



东莞市一佳电子通讯科技有限公司

Dongguan Yijia Electronics Communication Technology Co.,Ltd.

# 规 格 承 认 书

## SPECIFICATION FOR APPROVAL

日期 2024/04/15  
Date \_\_\_\_\_  
编 号 24041501  
File No. \_\_\_\_\_  
版 本 1.0  
Revision \_\_\_\_\_

客 户 CUSTOME: 嘉松电子

客户料号 CUSTOMER NO: 显示器display

品 名 PART NAME: 2.4GHz Antenna L=107mm MHF

供方料号 SUPPLIER NO: YJL01.205.001.301A

送样日期 Date: 送样数量 Q'TY:

客户确认 CUSTOMER APPROVED BY

APPROVAL	CHIEF	SUPERVISOR

供方确认 SUPPLIER SIGNATURE

APPROVAL  ChenGuoqiang	CHECK XieLi	DESIGN ChenXingyi
---	----------------	----------------------

YJ-RD-F04-A

add: 东莞市长安镇沙头社区木鱼路59号元富工业区 Tel:0769-82586086 Fax:0769-82586086



# 承认书项目表

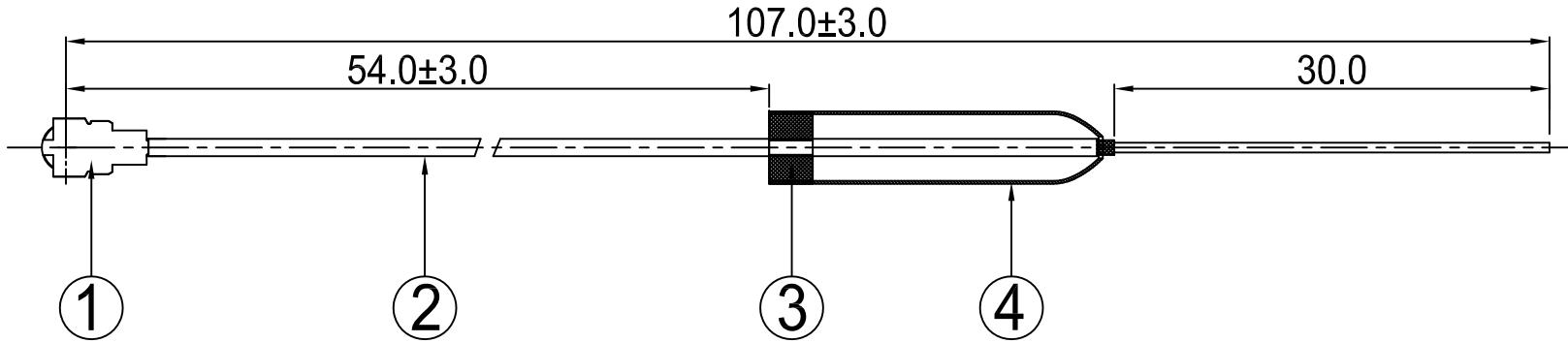
NO .	内 容 (Contents)	页 数 (Number of Page)	页 码 (Page Code)
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11	N/A	N/A	N/A
12	-	-	-
13	-	-	-

**RoHS**

Compatible

CUSTOMER	
PART NO	

REV.	DESCRIPTION	DATE
▲	首次发行	2024-03-09



东莞市一佳电子通讯科技有限公司  
Dongguan Yijia Electronics Communication Technology Co.,Ltd. Tel:0769-82586086 Fax:0769-82586086

PART NAME: 2.4GHz Antenna L=107mm MHF

PART NO.: YJL01.205.001.301A DATE: 2024-03-09

APPROVED BY	CHECKED BY	DESIGNED BY	Tolerance
何清军	周颖杰	廖光喜	X.X ±0.50 X.XX±0.15 X° ±3°

NO	PART NAME	DESCRIPTION	Material	Part Number	Q.TY
4	Copper Tube	Ø5.0*23.0mm	Cu Si Plated	COP10120A.P01	1
3	EVA	Ø5.0*T4.0mm	EVA	EVA100XXA.P01	1
2	Coaxial Cable	O.D.1.13 Black	O.D.1.13	COA10001A.P01	1
1	Mini Connector	Au Plated 1代	Cu	TER10001A.P01	1



# 天线规格

## Antenna Specification

### Electrical Properties

Frequency	2.4-2.5GHz
Impedance	50 Ohm Nominal
V.S.W.R	2.0 Max
Gain	3.2 dBi
Radiation	Omni-directional
Polarization	Linear

