







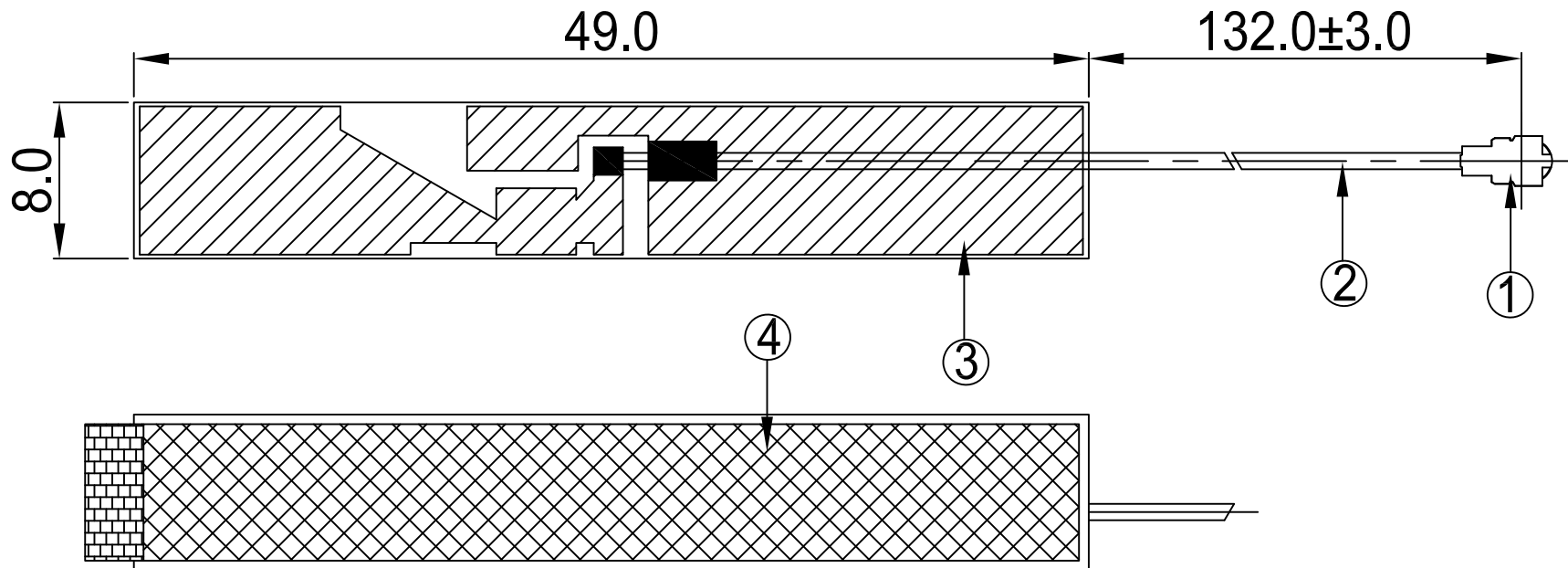
# 承认书项目表

NO	内容 (Contents)	页数 (Number of Page)	页码 (Page Code)
1	承认书封面 (Spec Cover)	1	1 ~ 2
2	承认书项目表 (Spec Item)	1	3
3	工程成品图 (Drawing)	1	4
4	天线规格 (Antenna Specification)	1	5
5	S参数测试 (S Parameter)	1	6
6	无源测试 (Passive Test)	2	7 ~ 8
7	方向图 (Radiation Pattern)	3	9 ~ 11
8	天线装配图 (Antenna Profile)	1	12
9	材质证明 (Material Certificate)	16	13 ~ 28
10	RoHS报告 (RoHS Test Report)	**	**
11	N/A	N/A	N/A
12	-	-	-
13	-	-	-

**RoHS**  
Compatible

CUSTOMER	拓邦
PART NO	净水器

REV.	DESCRIPTION	DATE
△	首次发行	2017.07.04



4	Paster	48.0*7.0MM	3M 4229P	PAS100XXA.P01	1
3	PCB Green	49.0*8.0*0.4MM	PCB	PCB100XXA.P01	1
2	Coaxial Cable	O.D.1.13Black	O.D.1.13	COA100XXA.P01	1
1	Mini Connector	Au Plated 1代	Cu	TER10001A.P01	1
NO	PART NAME	DESCRIPTION	Material	Part Number	Q.TY



东莞市一佳电子通讯科技有限公司

Dongguan YiJia Electronics Communication Technology Co.,Ltd. Tel:0769-85535057 Fax:0769-81664308

PART NAME: WiFi Antenna L=132mm MHF			
PART NO.: YJT01.010.007.301A		DATE: 2017-07-04	
APPROVED BY	CHECKED BY	DESIGNED BY	 Tolerance X.X ±0.50 X.XX±0.15 X° ±3°
陈国强	文雪	汪婷	
UNITS: mm SCALE: 1/1 REVISION: A			



