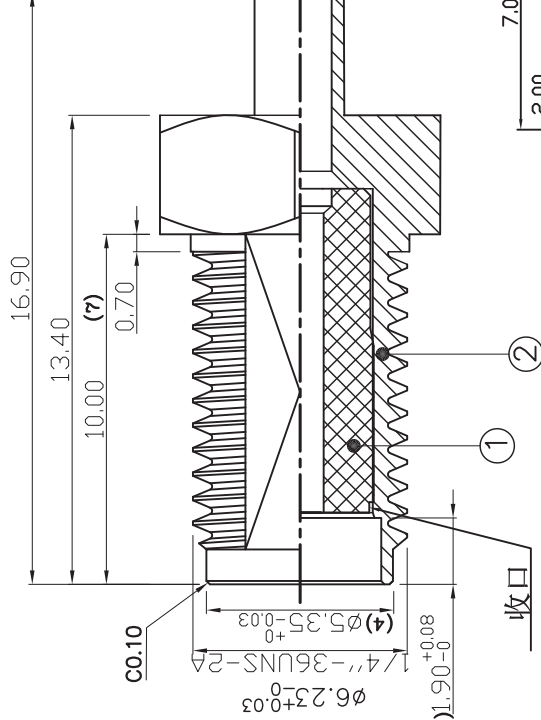
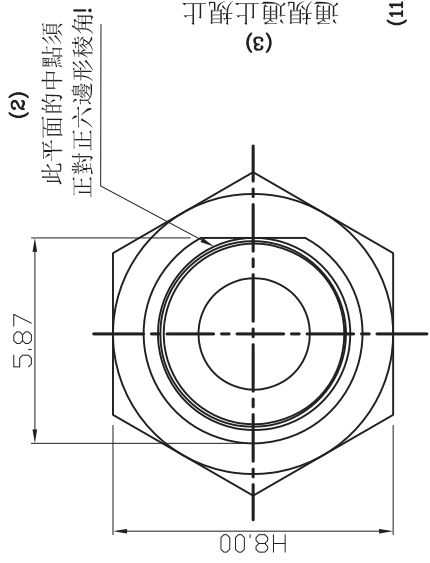
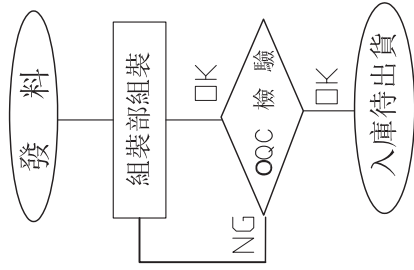
1.封面	1
2.目录	2
3.图纸	3
5.材质证明	4-5
6.MSDS 报告	6-37
7.ROHS报告	38-52

## Modification History:

---

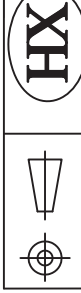
REV.	Date	Content
0	2015.07.25	

一. 生產流程圖:



1. Electrical Characteristics

- 1.1 Impedance: 50 Ohm
  - 1.2 Working Frequency: DC - 6 GHz
  - 1.3 S.W.R.: ≤ 1.5
  - 1.4 Working Voltage: 335V / max
  - 1.5 Insulation Resistance: 1000 Mohm
  - 1.6 Contact Resistance: Center Contact: 5 mohm
  - 1.7 Outer Contact: ≤ 2.5 mohm
2. Environmental
- 2.1 Working Temperature Range: - 55 ° C ~ +125 ° C
  - 2.2 Salt spray test: 48H



Part Name, 品名/規格	RP SMA JACK FOR RGL13
Part No. 客戶料號	
Part No. 料號	B020-SMA-C-003
Draw. 繪圖	Check, 校對
App. 核准	App. 核准
Rev. 版本/次	
Unite. 單位	mm
日期 Date	
15.11.24	

Tolerance 公差	B020
客戶編號 C/U No.	
Material 材質	
Finish 處理	
Scale 比例	1:1
REV. 版本/次	A/0
未經注角度公差: ±1°	

Rev.	Date	變更單號 ECN No.	變更者	Description, 內容
4				

## 测试报告

公司名称： 嘉善振宏氟塑有限公司

产品名称： PTFE棒

检验日期： 2015-1-21

序号	项目	测试值	单位	试验方法	备注
1	拉伸强度	16.6~17.5	MPa	ASTM D1710	
2	伸长率	157~179	%	ASTM D1710	
3	比重	2.12~2.26	—	ASTM D792	
4	硬度	50~60	杜罗硬度计	※ASTM D2240	
5	弯曲强度	20.3~20.9	MPa	※ASTM D790	
6	弯曲模量	600~800	MPa	※ASTM D790	
7	压缩强度	11.2~13.6	MPa	※ASTM D695	
8	绝缘强度	18.2~20.8	KV/mm	※ASTM C149	
9	介电常数	1.8~2.2	—	※ASTM D150	
10	介质损耗	<0.0002	(60HZ)	※ASTM D150	
		<0.0002	(10E6HZ)		
11	表面电阻	>10E16	Ω	※ASTM D257	
12	体积电阻	>10E18	Ω cm	※ASTM D257	
13	熔点	327±10	℃	ASTM D792	
14	耐热温度	255±5	℃	※-	
15	导热系数	1.8~2.1	10E6W/(M°C)	※ASTM C177	
16	动摩擦系数	0.1	—	0.7MPa/minSTEEL	