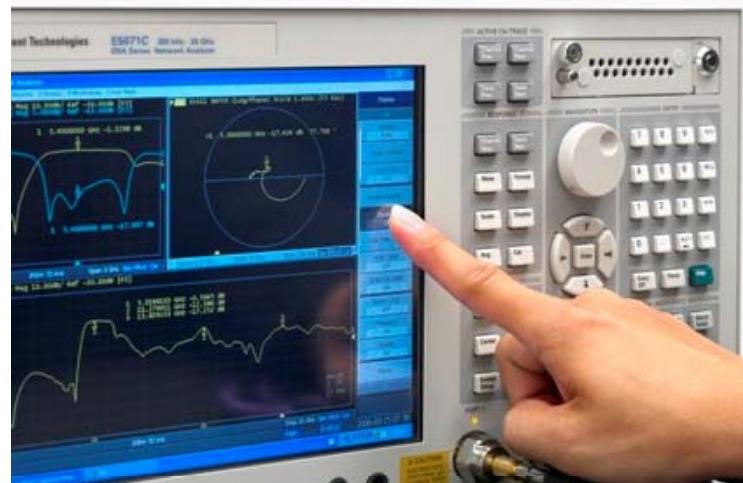
### Physical Properties

Connector	1代IPEX
Cable Type	O.D.1.13mm
Cable Length	107mm
Cable Color	Black
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