# 天线规格

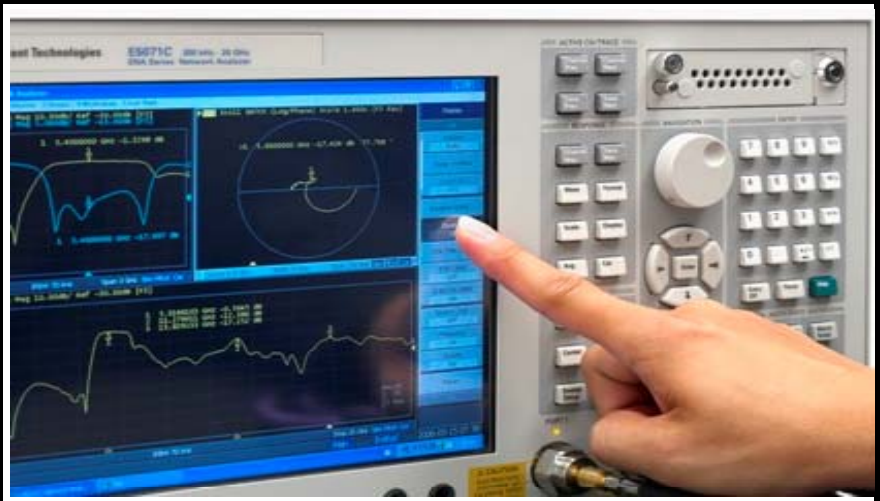
## Antenna Specification

<b>Electrical Properties</b>	
Frequency	2.4-2.5GHz
Impedance	50 Ohm Nominal
V.S.W.R	2.0 Max
Gain	2.0 dBi
Radiation	Omni-directional
Polarization	Linear
<b>Physical Properties</b>	
Connector	1代IPEX
Cable Type	O.D.1.13mm
Cable Length	132mm
Cable Color	Black
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