检验人员：沈佳冬



# 江门市锋乐金属制品厂

## 试验报告表

客户:	环协			生产日期: 2014.11.03	
试材名称	铜合金 (Copper Alloys)	铜材编号	普通环保铜B C3605	试材规格	H8.0
全谱直读光谱仪 (SPECTOMAXX)					
元素名称	标准含量 (%)	试样含量 (%)	元素名称	标准含量 (%)	试样含量 (%)
铜 (Cu)	55-57	55.5	铁 (Fe)	≤0.50	0.450
铅 (Pb)	≤4.0	260	锌 (Zn)	Rem	Rem
锡 (Sn)	---	---	镉 (Cd)	<0.0100	0.0055
其他 (Others)	Mn+Si+Mi<0.3		铋 (Bi)		---
生产批号:					
机械试验 (Mechanical Testing)					
物理性质	拉力 (TechnicalStrength)	延伸率	硬度		
标准要求	Kg/mm <sup>2</sup>	%	HV110-160		
实际数值	Kg/mm <sup>2</sup>	%	HV		
备注					
分析员	关婵	主管	李挽驹		



DONGGUAN FENGLE METAL MATERIAL CO.,LTD

NO.3,DONGSHENG STREET,HUANGCAOLANG COMMUNITY,DALANG TOWN,DONGGUAN CITY

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

SGS Job No. : CP15-026048 - GZ

Date of Sample Received : 14 May 2015

Testing Period : 14 May 2015 - 19 May 2015

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, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

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



Almay Gao  
Approved Signatory



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

## Test Results :

## Test Part Description :

 :  :   
 SN1                      CAN15-078241.002      Brassy metal rod

## Remarks :

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



Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.  
 (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.  
 (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.  
 (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.  
 (5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	47
Lead (Pb)	1,000	mg/kg	2	28726▲
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative
Sum of PBBs	1,000	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
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)



<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
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	ND

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II.

(2)◇Spot-test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

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

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



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

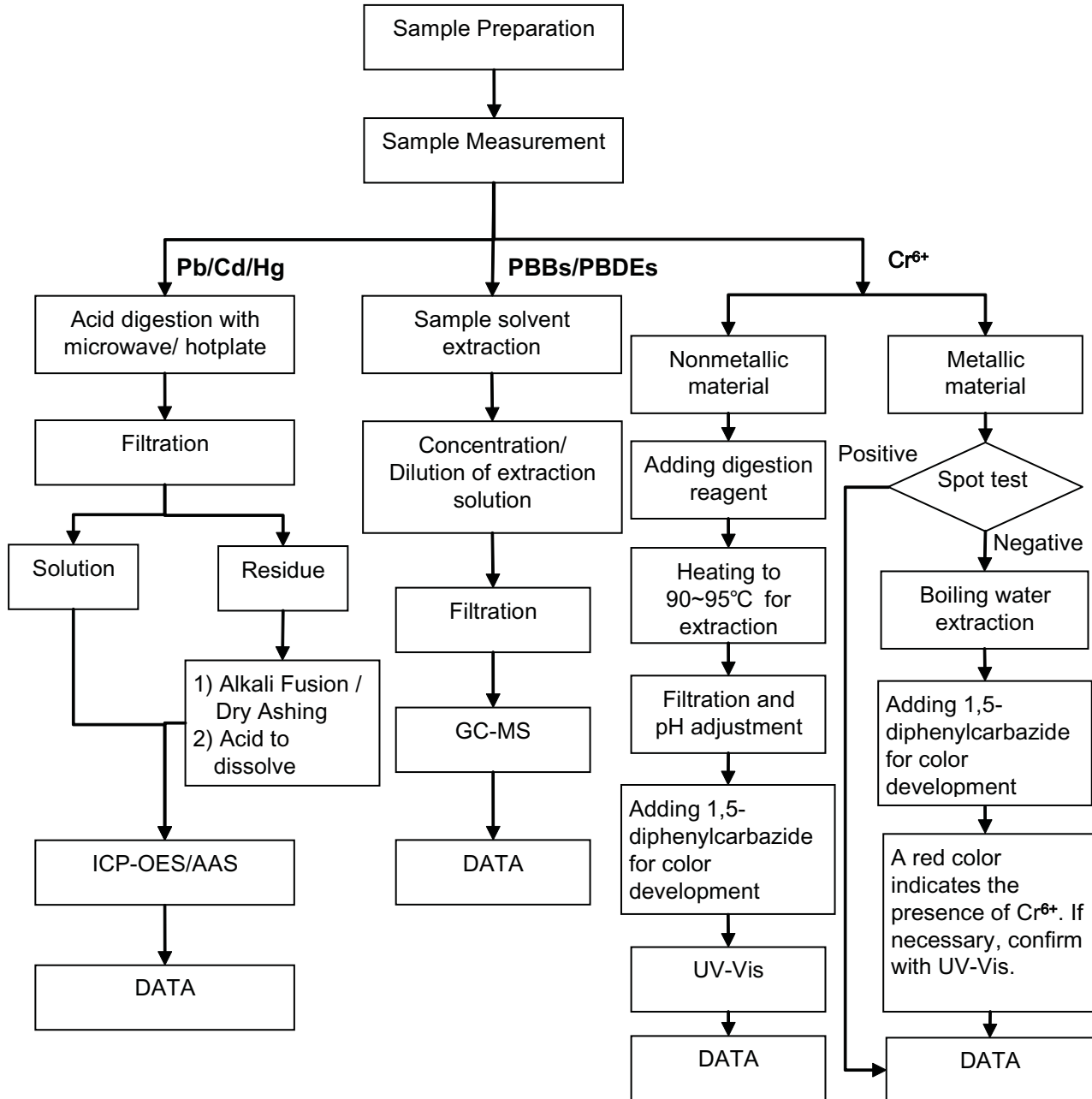
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgsgroup.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

**ATTACHMENTS**

**RoHS Testing Flow Chart**

- 1) Name of the person who made testing: Bruce Xiao / Sunny Hu
- 2) Name of the person in charge of testing: Bella Wang / Cutey Yu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*

DONGGUAN CITY YUCHEN INSULATION CO., LTD  
XIAN SHA WU FANG INDUSTRIAL ZONE, GAO BU TOWN, DONG GUAN CITY  
CHINA

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

SGS Job No. : CP15-009749 - GZ  
Date of Sample Received : 10 Mar 2015  
Testing Period : 10 Mar 2015 - 13 Mar 2015  
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, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