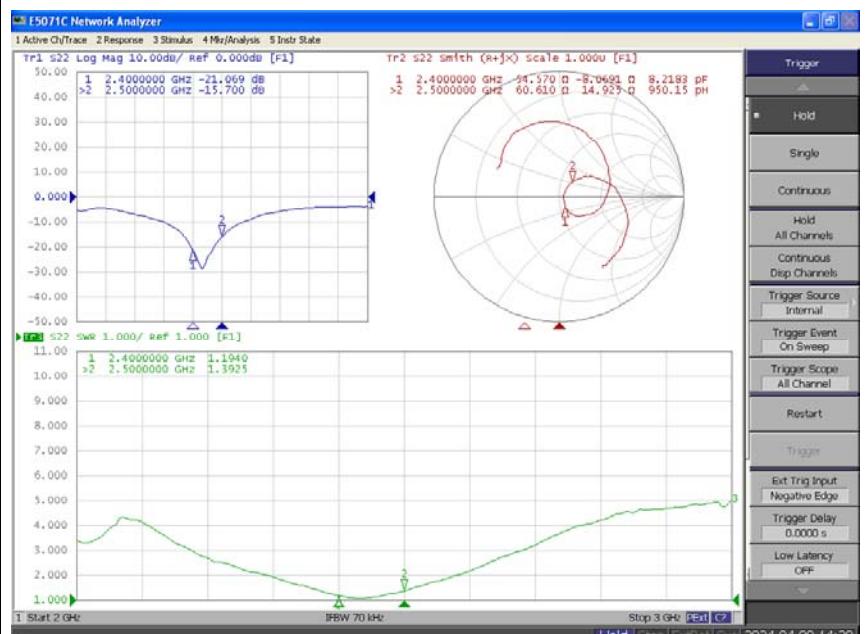


# Antenna Performance Test

*Agilent  
E5071B*

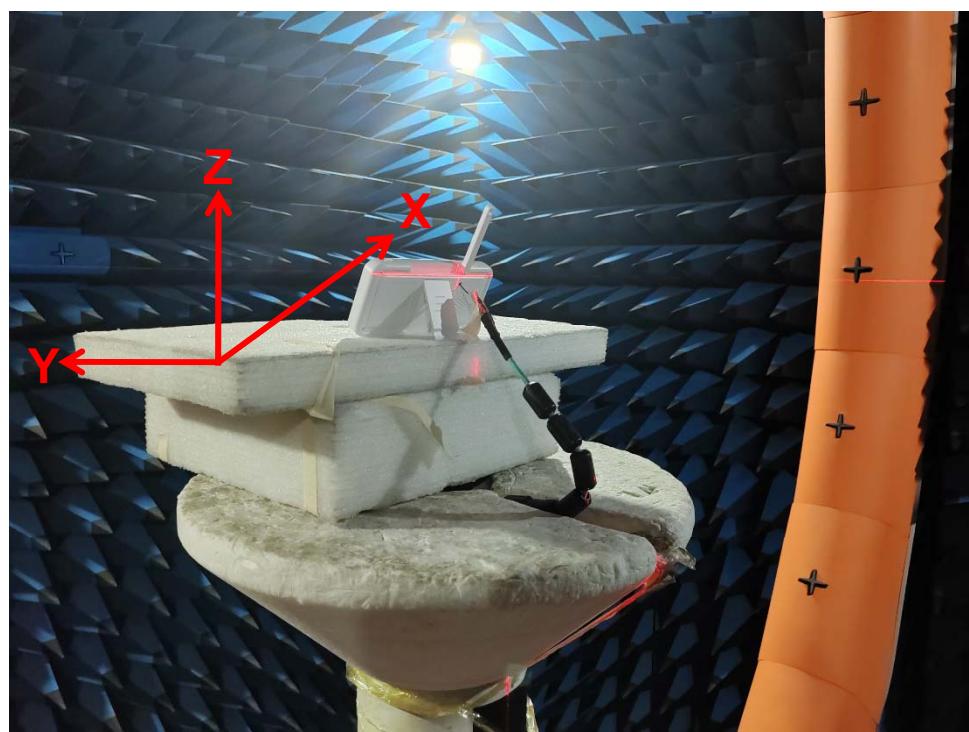
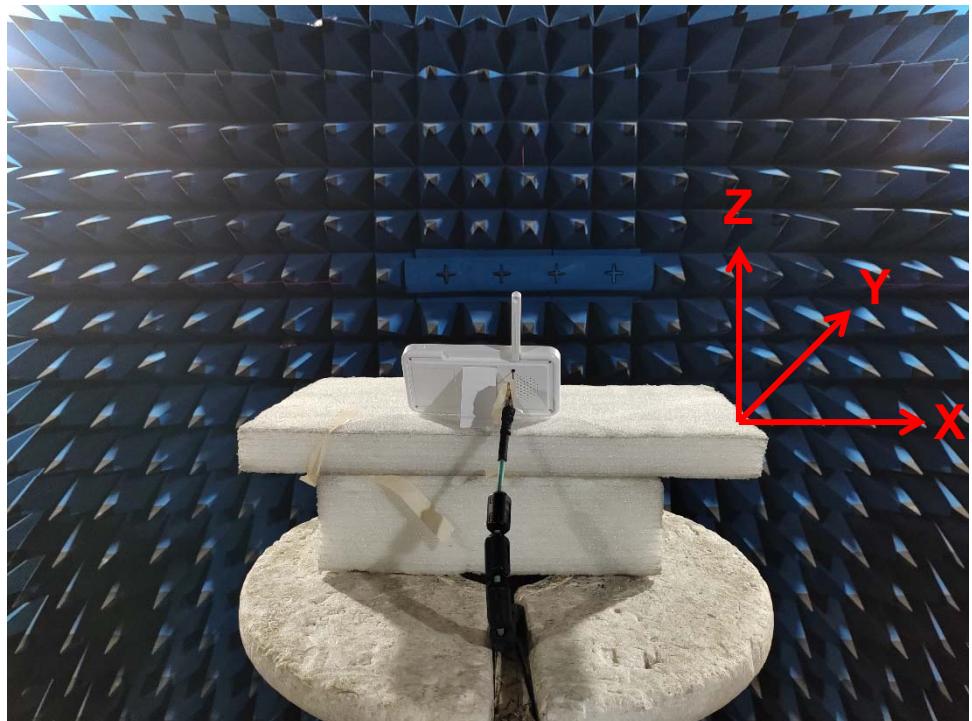