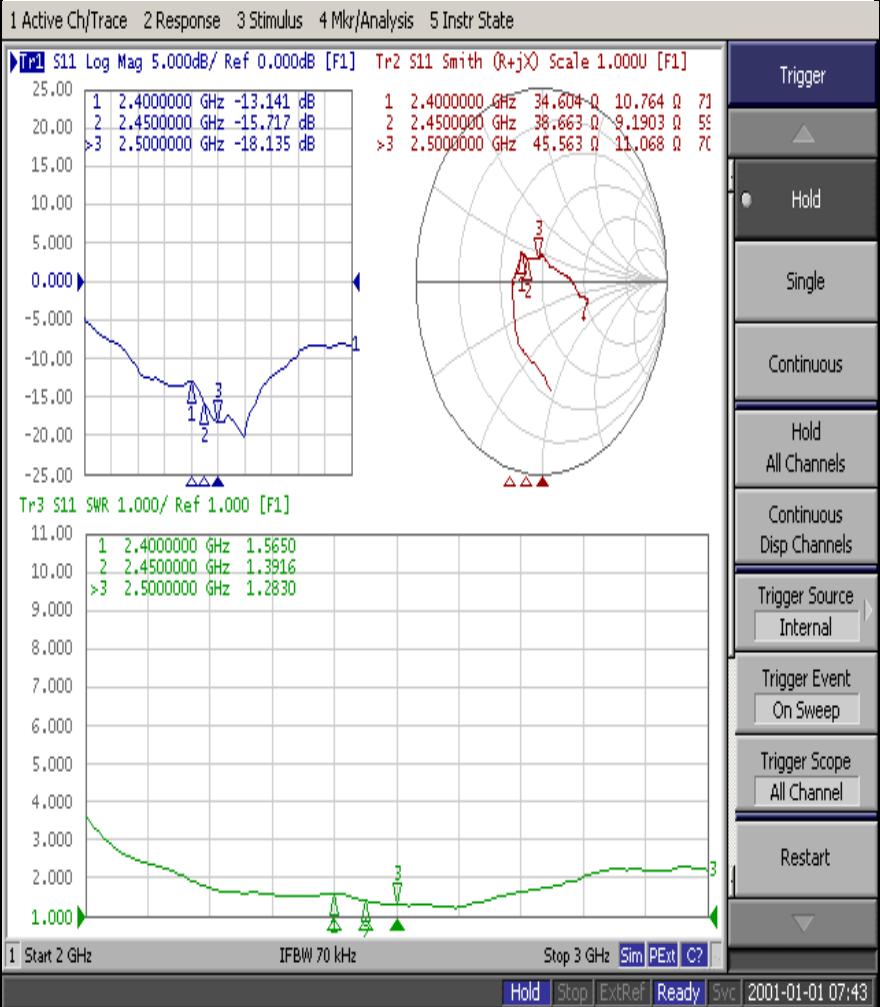


# Antenna Performance Test

**Agilent  
E5071B**

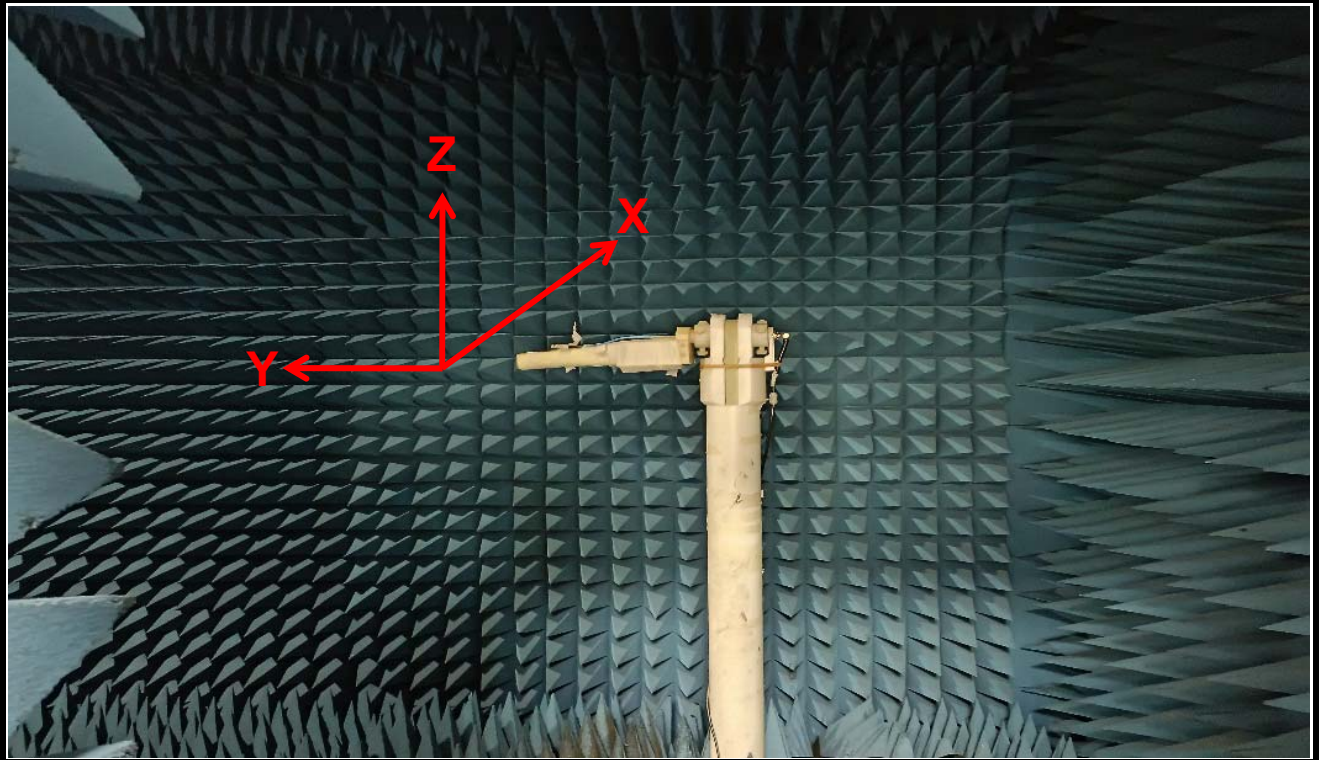


**S  
Parameter  
Test //  
WiFi  
Antenna**





## *Antenna Passive Test*





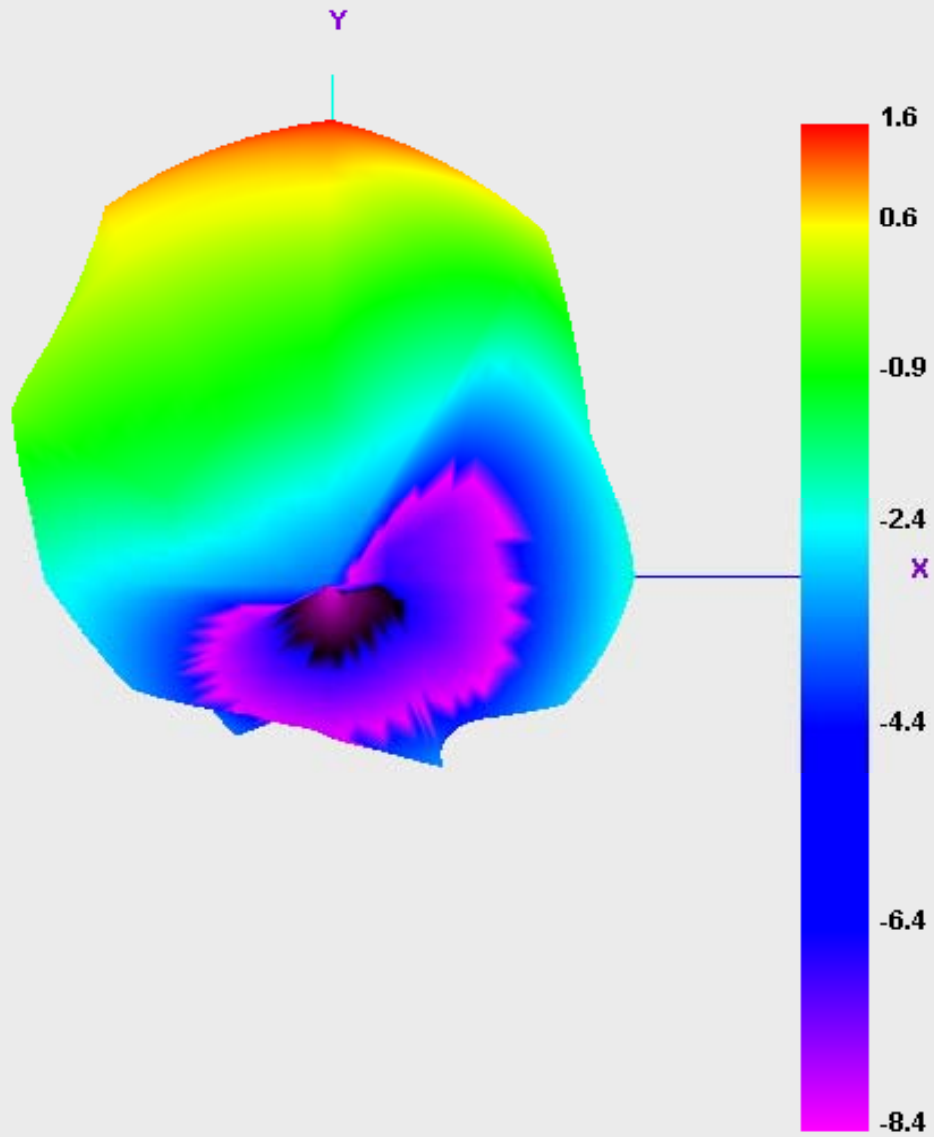
Passive Test For WiFi Antenna			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	70.6	-1.5	1.5
2410	70.9	-1.5	1.6
2420	69.8	-1.6	1.3
2430	68.1	-1.7	1.4
2440	66.4	-1.8	1.3
2450	68.4	-1.7	1.3
2460	67.9	-1.7	1.8
2470	68.9	-1.6	1.9
2480	68.2	-1.7	2.0
2490	70.6	-1.5	1.9
2500	70.9	-1.5	1.8