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



Alkene Liang  
Approved Signatory



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.  
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

Test Results :

Test Part Description :



SN1



CAN15-031664.001



Whire material

Remarks :

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



Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.  
 (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.  
 (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.  
 (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.  
 (5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

<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)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	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
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
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	ND

Notes :

- (1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

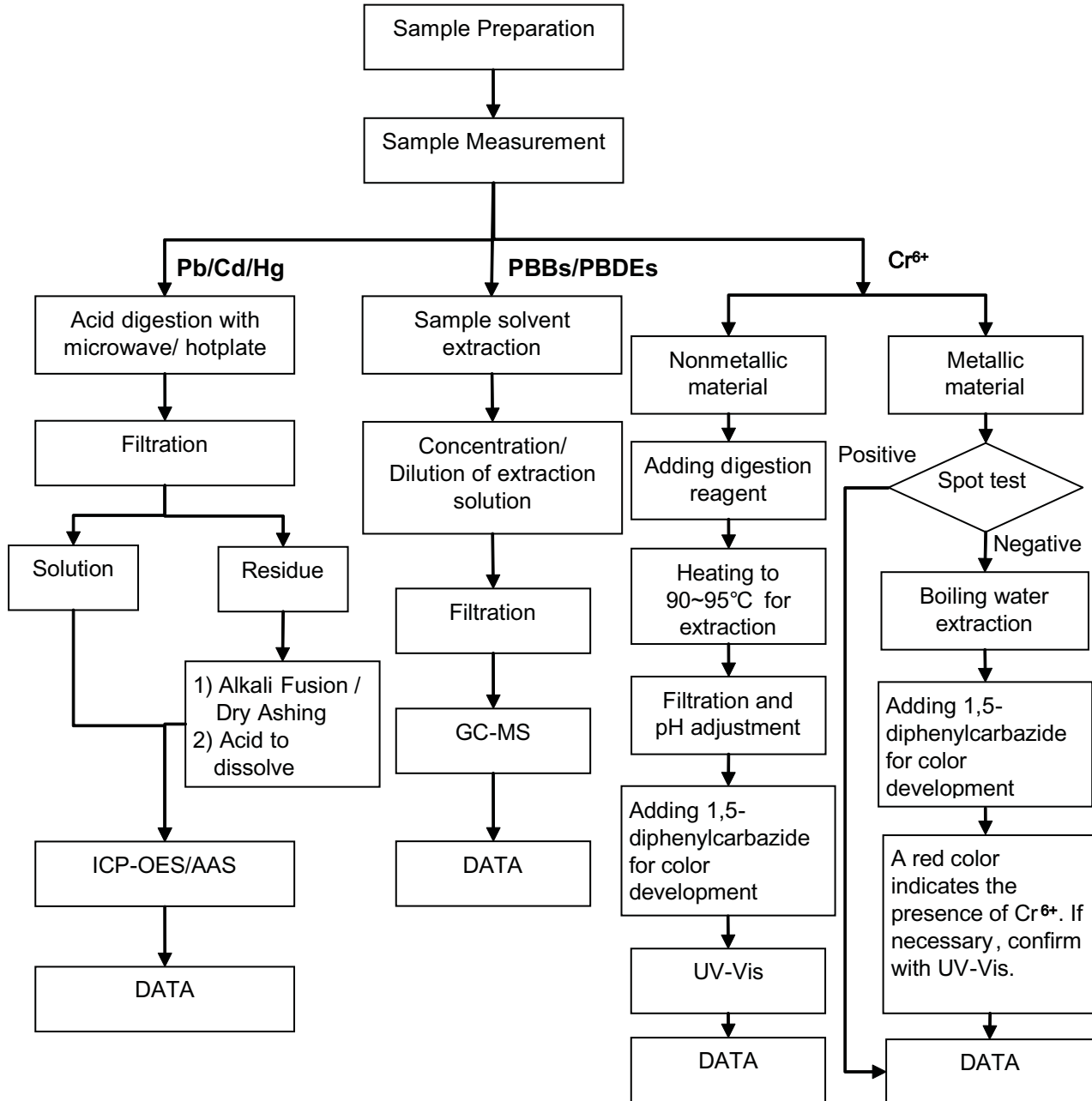
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

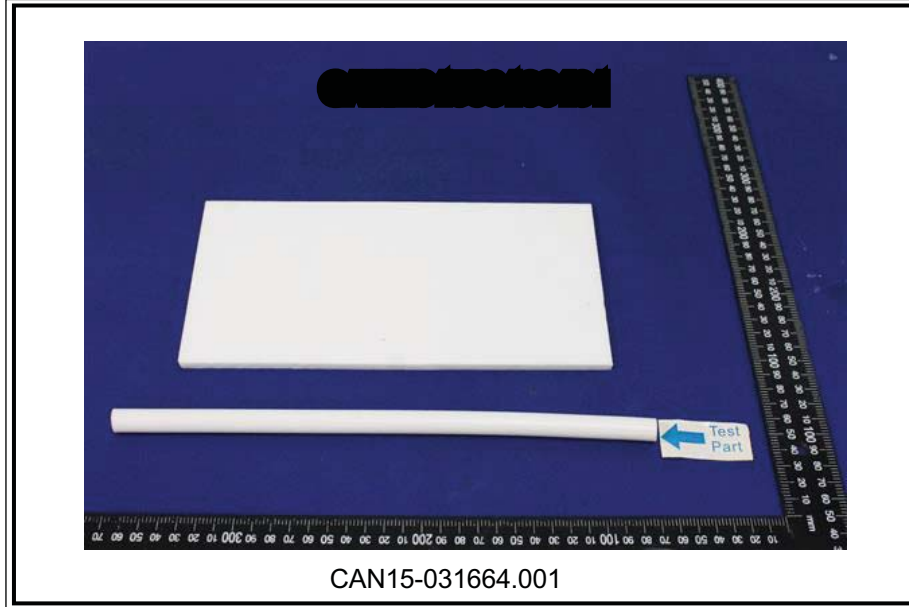
## ATTACHMENTS

### RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao / Sunny Hu
- 2) Name of the person in charge of testing: Bella Wang / Cutey Yu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).



Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*



YONGYIFA METAL PRODUCTS (SHENZHEN) CO.,LTD.

1A,BUILDING 12,YONG YI FA,CHUANG YE 3 ROAD,JIANGBIAN INDUSTRIAL  
ZONE,SONGGANG,SHENZHEN  
CHINA

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

SGS Job No. : CP15-051930 - SZ  
Date of Sample Received : 10 Sep 2015  
Testing Period : 10 Sep 2015 - 15 Sep 2015  
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. Guangzhou Branch

*Yan*

Yan Lee  
Approved Signatory



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.  
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

Test Results :

Test Part Description :

 SN1  CAN15-157506.001  Silver-gray metal shell

Remarks :

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



Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.  
 (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.  
 (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.  
 (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

Notes :

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.
- (2)◇Spot-test:  
 Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;  
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)
- ◇Boiling-water-extraction:  
 Negative = Absence of CrVI coating  
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.  
 Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

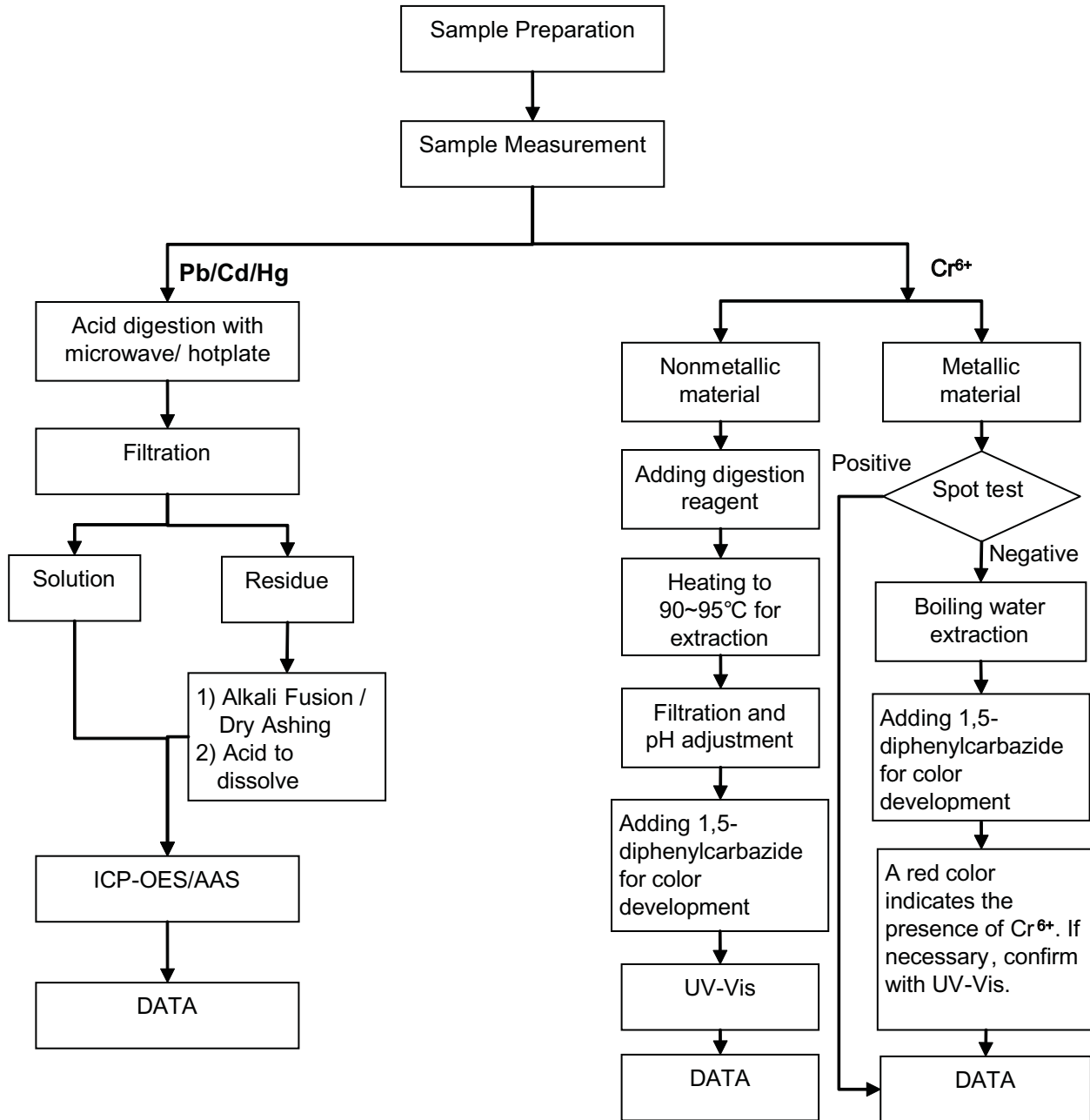


This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.  
 Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com  
 198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e sgs.china@sgs.com