*S  
Parameter  
Test //  
WIFI  
Antenna*





## Antenna Passive Test





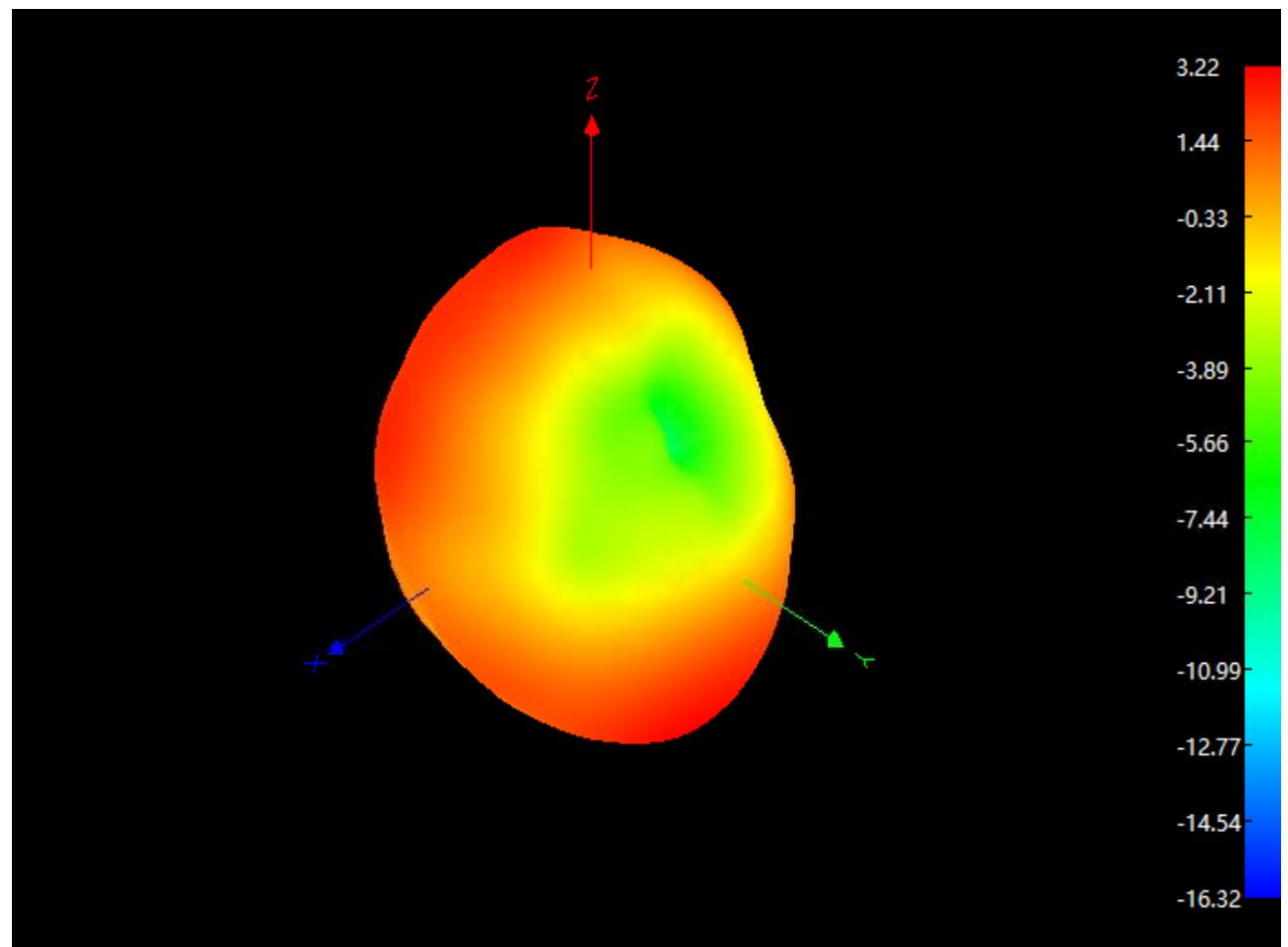
### Passive Test For WiFi Antenna(2.4G)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	75.9	-1.2	3.0
2410	76.0	-1.2	2.9
2420	73.5	-1.3	2.5
2430	71.6	-1.5	2.6
2440	71.6	-1.5	2.8
2450	75.0	-1.3	3.2
2460	71.9	-1.4	3.1
2470	74.3	-1.3	3.2
2480	72.6	-1.4	2.9
2490	73.0	-1.4	3.0
2500	68.4	-1.7	2.7

add: 东莞市长安镇沙头社区木鱼路59号元富工业区 Tel:0769-82586086 Fax:0769-82586086



## Radiation Pattern For WiFi Antenna(2450MHz)





## *Device*



## *WIFI Antenna*





**WiFi Antenna**

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：KB113/50 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/镀锡线 TINNED COPPER/镀银铜线 /Silver plated Copper

同义名称：FEP/TX/SC

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	$\leq 90$	
镉及其化合物 Cd	$\leq 75$	
汞及其化合物 Hg	$\leq 1000$	
六价铬及化合物	$\leq 1000$	
卤素	氯 Cl $\leq 900$	氯 Cl+溴 Br $\leq 1500$
溴 Br $\leq 900$		
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°C 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

**个人应注意事項:** 粉状树脂

**环境注意事項:** 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
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颜色: 透明	气味: 无
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pH 值: 7	沸点/沸点范围: /
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分解温度: 360°C	闪火点: /
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自燃温度: /	爆炸界限: /
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蒸气压: /	蒸气密度: /
--------	---------

密度: 2.2	溶解度: /
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## 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：江阴市城东街道东定路83号/0510-86070012
制 表 人	姓名(签章)：董英畅
制表日期	2023/11/12

# 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

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## 2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE/PREPA : Preparation  
RATION  
COMMON : Polybutyleneterephthalate  
CHEMICAL NAME  
SYNOMYS : Polybutyleneterephthalate(PBT)  
INGREDIENTS AND : PBT $\geq$ 80%, Phosphorus Flame retardant and others  $\leq$ 20%  
COMPOSITION  
CHEMICAL :  $\{ -C_6H_4-C_6H_4-C_6H_4-C_6H_4 - \}_n$   
FORMURA  
SERIAL № IN : 7-1039 (base resin)  
OFFICIAL GAZETTE : (Law Concerning Examination and Regulation of Manufacture,etc.,of  
Chemical Substances)  
CAS № : 2 4 9 6 8 – 1 2 – 5 (base resin)

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## 3. HAZARDS IDENTIFICATION

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

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## 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.

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## 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.

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## 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.