## Radiation Pattern For WiFi Antenna

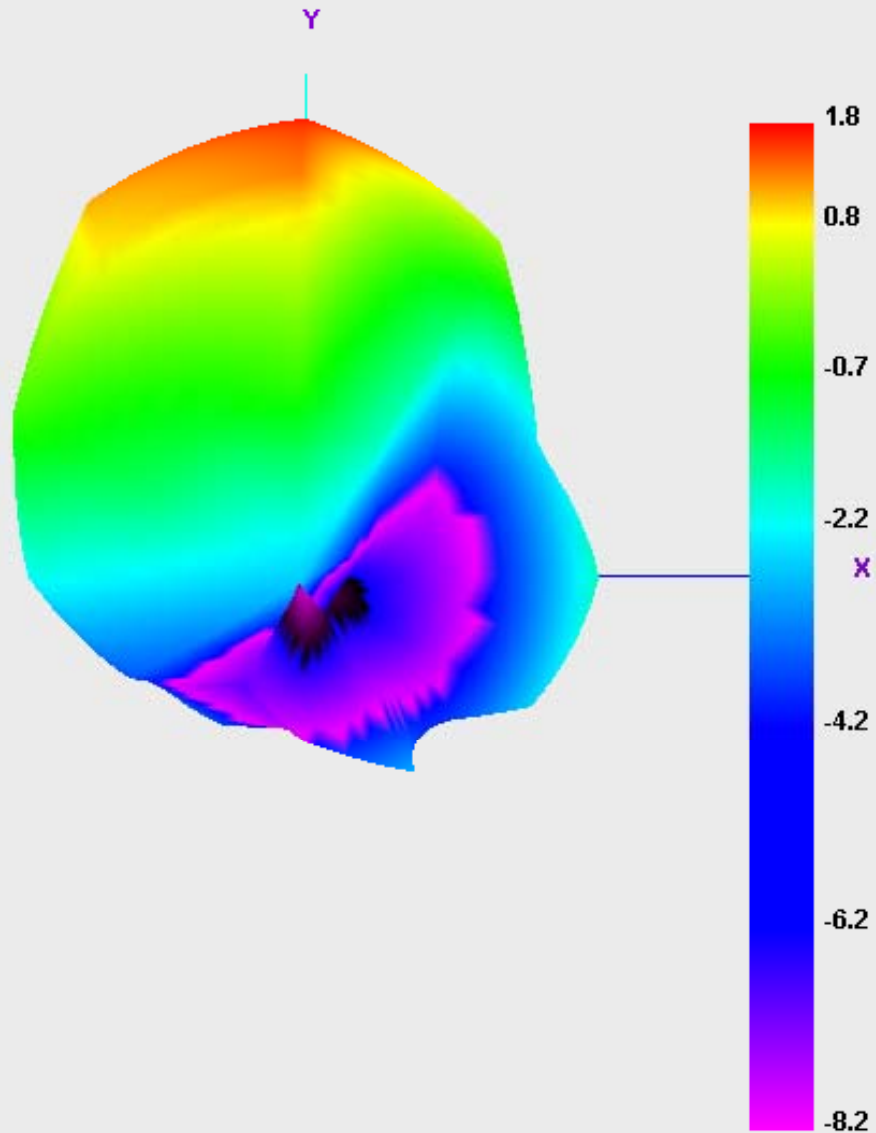
2400.000MHz





## Radiation Pattern For WiFi Antenna

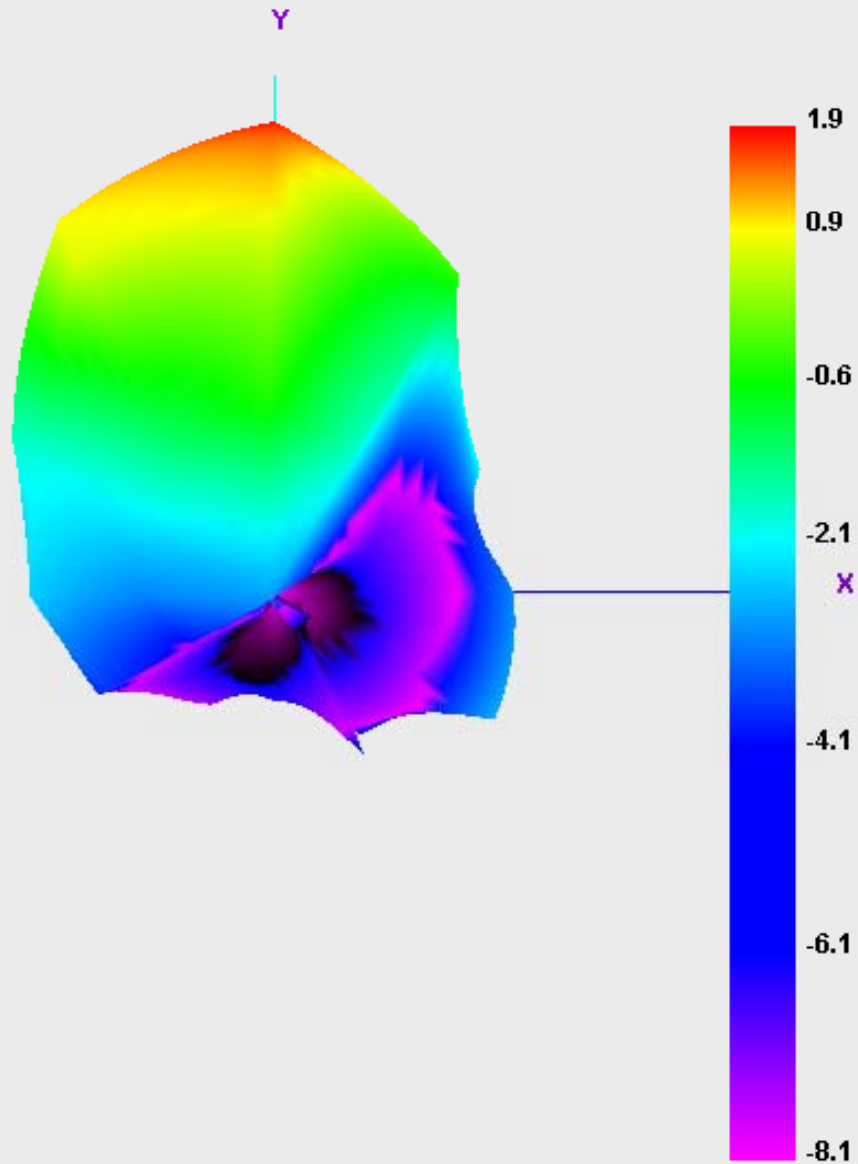
2450.000MHz





## Radiation Pattern For WiFi Antenna

2480.000MHz





*WiFi  
Antenna*





# Acrylic Foam Tape 4229P

## For Professional Market Applications

Data Sheet

September 2004

Supersedes technical data sheet dated May 1998

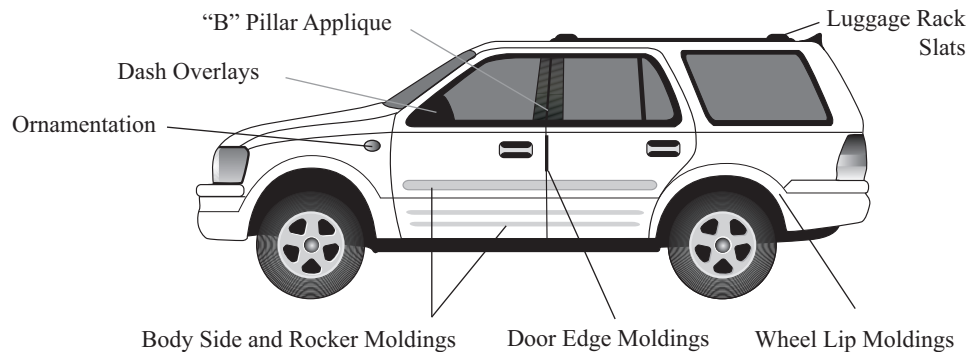
### General Description

3M™ Acrylic Foam Tape 4229P is a medium-density, dark gray acrylic foam tape with high performance acrylic adhesives. 3M acrylic foam tape 4229P is characterized by high performance peel and shear adhesion, high internal strength, good conformability and excellent plasticizer resistance.