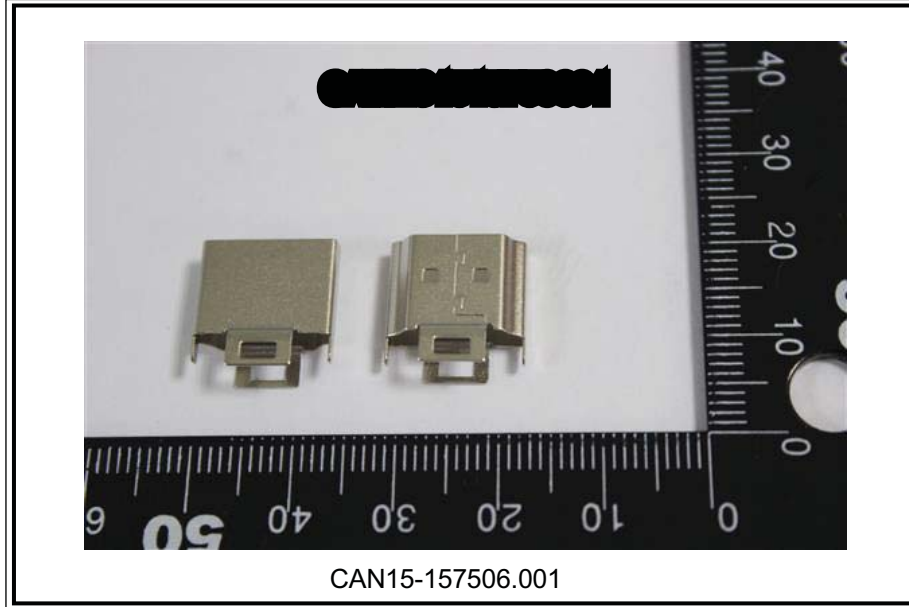
## ATTACHMENTS

### RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao
- 2) Name of the person in charge of testing: Bella Wang
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr<sup>6+</sup> test method excluded).



Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*

SHEN ZHEN SHI TONG FA DIAN ZI YOU XIAN GONG SI

SHEN ZHEN SHI SONG GANG ZHEN LOU GANG CUN LONG TAN GONG YE QU TONG FA YI LOU ER  
CHE JIAN

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

SGS Job No. : GZIN1504014724PC - GZ

Internal Reference No. : 2.1

Manufacturer : TONGFAYILOUERCHEJIAN

Date of Sample Received : 20 Apr 2015

Testing Period : 20 Apr 2015 - 23 Apr 2015

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, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of  
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou BranchMerry Lv  
Approved Signatory

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Sciencetech Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

Test Results :

Test Part Description :



SN1



CAN15-060096.001



Golden/silver-grey plating

Remarks :

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



- Test Method :
- (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
  - (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
  - (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
  - (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.
  - (5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	44
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative
Sum of PBBs	1,000	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
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND
Monobromodiphenyl ether	-	mg/kg	5	ND



<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>001</u>
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	ND

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II.

(2)◇Spot-test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result is Negative or cannot be confirmed.)

◇Boiling-water-extraction:

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

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



This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

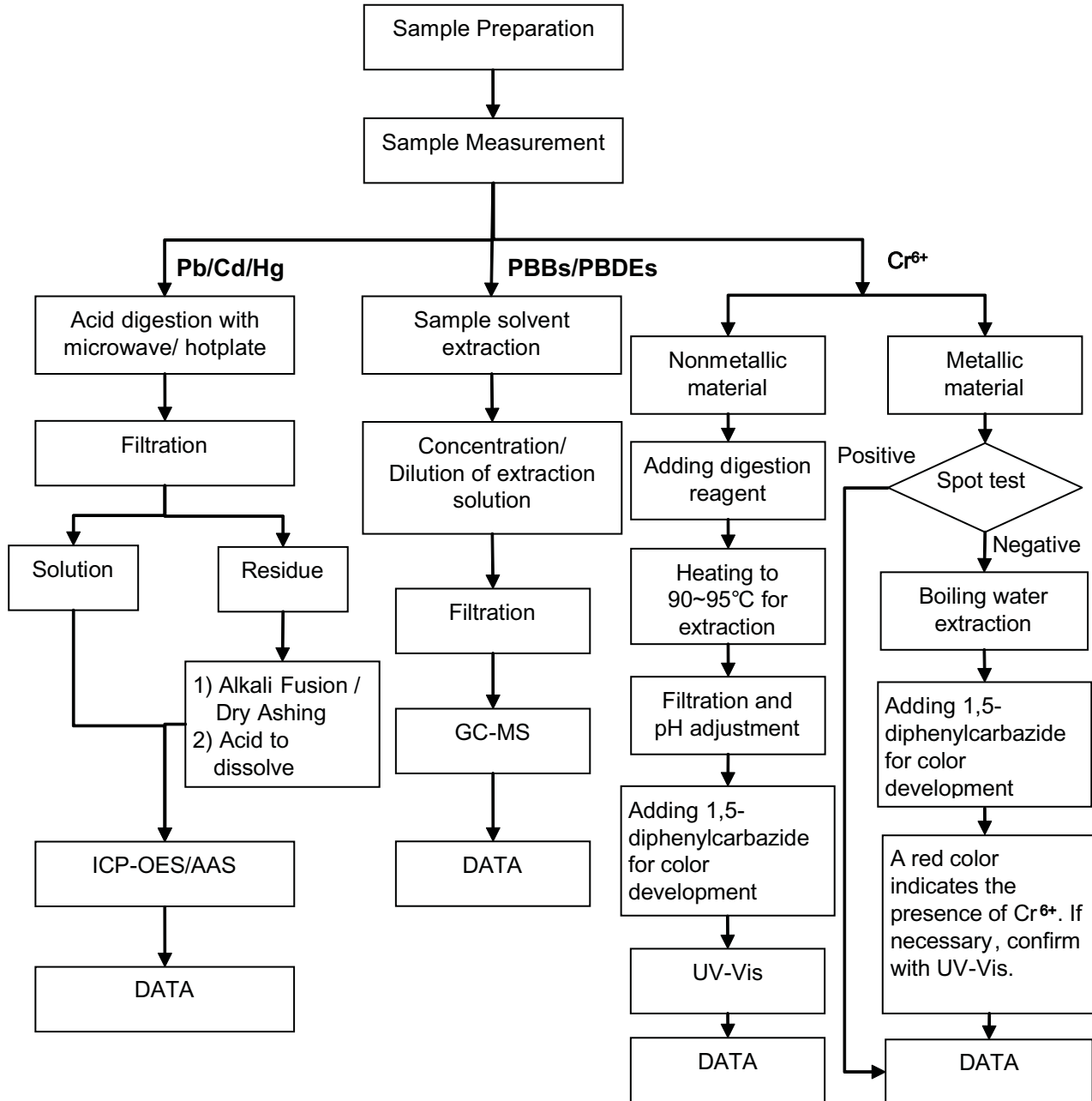
Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: [CN.Doccheck@sgs.com](mailto:CN.Doccheck@sgs.com)