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## 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.

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## 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**

<b>RESPIRATORY PROTECTION</b>	: Wear a dust-proof mask.
<b>EYE PROTECTION</b>	: Wear protective glasses or goggles.
<b>HAND PROTECTION</b>	: Wear heat-resisting gloves against burns, when handling molten polymer.
<b>SKIN &amp; BODY PROTECTION</b>	: Wear long sleeve clothes against burns, when handling molten polymer.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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

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**10. STABILITY AND REACTIVITY**

<b>STABILITY AND REACTIVITY</b>	: Stable for normal storage or handling.
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**11. TOXICOLOGICAL INFORMATION**

<b>SKIN CORROSIVE PROPERTIES</b>	: No finding.
<b>SENSITIZING &amp; IRRITANT EFFECTS</b>	: Gas generated in drying or melting is irritating eyes and skins.
<b>ACUTE TOXICITY(INCLUDIN G LD50)</b>	: No finding.
<b>SUBACUTE TOXICITY</b>	: No finding.
<b>CHRONIC TOXICITY</b>	: 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 example)

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

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## 12. ECOLOGICAL INFORMATION

BIODEGRADABILITY : No finding.

BIOACCUMULATION : No finding.

FISH TOXICITY : No finding.

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## 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.

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## 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

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## 15. REGULATORY INFORMATION

WASTE DISPOSAL : Waste plastics among industrial wastes.  
LAW

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## 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.

To I-PEX Co.,Ltd

## MATERIAL SAFETY DATA SHEET

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

(based on Form OSHA-174)

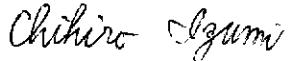
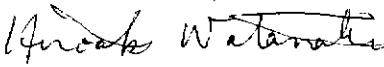
### IDENTITY ( AS Used on Label and List )

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≤	-

### 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  IZUMI, Chihiro Senior Technical Supervisor, Quality Assurance
Telephone Number for Information (Quality Assurance) +81-467-75-7285	Signature of Person Responsible  WATANABE, Hiroaki Manager, Quality Assurance Section
Facsimile Number for Information (Quality Assurance) +81-467-74-6971	

### Section II Hazardous Ingredients / Identity Information

Hazardous Components (Specific Chemical Identity : Names OSHA Pel 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
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### 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
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## 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	7439-92-1				
Iron	0.1 max	7439-89-6				
Zinc	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

- —

化学品安全技术说明书 (MSDS)  
Material safety data sheet (MSDS)

产品名称 **Product Name:** 黄铜带 Brass Strip H65 (C2680)

编制依据 **Compilation basis:** GB/T16483、GB/T17519、GB30000.2-2013~B30000.29-2013

编号 **No.:** BHXPAQSMS2106211637

编制日期 **Created Date:** 2021-06-21

第一部分化学品及企业标识

**Part I chemicals and enterprise identification**

**化学品信息 Chemical information**

样品中文名称 **Sample Chinese Name:** 黄铜带 Brass Strip H65 (C2680)

俗名或商品名 **Common name or trade name:** 黄铜带 Brass Strip

推荐用途 **Recommended use:** 主要用于生产电器元件、灯头、电池帽、纽扣、端子件、深冲件、接插件、散热片等。 mainly used for the production of electrical components, lamp heads, battery caps, buttons, terminals, deep drawing parts, connectors, heat sinks, etc.

限制用途 **Restricted use:** 无资料 No information

**企业信息 Enterprise information**

企业名称 **Enterprise name:** 温州元鼎铜业有限公司 WENZHOU YD COPPER Co., Ltd.

地址 **Address:** 浙江省苍南县龙港镇龙港城东工业区世纪大道 4555 号。4555 Century Avenue, East Industrial Zone, Longgang Town, Cangnan County, Zhejiang Province.

邮政编码 **Postal:** 325802

电话号码 **Phone number:** +86(577)68002995

应急电话 **Emergency phone number:** +86(577)68002995

传真 **Fax:** +86(577)68002987

电子邮件地址 **Email:** [wjf\\_email@163.com](mailto:wjf_email@163.com)

第二部分危险性概述

**Part II hazard overview**

**紧急情况概述 Emergency overview:** 散装固体不易燃，但粉状物可能会点燃。接触铜烟会刺激上呼吸道、刺激眼睛、鼻子和喉咙。这种物质可能对生生生物有毒，可能具有生物富集性。 bulk solids are not flammable, but powder may ignite. Exposure to copper smoke can stimulate the upper respiratory tract, eyes, nose and throat. This substance may be toxic to biological organisms and may be bioaccumulative.