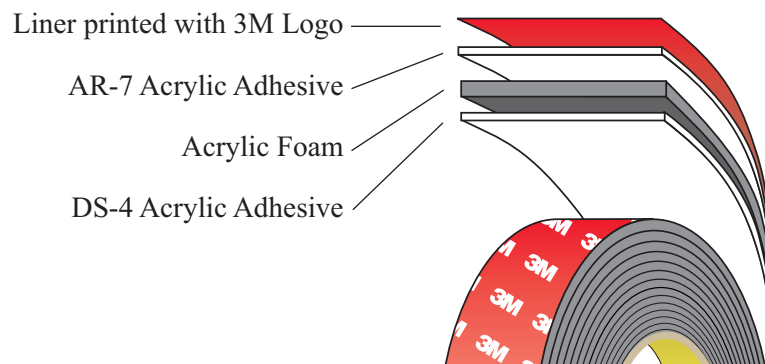
Typical applications include body side moldings; stainless steel, ABS and PVC rocker panels; wheel lip moldings, door edge moldings, nameplates/ ornamentation, luggage rack slats, wind and rain deflectors, and dashboard overlays.

3M acrylic foam tape 4229P utilizes the same proprietary acrylic foam core and adhesive technology that has been proven successful on numerous OEM automotive applications. **The acrylic foam core has unique viscoelastic properties that allow it to elongate and relax when put under load, thereby minimizing stress on the adhesive bond line.** These properties allow the tape to bond more effectively to a wide variety of automotive surfaces.

### Typical Applications



### Product Construction



### Shelf Life

One year from date of receipt by customer when stored at 4°C - 38°C (40°F - 100°F) and 0-95% relative humidity. Optimum storage conditions are 22°C (72°F) and 50% relative humidity.

# Data Sheet 4229P

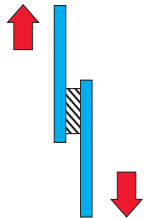
Page 2

## Physical Properties

Values shown are typical values not to be used for specification purposes.

Foam:	Dark Gray Acrylic
Adhesive:	Liner Side: AR7 High Performance Acrylic Non-liner Side: DS4 High Performance Acrylic
Thickness:	0.76 mm (0.030 in.)
Range:	min. 0.68 mm (0.027 in.) max. 0.84 mm (0.033 in.)
Density:	688 kg/m <sup>3</sup> (43 lb/ft <sup>3</sup> )
Range:	min. 608 kg/m <sup>3</sup> (38 lb/ft <sup>3</sup> ) max. 768 kg/m <sup>3</sup> (48 lb/ft <sup>3</sup> )
Release Liner:	Red Polyethylene - 3M Logo Printed
Roll widths:	min. 4 mm (0.157 in.)
Roll Lengths:	For widths less than 8 mm (0.314 in.): Up to 98.8 m (108 yds.). For widths between 8 - 9.5 mm (0.314 - 0.375 in.): Up to 131.6 m (144 yds.). For widths greater than 9.5 mm (0.375 in.): Up to 160 m (175 yds.)

## Performance Properties



Performance tests are run using standard test procedures. The values presented are typical values not to be used for specification purposes.

### 1. Breakaway and Continuing Peel

72 hrs. at 22°C (72°F)      Breakaway Peel 8.6 kg (19 lbs.)  
Continuing Peel 4.1 kg (9 lbs.)

Breakaway and Continuing Peel tests are run with 12.7 mm (0.5 in.) wide tape on PVC test bars. Tests were run on base coat/clear coat paint at a separation rate of 305 mm/min. (12 in./min.).

### 2. Static Shear

Exceeds 100 hours at 70°C (158°F).  
Static shear tests are run with 12.7 mm (0.5 in.) wide by 50.8 mm (2 in.) long tape on PVC test bars. 6.8 kg (15 lbs.) roll-down against stainless steel. Static weight is 250 gm (0.55 lbs.).

**Many plastic substrates can be difficult to adhere to and may require the use of a 3M™ Adhesion Promoter to ensure a reliable bond. Please contact 3M Automotive Technical Service or Sales for assistance with application questions.**

**Warranty and Limited Remedy:** This product will be free from defects in material and workmanship at the time of shipment. 3M MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's application. If this product is defective, your exclusive remedy and 3M's and seller's sole obligation shall be, at 3M's option, to replace the product or refund the purchase price.

**Limitation of Liability:** Except as provided above, 3M and seller will not be liable for any loss or damage arising from or related to the use or inability to use this 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted.

# 3M

Automotive Division

3M Center, Building 223-1S-02  
St. Paul, MN 55144-1000  
www.3MAutomotiveTape.com



Minimum 10% Post Consumer Fiber  
Printed in USA  
© 3M 2004 75-3467-4643-3



QS 9000  
File No. A1021

## PCB板材质证明

製造商或 供應商名稱.	物料品名 或型號	物料組成	物料組成元素	CAS No.	組成元素重量 百分比 (%)	使用該物質(元素) 的目的
九江	LPI1ED18/S- 250	PI膜	聚脂膜 (PI)	128280-59-1	22%	基膜
		胶粘剂	改性环氧树脂(ad)	25036-25-3	13%	粘合
		铜箔	电解铜箔 (Cu)	7440-50-8	65%	基材
	LPI0.5ED18/S- 250	PI膜	聚脂膜 (PI)	128280-59-1	14%	基膜
		胶粘剂	改性环氧树脂(ad)	25036-25-3	14%	粘合
		铜箔	电解铜箔 (Cu)	7440-50-8	72%	基材