198 Kezhu Road, Science Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075113 www.sgs.com.cn  
 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075113 e [sgs.china@sgs.com](mailto:sgs.china@sgs.com)

## ATTACHMENTS

### RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao / Sunny Hu
- 2) Name of the person in charge of testing: Bella Wang / Cutey Yu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr<sup>6+</sup> and PBBs/PBDEs test method excluded).





Sample photo:



SGS authenticate the photo on original report only

\*\*\* End of Report \*\*\*

# 物质安全资料数据表 (MSDS)

## 一、标识

中文名：**氰化亚金钾**

分子式： $\text{KAu}(\text{CN})_2$

CAS 号：13967-50-5

危险性类别：第 6.1 类剧毒品。

化学类别：氰化物，贵金属盐类。

## 二、主要组成及性状

主要成份： $\text{Au} \geq 68.2\%$ 。

外观与性状：白色结晶粉末状。

主要用途：用于电镀金。

## 三、健康危害

侵入途径：吸入，食入，经皮吸收。

健康危害：吸入、摄入或经皮肤吸收均有毒，对眼睛、皮肤有刺激作用。口服剧毒，非骤死者，先出现感觉无力、头痛、眩晕、恶心、呕吐、四肢失去知觉，甚至呼吸停止而死亡。

## 四、急救措施

皮肤接触：立即用大量肥皂水清洗；就医咨询；

眼睛接触：立即提起眼睑，用大量流动清水或生理盐水彻底冲洗至少 15 分钟。就医。

吸入：迅速脱离现场至空气新鲜处。如呼吸困难，给输氧；如呼吸停止，立即进行人工呼吸。吸入亚硝酸异戊酯，肌肉注射 10%4-二甲基氨基苯酚。

食入：饮足量温水，催吐。洗胃，导泄。就医。

## 五、燃爆特性与消防

燃烧性：不燃

危险特性：遇酸或吸收空气中的二氧化碳、水可分解出剧毒的氰化氢气体。受热分解，放出高毒的烟气。

灭火方法：消防人员必须穿全身防火防毒服，在上风向灭火。灭火时尽可能将容器从火场移至空旷处。然后根据着火原因选择适当灭火剂灭火。使用干粉、砂土灭火，禁用含水灭火剂，禁用水，禁止使用二氧化碳。

## 六、泄漏应急处理

隔离泄漏污染区，限制出入。建议应急处理人员戴防尘口罩，穿防毒服。不要直接接触泄漏物。小量泄漏：小心扫起，转移至安全场所；也可以用次氯酸盐溶液冲洗，洗液稀释后放入废水系统。大量泄漏：收集回收或运至废物处理场所处置。

## 七、运输信息及储运注意事项

危规号：61001                      UN 编号：无资料

包装分类：I                      包装标志：14

包装方法：装入塑料瓶中，压紧铝箔盖，旋紧外盖，外加密封塑料袋，外套纸箱封存。运输时外套普通木箱。

储运环境温度（℃）：10--40

操作注意事项：密闭操作，提供充分的局部排风。防止粉尘释放到车间空气中。操作人员必须经过专门培训，严格遵守操作规程。建议操作人员佩戴防尘面具（全面罩），穿胶布防毒衣，戴橡胶手套。避免产生粉尘。避免与酸类接触。配备泄漏应急处理设备。倒空的容器可能残留有害物。

储存注意事项：储存于阴凉、干燥、通风良好的库房。远离火种、热源。防止阳光直射。包装密封。应与酸类、食用化学品分开存放，切忌混储。储区应备有合适的材料收容泄漏物。应严格执行剧毒物品“五双”管理制度。

## 八、防护措施

工程控制：生产过程密闭，加强通风。

呼吸系统防护：空气中浓度超标时，建议佩戴过滤式防毒面具（半面罩）。

紧急事态抢救或撤离时，应该佩戴空气呼吸器或氧气呼吸器。可能接触其粉尘时，必须佩戴空气呼吸器。

眼睛防护：戴化学安全防护镜。

身体防护：穿防毒物渗透工作服。

手防护：戴橡胶手套。

其它：工作场所禁止吸烟；进食和饮水，饭前要洗手。工作毕，沐浴更衣。注意个人清洁卫生。

## 九、理化性质

熔点（℃）：无资料                      沸点（℃）：无资料

相对密度（水=1）：3.45

蒸气相对密度（空气=1）：无资料

饱和蒸气压（kPa）：无资料

辛醇/水分配系数的对数值：无资料

燃烧热（KJ/mol）：无意义

临界温度（℃）：无意义                      临界压力（Mpa）：无资料

溶解性：易溶于水；微溶于醇，不溶于醚。

## 十、稳定性和反应活性

稳定性：稳定。                      聚合危害：不聚合

避免接触的条件：潮湿空气。

禁忌物：强氧化剂，酸类。

燃烧（分解）产物：氰化物、氰化氢。

## 十一、毒理学资料

急性毒性：LD<sub>50</sub> 20.9mg/kg(大鼠经口)。

刺激性：对眼睛、皮肤有刺激作用。

亚急性和慢性毒性：无资料。

生殖毒性：无资料

致癌性：无资料。

致突变性：无资料。

## 十二、环境资料

该物质对环境有危害，不要让该物质进入环境。应特别注意对水体的污染。

## 十三、废弃处理

根据国家和地方有关法规的要求处置。或与厂商或制造商联系，确定处置法。

## 十四、运送资料

国际运送规定：按毒害品化学品储运。

国内运送规定：按毒害品化学品储运。

特殊运送方法及注意事项：运输时必须经公安机关批准，凭准运证方可起运。铁路运输时应严格按照铁道部《危险货物运输规则》中的危险货物配装表进行配装。运输前应先检查包装容器是否完整、密封，运输过程中要确保容器不泄漏、不倒塌、不坠落、不损坏。严禁与酸类、氧化剂、食品及食品添加剂混运。运输时运输车辆应配备泄漏应急处理设备。运输途中应防曝晒、雨淋，防高温。公路运输时要按规定路线行驶，禁止在居民区和人口稠密区停留。