**GHS 危险性类别 GHS hazard category:**

急性毒性 (口服) **Acute toxicity (oral):** 类别 Category 4

严重眼损伤/眼刺激 **Severe eye injury / eye irritation:** 类别 category 2A

特异性靶器官毒性 **Specific target organ toxicity:** 单次接触 single exposure: 类别 Category 3 (呼吸道刺激 respiratory tract stimulation)

特异性靶器官毒性 **Specific target organ toxicity:** 反复接触 repeated exposure: 类别 Category 1 (肝脏 liver)

**标签要素 Label elements:**

**象形图 Pictogram:**

信号词 **Signal word:** 危险 Danger



**危险性说明 Hazard Description:**

H302 吞咽有害。Harmful if swallowed.

H319 造成严重眼刺激。Causes severe eye irritation.

H335 可能造成呼吸道刺激。May cause respiratory irritation.

H372 长期或反复接触会对器官造成损害(肝脏)。Long term or repeated exposure can cause damage to organs (liver).

**防范说明 Precautions:****预防措施 Preventive measures:**

P260 不要吸入粉尘和烟。Do not inhale dust and smoke.

P280 戴防护眼罩/戴防护面具。Wear eye protection / mask.

P264 作业后彻底清洗皮肤和衣物。Wash skin and clothes thoroughly after operation.

P270 使用本产品时不要进食、饮水或吸烟。Do not eat, drink or smoke when using this product.

P271 只能在室外或通风良好之处使用。Can only be used outdoors or in a well ventilated place.

**事故响应 Accident response:**

P304+P340 如误吸入 If inhaled by mistake: 将受害人转移到空气新鲜处,保持呼吸舒适的休息姿势。transfer the victim to fresh air and keep a comfortable rest position.

P314 如感觉不适,须求医/就诊。 Seek medical attention if you feel unwell.

P305+P351+P338 如进入眼睛,用水小心冲洗几分钟,如戴隐形眼镜并可方便取出,取出隐形眼镜,继续冲洗。If the eye is clear, rinse it carefully with water for a few minutes. If the contact lens is worn and can be easily removed, take out the contact lens and continue to rinse.

P337+P313 如仍觉得眼刺激: 求医/就诊。If you still feel eye irritation: seek medical attention.

P301+P310 如误吞咽:立即呼叫解毒中心或医生。If swallowed by mistake: call detoxification center or doctor immediately.

P330 漱口。Gargle.

**安全储存 Safe storage:**

P403+P233 存放在通风良好的地方,保持容器密封。Should be stored in a well ventilated place,keep the container sealed.

P405 存放处须加锁。Storage must be locked.

**废弃处置 Waste disposal:**

P501 按照地方国家处置内装物和容器。Dispose of contents and containers in accordance with the local state.

**物理和化学危险 Physical and chemical hazards:** 散装固体不易燃,但粉状物可能会点燃。bulk solids are not flammable, but powders may ignite.

**健康危害 Health hazards:** 接触铜烟会刺激上呼吸道、刺激眼睛、鼻子和喉咙,可能发生皮肤刺激或皮疹。exposure to copper smoke can irritate the upper respiratory tract, eyes, nose and throat, and may cause skin irritation or rash.

**环境危害 Environmental hazards:** 这种物质可能对水生生物有毒,可能具有生物富集性。This substance may be toxic to aquatic organisms and may have bioaccumulation.

**第三部分成分/组成信息****Part III composition / composition information**

该化学品属于混合物

The chemical is a mixture

组分 Components	CAS No.	浓度或浓度范围 (质量分数%) Concentration or concentration range (%)
铜 Copper	7440-50-8	64.16
锌 Zinc	7440-66-6	35.8277
铁 Iron	7439-89-6	0.0082
铅 Lead	7439-92-1	0.0041

## 第四部分急救措施

### Part IV first aid measures

#### 急救 First aid

##### 吸入 Inhalation:

如误吸入 If inhaled by mistake: 将受害人转移到空气新鲜处, 保持呼吸舒适的休息姿势。Transfer the victim to a place with fresh air and keep a comfortable rest position.

如仍感觉不适, 须求医/就诊。If you feel unwell, seek medical advice.

##### 皮肤接触 Skin contact:

如出现皮肤沾染: 用大量肥皂和流水清洗。In case of skin contamination: wash with plenty of soap and running water.

如发生皮肤刺激或皮疹: 求医/就诊。If skin irritation or rash occurs: seek medical attention.

##### 眼睛接触 Eye contact:

如进入眼睛: 用水小心冲洗几分钟。如戴隐形眼镜并可方便取出, 取出隐形眼镜。继续冲洗。If in eyes: Rinse carefully with water for a few minutes. If you wear contact lenses and can easily take them out, take them out. Continue flushing.

如仍觉眼刺激: 求医/就诊。If you still feel eye irritation: seek medical attention.

##### 食入 Ingestion:

如误吞咽: 立即呼叫解毒中心或医生。If swallowed by mistake: call the detoxification center or doctor immediately.