4. MSDS

**江阴凯博通信科技有限公司**  
**JIANGYIN KAIBO COMMUNICATION TECHNOLOGY CO., LTD.**  
**Material Safety Data Sheet (物质安全资料表)**

一、 物品与厂商资料

物品名称：同轴高频线

物品编号：KB113 系列

制造商或供货商名称、地址：江阴市凯博通信科技有限公司/江苏省江阴市澄江镇梅园大街 391 号

紧急联络电话/传真电话：0510-86070001/86070020

二、 成分辨识资料

纯物质：

中英文名称：聚全氟乙丙烯 FLUORINATED PROPYLENE ETHYLENE/镀银铜线 Cu-silver plated/镀锡线 TINNED COPPER

同义名称：FEP/SC/TX

危害物质成分(成分百分比)：无

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	≤90	
镉及其化合物 Cd	≤75	
汞及其化合物 Hg	≤1000	
六价铬及化合物	≤1000	
卤素	氯 Cl ≤900	氯 Cl+溴 Br ≤1500
	溴 Br ≤900	
SVHC15 种物质	禁止使用	

三、 危害辨识数据

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：物理化学性能及其稳定，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
对急救人员之防护：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设备：防毒面罩

#### 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：避免与高温和火源接触。
储存：通风干燥处。

#### 八、暴露预防措施

工程控制：无
控制参数： · 八小时日时量平均容许浓度/短时间时量平均容许浓度/最高容许浓度： · 生物指标：
个人防护设备： · 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，不要让其附着于香烟上。

#### 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：/
自燃温度：/	爆炸界限：/
蒸气压：/	蒸气密度：/
密度：2.2	溶解度：/

#### 十、安定性及反应性

安定性：很稳定
特殊状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

急毒性： /  
局部效应： /  
致敏感性： /  
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处理公司处置。

#### 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、其它数据

参考文献	杜邦产品说明/SONY 限用物资标准
制窗体位	名称： 江阴凯博通信科技有限公司
	地址/电话： 江阴市澄江街道梅园大街 391 号/0510-86070017
制表人	姓名(签章)： 庄科洁
制表日期	2011/11/3

# 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 :  $\{ \text{C}_{10}\text{H}_{16}\text{O}_2 \}_n$   
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, 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

## MATERIAL SAFETY DATA SHEET

MSDS FILE No. (KURAMI WORKS) : 05-1225

(based on Form OSHA-174)

IDENTITY ( AS Used on Label and List )

Product Class : Phosphor Bronze Strip  
 Trade Name : JIS H3130 C5210R (Equivalent to ASTM B103 C52100)  
 CAS No. : Copper: 7440-50-8, Tin: 7440-31-5, Phosphor: 7723-14-0  
 Chemical Composition

	Content(wt-%)	CAS No.
Tin(Sn)	7.0~9.0	7440-31-5
Phosphor(P)	0.03~0.35	7723-14-0
Copper(Cu)	Balance	7440-50-8
Sn+P+Cu	99.7 $\leq$	-

## Section I

Manufacturer's Name NIKKO METAL MANUFACTURING CO., LTD. KURAMI WORKS	Date Prepared May 24th, 2005
Address 3 Kurami Samukawa-cho Kouza-gun Kanagawa prefecture 253-0101 JAPAN	Signature of Person in Charge <i>Chihiro Izumi</i> IZUMI, Chihiro Senior Technical Supervisor, Quality Assurance
Telephone Number for Information (Quality Assurance) +81-467-75-7285	Signature of Person Responsible <i>Hiroaki Watanabe</i>
Facsimile Number for Information (Quality Assurance) +81-467-74-6971	WATANABE, Hiroaki Manager, Quality Assurance Section

## Section II Hazardous Ingredients / Identity Information

Hazardous Components (Specific Chemical Identity : Names OSHA PeI ACGIH TLV)

Nothing for ordinary service condition

## Section III Physical / Chemical Characteristics

Boiling Point 2630 °C for Copper 2275 °C for Tin	Specific Gravity (H2O = 1) 8.80
Vapor Pressure (mmHg) N/A	Melting Point 1025 deg. centi. for C5210 Phosphor Bronze
Vapor Density (Air = 1) N/A	Evaporation Rate (Butyl Acetate = 1) N/A
Solubility in Water N/A	
Appearance and Odor Brown - Red (solid) : Odor - None	

## Section IV Fire and Explosion Hazard Data

Flash Point (Method Used) N/A	Flammable Limits N/A	LEL N/A	UEL N/A
Extinguishing Media N/A ( stable , nonflammable substance )			
Special Fire Fighting Procedures Not specified			
Unusual Fire and Explosion Hazards Metal products do not present fire or explosion hazards under normal conditions.			



**Section V Reactivity Data**

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid )

Nothing

Hazardous Decomposition or Byproducts

Nothing

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

**Section VI Health Hazard Data**

Route(s) of Entry :	Inhalation ?	Skin ?	Ingestion ?
	N/A	N/A	N/A

Health Hazardous (Acute and Chronic )

N/A

Carcinogenicity :	NTP ?	IARC Monographs ?	OSHA Regulated ?
	N/A	N/A	N/A

Signs and Symptoms of Exposure

N/A

Medical Conditions

Generally Aggravated by Exposure

N/A

Emergency and First Aid Procedures

N/A

**Section VII Precautions for State Handling and Use**

Steps to Be Taken in Case Material Is Released or Spilled

N/A

Waste Disposal Method

Collect scrap for remelting.