## 十五、法规资料

《危险化学品安全管理条例》(2002年3月15日起施行)，《工作场所安全使用化学品规定》([1996]劳部发423号)等法规，针对化学危险品的安全使用、生产、储存、运输、装卸等方面均作了相应规定；《常用危险化学品的分类及标志》(GB 13690-92)将该物质划为第6.1类毒害品；《剧毒物品分级、分类与品名编号》(GA 57-93)中，该物质属第一类A级无机剧毒品。

## 十六、其他资料

参考文献：美国 USP 药典, IC 文摘

制表单位：深圳鑫华昌表面处理技术有限公司

联系电话：400-0505-218

制表日期：2015-03-25

# 物質安全資料表(MSDS)

## 一、物质厂商资料

名稱：连续镀镍	產品編號：BL-2015-1-11-01
制造商或供应商名称：永艺发金属制品（深圳）有限公司	
制造商或供应商地址：深圳市宝安区松岗镇江边工业区创业三路 14 号 12 栋 1A	
制造商或供应商电话：0755-33181901	傳真：0755-33181903

## 二、物质成份名称资料(原材料、药水名称)

原材料名称	镀液含量%
氨基磺酸镍	10%
氯化镍	0.8%
硼酸	3.5%
添加剂	0.3%

## 三、危害辨别资料：

最重 要危 害與 效應	健康危害效應：无相关数据
	環境影響：十二项生态资料内容
	物理性及化學性危害：十六项安全性及反应性
	特殊危害：无相关资料
主要症狀：无相关资料	
物質危害:本产品在生产过程中,由于都是化学品,操作不当,会引起皮肤发痒\腐烂\红肿\恶心,对于人体吸入,会造成刺激性伤害,需戴防护用具,电镀成品后不具有危险性.	

## 四、急救措施：

不同暴露途徑之急救方法：

吸 入：一将患者立即撤离现场,移至通风良好的地方休息,给氧呼吸。

皮膚接觸：脫下被污染的衣服,立即用大量水清洗接觸部位,如有發炎應就醫。

眼睛接觸：立即用大量水清洗眼睛達 15 分鐘,並立即就醫。

食 入：飲用大量水或食鹽水,並催吐就醫

最重要症狀及危害效應：一

對急救人員之為防護：一

對醫師之提示：一

## 五、防火措施

適用防火劑：1、水霧

2、噴水

3、二氧化碳

4、化學乾粉

滅火時可能遭受之特殊危害：—不可燃物不適用。

特殊滅火程序：—不可燃物不適用

消防人員之特殊防護裝設：穿戴自攜式呼吸器及防護衣

## 六、洩漏處理方式：

個人應注意事項：防護手套, 輕拿輕放/

環境注意事項：不能將濃度高的液體排入河川

清理方式：使用木屑、砂土吸附，然後以水沖洗

## 七、安全處置與儲存方式

處置：穿戴安全眼鏡，防護手套

儲存：避免陽光直接照射或接觸高溫物及強氧化物，保存期限一年

## 八、暴露預防措施

工程參數：—无相关数据

控制參數：—无相关数据

個人防護設備：防護手套

呼吸防護：設製排氣裝置

手部防護：防護手套

眼睛防護：—

皮膚及身體防護：衣物

衛生措施：1、工作場所嚴禁飲食及抽煙

2、維持作業場所清潔

## 九、物理及化學性質

物質狀態：固體

顏色：銀白色

酸鹼度：—

分解溫度：—

自然溫度：—

蒸氣壓：—

密度：—

狀態：依产品形状—

氣味：无

沸點/沸點範圍：

閃火點：—

測試方法：V 開杯 閉杯

爆炸界限：—

蒸氣密度：—

溶解度：—

## 十、安全性及反應性

安全性：安全，無聚合危險性

特殊狀況下可能之危害反應：—

應避免之：不通氣通風。

應避免之物質：不可與氧化性物質，有機過氧化物放置同一場所

危害分解性：無

## 十一、毒性資料

急毒性：無

局部效應或皮膚腐蝕性：無

致敏感性或刺激性：無

慢毒性或長期毒性：強酸鹼對皮膚，肌肉有腐蝕危害性。

## 十二、生態資料

可能之生態影響/環境流佈：水中生物分解度低，會對環境造成影響。

## 十三、廢棄處置方法

廢棄處置方法：依據當地環保法規處理

## 十四、運送資料

國內/國際運送規定：無相關數據

特殊運送方法及注意事項：應注意會有滑落，掉落之危險發生，不可直接接觸。

## 十五、法規資料

適用法規：勞動法中，工作環境，空氣安全標準要求。

## 十六、其他資料

制表單位	永藝發金屬製品（深圳）有限公司	地址	深圳市寶安區松崗鎮江邊工業區創業三路
制表日期	2015-1-5	有效日期	一年
審核	譚伙慶	制表人	謝玉梅



## POLYFLON PTFE M Molding Powder

Safety Data Sheet  
SDS Number: 20031

Issued: 2010-01-05  
Revised(0.4): 2012-12-10

### 1 - Chemical Product and Company Identification

#### 1.1 Chemical Product

Trade name POLYFLON PTFE M Molding Powder  
Grade name M-18, M-18F, M-531, M-532, M-532C, M-533, M-536, M-C26, M-C27, M-C28