漱口。Gargle.

**急性和迟发性效应 Acute and delayed effects:** 详细信息见第十一部分。 see Part XI for details.

**主要症状 Main symptoms:** 详细信息见第十一部分。 See Part XI for details.

**健康影响 Health effects:** 详细信息见第十一部分。 See Part XI for details.

**对保护施救者的忠告 Advice to protect the rescuer:** 按照第八部分的指示, 使用适当的保护设备。Use appropriate protective equipment as directed in Section 8.

**对医生的特别提示 Special tips for doctors:** 对症治疗。确保医务人员了解相关材料并采取预防保护措施。Symptomatic treatment. Ensure medical staff understand relevant materials and take preventive measures.

## 第五部分消防措施

### Part V fire protection measures

#### 灭火剂 Fire extinguishing agent

**适用灭火剂 Suitable extinguishing agent:** 金属粉尘引起的火灾需用沙子、石墨粉、干燥氯化钠为基质灭火剂。the fire caused by metal dust needs sand, graphite powder and dry sodium chloride as matrix extinguishing agent.

#### 不适用灭火剂 Unsuitable extinguishing agent:

水和二氧化碳 Water and carbon dioxide

**卤代型灭火介质 Halogenated fire extinguishing medium**

不准将连续的水流或泡沫射向高温的正在燃烧的熔融物料，这会导致飞溅，同时令火势蔓延。It is not allowed to shoot continuous water or foam into high temperature burning molten materials, which will lead to splash and fire spread.

**特别危险性 Special risk:****金属粉末 Metal powder:**

通常被认为是不可燃的：当金属被精细分割并且能量输入很高时可能燃烧。It is generally considered nonflammable: when the metal is finely divided and the energy input is high, it may burn.

可能与水发生爆炸性反应。It may react explosively with water.

可以与二氧化碳发生反应，产生易燃、易爆的甲烷气体。It can react with carbon dioxide to produce flammable and explosive methane gas.

可能被摩擦、热量、火花或火焰点燃。May be ignited by friction, heat, sparks or flames.

火灾扑灭后可以重新燃起。The fire can be rekindled after being put out.

会被高温灼伤。You'll get burned by the heat.

该物质与酸反应能生成易燃且具有爆炸性的氢气 (H<sub>2</sub>) The substance reacts with acid to produce flammable and explosive hydrogen (H<sub>2</sub>)

分解有可能产生有毒烟雾 Decomposition may produce toxic smoke:

氮氧化合物 Nitrogen oxides (NO<sub>x</sub>)

可能释放有毒烟雾。oxic fumes may be released.

**灭火方法 Fire fighting method:**

通知消防部门，并告知事故位置与危害特性。Inform the Fire Department of the accident location and hazard characteristics.

发生火灾时，佩戴呼吸防护装置及防护手套。In case of fire, wear respiratory protection device and protective gloves.

采取一切可能的措施防止溢出物进入下水道或水道。Take all possible measures to prevent spills from entering sewers or waterways.

采用适合于周围环境的灭火程序。Adopt fire extinguishing procedures suitable for the surrounding environment.

不要靠近可能灼热的容器。Keep away from containers that may be hot.

从有防护的位置喷水以便冷却暴露于火灾中的容器。Spray water from a protected location to cool containers exposed to fire.

在安全的前提下，将容器从火场中移出。Remove the container from the fire site on the premise of safety.

使用后彻底清洗设备。Clean the equipment thoroughly after use.

**消防员防护装备 Protective equipment for firefighters:**

穿制造商特别推荐的化学防护服。这些防护服不能或仅能部分隔热。Wear chemical protective clothing specially recommended by the manufacturer. These protective clothing cannot or can only partially insulate against heat.

一般消防防护服只能在火灾场所提供有限的防护作用，在泄漏场所达不到防护效果。The general fire protection clothing can only provide limited protection in the fire place, but can not achieve the protection effect in the leakage place.

佩戴自供正压式呼吸器 (SCBA) Wear self supplied positive pressure respirator (SCBA)

带正压式呼吸器 (SCBA) 的全式消防服。Full style fire suit with positive pressure breathing apparatus (SCBA).

## 第六部分泄漏应急处理

### Part VI accidental release measures

**作业人员防护措施、防护装备和应急处置程序:** 见第八部分。Protective measures, protective equipment and emergency disposal procedures for operators: See Part VIII.

**环境保护措施:** 见第十二部分。Environmental protection measures: see Part 12.

**泄漏化学品的收容、清除方法及所使用的处置材料 Storage and removal methods of leaked chemicals and disposal materials used:**

#### 少量泄漏 Small leakage:

立即清除所有泄漏物。Remove all leaks immediately.