Precautions to Be Taken in Handling and storing

**For Handling**

- Put safety gloves on to protect your hands from edges of coils which might cut your hands.
- Wear safety glasses when metal powders or chips are expected to be generated in the work.
- Put safety shoes on when handling heavy coils.

**For Storing**

- The environment of stocking area should be free from acid, alkali, chloride, sulfide and other corrosive chemicals to prevent from rusting or corrosion.

Other Precautions

No special requirements

**Section VIII Control Measures**

Respiratory Protection (Specify Type )

Wearing a mask be recommended in the work such as abrasion and buffing which generates metal powders or chips.

Ventilation	Local Exhaust	Special
	None	None
	Mechanical (General )	Other
	None	None

Protective Gloves

Put safety gloves on to protect your hands from edges of coils which might cut your hands.

Eye Protection

Wear safety glasses when metal powder is expected to be generated in the work.

Other Protective Clothing or Equipment

Put safety shoes on when handling heavy coils.

Work / Hygienic Practices

None

Influence to environments

Fish on toxicity : TLm 48 hr. on CuSO4

Salmogairdeneri : 0.038 ~ 0.8 ppm

Oryzias Latipes : 2.1 ~ 24ppm

## Material Safety Data Sheet

### 1. Manufacturer

- Company HARADA Metal Industry Co., Ltd.
- Address 10-18 Sasamekitamati, Toda, Saitama 335-0033, Japan  
TEL 048-422-1588  
FAX 048-449-6303
- Counter The domestic business department business primary and second section  
TEL 048-441-5115  
FAX 048-444-9104  
The domestic business department OSAKA service office  
TEL 06-531-8094  
FAX 06-531-8096  
The domestic business department NAGOYA service office  
TEL 052-821-9778  
FAX 052-822-7500  
The overseas business department export section  
TEL 048-441-5115  
FAX 048-444-9104
- Urgent place to contact  
The quality assurance department  
TEL 048-422-1588  
FAX 048-449-6303

### 2. Products

- Phosphor bronze plates and strips for springs
- Phosphor bronze plates and strips

### 3. Specification of the material

- The division of mixture or single product : Single product
- The chemical name : Copper alloy
- Chemical composition and content rate( wt.%)

Element	Percent					CAS No.
	C5210	C5212	C5191	C5102	C5111	
Copper	rem.	rem.	rem.	rem.	rem.	7440-50-8
Tin	7.0~9.0	7.0~9.0	5.5~7.0	4.5~5.5	3.5~4.5	7440-31-5
Phosphorus	0.03~0.35	0.03~0.35	0.03~0.35	0.03~0.35	0.03~0.35	7723-14-0
Lead	0.05 max	0.05 max	0.05 max	0.05 max	0.05 max	7439-92-1
Iron	0.1 max	0.1 max	0.1 max	0.1 max	0.1 max	7439-89-6
Zinc	0.2 max	0.2 max	0.2 max	0.2 max	0.2 max	7440-66-6

### 4. Classification of harmfulness

- The name of classification : Not classified into the dangerous harmfulness material.
- The danger : No knowledge
- The harmfulness : No knowledge
- The effect for the environment : No knowledge

### 5. First aid

- Eyes : Flush the water. Consult the doctor, when the simulation of the eye continues.
- Skin : Flush the water.
- Inhalation : Consult the doctor, when it was large inhaled.

### 6. The treatment in the fire

- Nonflammable.

### 7. Leakage

- Not applied (because of solid)

### 8. Attention in handling and storage

- Stored at the ordinary—temperature and usual humidity.
- Prohibition of the rapid temperature and humidity change.

9. Treatment on the exposure prevention

- Standard control concentration : Not regulated.
- Allowable temperature : Not regulated.
- Facility countermeasure : The whole ventilation is desirable.
- Protector : For lung ,the wear of protection mask is desirable for the power handling.  
For hand ,the wear of protective glove is desirable.  
For eyes ,the wear of safety goggles is desirable for the power handling.  
For body , the wear of protective clothing is desirable.

10. Physical and chemical characteristic

- Appearance and smell : The solid with the metallic luster. Odoless.
- Boiling point : The indistinctness.
- Solubility : Dissolves in the inorganic acid.

	C5210	C5212	C5191	C5102	C5111
Specific gravity	8.82	8.82	8.85	8.88	8.90
Melting point	1020°C	1020°C	1045°C	1050°C	1060°C

11. Information for danger

- Fire point : The indistinctness.
- Stability : Show the stability at room temperature and in the air.
- The situation to be avoided : —

12. Information for harmfulness

- The powder stimulates eyes , skin and bronchi.
- Produce the ulcer and the hepatic disorder rarely.

13. Information for environment

- No knowledge.

14. Attention for scrapping

- Possible to deal with ,as an industrial waste.

15. Attention for transportation

- No damage transportation is desirable.

16. Applying act

- —