#### 1.2 Company Identification

##### Manufacturer

Name DAIKIN FLUOROchemicals (CHINA) CO., LTD.  
Add CHANGSHU INTERNATIONAL CHEMICAL INDUSTRIAL PARK, HAIYU TOWN,  
CHANGSHU, JIANGSU 215522 CHINA  
Tel : (+86) 512-5232-2266 Fax : (+86) 512-5232-2366

Supplier in US DAIKIN AMERICA INC.  
20 OLYMPIC DRIVE, ORANGEBURG, NEW YORK 10962  
Tel: (+1)800-365-9570 9am to 5 pm Eastern Standard Time

#### 1.3 Emergency Telephone

Company: (+86)512-5232-0949 US: (+1)256-306-5000



# POLYFLON PTFE M Molding Powder

Safety Data Sheet  
SDS Number: 20031

Issued: 2010-01-05  
Revised(0.4): 2012-12-10

## 2 - Hazards Identification

GHS label elements      Void

## 3 - Composition Information

### Chemical characterization:

#### CAS No. Description

9002-84-0      Polytetrafluoroethylene

## 4 – First aid Procedures

- |                         |  |
|-------------------------|--|
| <b>4.1 Inhalation</b>   | Supply fresh air; consult doctor in case of complaints.  |
| <b>4.2 Skin Contact</b> | Immediately wash with water and soap and rinse thoroughly.<br>After contact with the molten product, cool rapidly with cold water. |
| <b>4.3 Eyes Contact</b> | Rinse opened eye for several minutes under running water.  |
| <b>4.4 Ingestion</b>    | If symptoms persist consult doctor .   |
- **Information for doctor:** Vapors and fumes liberated during hot processing(above 260°C) with this material may cause flu-like symptoms (chills, fever and sometimes, cough) that may not occur until several hours after exposure and typically pass within about 36 to 48 hours.

## 5 – Fire-fighting Measures

- 5.1 Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- 5.2 Special hazards caused by the substance, its products of combustion or resulting gases:**  
Formation of toxic gases is possible during heating or in case of fire.
- 5.3 Protective equipment:** Wear fully protective suit.

## 6 - Accidental Release Measures

- 6.1 Person-related safety precautions:** Not required.
- 6.2 Measures for environmental protection:**  
Do not allow product to reach sewage system or any water course.
- 6.3 Measures for cleaning/collecting:** Pick up mechanically.
- 6.4 Additional information:**  
See Section 8 for information on personal protection equipment.  
No dangerous substances are release.

## 7 - Handling and Storage

- 7.1 Handling**

# POLYFLON PTFE M Molding Powder

Safety Data Sheet  
SDS Number: 20031

Issued: 2010-01-05  
Revised(0.4): 2012-12-10

## Information for safe handling:

Extractors are required on all machines used for thermal processing or splinter removal processes.

### 7.2 Storage

**Requirements to be met by storerooms and receptacles:** No special requirements.

**Information about storage in one common storage facility:** Not required.

**Further information about storage conditions:** Protect from contamination.

## 8 - Exposure Controls and Personal Protection

### 8.1 Ingredients with limit values that require monitoring at the workplace:

Not required.  
**Additional information:** The lists valid during the making were used as basis.

### 8.2 Personal Protective Equipment:

**General protective and hygienic measures:**

Wash hands before breaks and at the end of work.

Keep away from tobacco products.

Avoid contact with the skin.

**Respiratory protection:**

For conditions where exist a potential for significant exposure to fumes and/or toxic vapour use a full-face-mask with the acid and organic vapor cartridges.

**Protection of hands:** Synthetic rubber gloves.

**Eye protection:** Safety glasses.

**Body protection:** Protective work clothing.

## 9 - Physical and Chemical Properties

Appearance	Powder
Colour	White
Odour	Odourless
Boiling point	Undetermined
Melting point	320-330°C
Flash Point	Not applicable.
Decomposition temperature	470°C (0.1%TG)
Density	2.1~2.2g/cm <sup>3</sup>
Flammability(solid, gaseous)	Product is not flammable.
Danger of explosion	Product does not present an explosion hazard.
Solubility in water	Insoluble

## 10 - Stability and Reactivity

### 10.1 Thermal decomposition/conditions to be avoided:

Even at the temperatures reached during the normal hot processing of fluoropolymers fume will be generated, that will present a potential health hazard.

To avoid thermal decomposition do not overheat.

### 10.2 Dangerous reactions:

No dangerous reactions known.

### 10.3 Dangerous decomposition products:

Danger of toxic fluorine based pyrolysis products.

# POLYFLON PTFE M Molding Powder

Safety Data Sheet  
SDS Number: 20031

Issued: 2010-01-05  
Revised(0.4): 2012-12-10

## 11 – Toxicological Information

11.1 **Acute toxicity:** No data.

11.2 **Additional toxicological information:**

When used and handled according to specifications, the product does not have any harmful effects to our experience and the information provided to us.

## 12 - Ecological Information

12.1 **Aquatic toxicity:** No further relevant information available.

12.2 **Other information:**

The product is insoluble in water and the biodegradation and ecotoxicity is expected to be low.

## 13 - Disposal Considerations

13.1 **Recommendation:** Disposal must be made according to official regulations.

13.2 **Uncleaned packaging:** Disposal must be made according to official regulations.

## 14 - Transportation Information

14.1 UN "Model Regulation": -

## 15 - Regulatory Information

15.1 **Safety Phrases**

15: Keep away from heat.

21: When using, do not smoke.

## 16 - Other Information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Abbreviations and acronyms:

GHS: Globally Harmonized System of Classification and Labeling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)