在安全许可下, 保证装备安全。Under the permission of safety, ensure the safety of wearing.

捆扎/收集可回收的产品。Bundling / collecting recyclable products.

将剩下的材料放入有盖的容器, 以便废弃处置。Place the remaining material in a covered container for disposal.

#### 大量泄漏 Massive leakage:

立即清除所有泄漏物。Remove all leaks immediately.

穿着防护服, 佩戴安全眼镜, 灰尘面罩, 手套。Wear protective clothing, safety glasses, dust mask and gloves.

安全情况下安全放置。收集捆扎可收回的物品。Safe place under safe condition. Collect and bundle recyclable items.

用水防尘, 避免产生灰尘。Use water to prevent dust.

使用真空吸尘器打扫(储存柜配有接地导线, 使用防爆设备)Use vacuum cleaner to clean (the storage cabinet is equipped with grounding wire and explosion-proof equipment)

将剩下的物品收集起来放入附有废弃包装的容器内。Collect the remaining items and put them into containers with waste packaging.

用水冲洗污染区域。Wash contaminated areas with water.

#### 防止次生灾害的预防措施 Preventive measures to prevent secondary disasters:

疏散区域内人员。Evacuate the area.

报告消防部门, 并告知事故地点和危害性。Report to the fire department and inform the location and hazard of the accident.

如有需要, 使用防护装设备以控制人员接触。If necessary, use protective equipment to control personnel contact.

防止溢出物进入下水道或水体。Prevent spills from entering sewers or water bodies.

用沙子、土或蛭石以吸附泄漏物。Use sand, soil or vermiculite to absorb the leakage.

回收可利用的物质, 放入贴有标签的容器中以便回收。Recyclable materials are put into labeled containers for recycling.

用沙子、土或蛭石吸收残留物质, 并放入适当的容器中, 以便废弃处置。Absorb the residue with sand, soil or vermiculite and place it in a suitable container for disposal.

冲洗改区域, 并防止流入下水道或水体。Flush the modified area and prevent it from flowing into sewers or water bodies.

如果进入下水道或水体被污染, 请报告应急部门。If entering sewer or water body is polluted, please report to emergency department.

## 第七部分操作处置与储存

### Part 7 handling and storage

#### 操作处置 Operation disposal:

防止所有接触，包括吸入。Prevent all contact, including inhalation.

戴防护眼罩/戴防护面具。Wear eye protection / mask.

在通风良好的区域使用。Use in a well ventilated area.

防止本品在低洼处汇集。Prevent the product from gathering in low-lying places.

未作空气检测，禁止进入封闭空间内。Do not enter the enclosed space without air detection.

禁止接触人体、食品或食品容器。Do not touch human body, food or food container.

避免接触不相容物料。Avoid contact with incompatible materials.

操作处置时，禁止进食、饮水或吸烟。When handling, do not eat, drink or smoke.

不使用时，保持容器安全密封。Keep the container safe and sealed when not in use.

防止容器受到物理损伤。Protect the container from physical damage.

操作完要用肥皂和清水洗手和脸。Wash hands and face with soap and water after operation.

工作服应单独洗涤。被污染的衣物在重新使用前要进行洗涤。Work clothes should be washed separately. Contaminated clothing should be washed before reuse.

遵从良好的职业工作规范。Follow good professional work practices.

遵从制造商有关储存和操作处置的建议。Follow manufacturer's recommendations for storage and handling.

定期检测作业场所有害物质浓度，遵从相应的标准，保证作业场所安全。Regularly detect the concentration of harmful substances in the workplace, and comply with the corresponding standards to ensure the safety of the workplace.

#### 储存 Storage:

存放在通风良好的地方。Store in a well ventilated place.

保持容器密闭。Keep container closed.

储存于原容器中。Store in original container.

采用防爆型照明、通风设施；按照制造商的建议包装。Explosion proof lighting and ventilation facilities are adopted; Pack according to manufacturer's recommendation.

检查所有容器是否有清晰的标签，无泄漏。Check all containers for clear labels and no leakage.

远离不相容物质（如下）、任何火源或热源（如明火、热表面）、饲料、饮料和食品。Keep away from incompatible substances (as follows), any fire or heat source (such as open fire, hot surface), feed, drink and food.

水 Water

强氧化剂 Strong oxidant

酸和碱 Acids and bases

卤代化合物(包括卤化灭火剂) Halogenated compounds (including halogenated fire extinguishing agents)

氧化铁(铁锈) Iron oxide (rust)

储存区应配备相应种类和数量的消防设备和应急设备。The storage area shall be equipped with corresponding types and quantities of fire fighting equipment and emergency equipment.

**第八部分接触控制和个体防护**  
**Part 8 exposure control and personal protection**

**职业接触限值 Occupational exposure limits:**

组分 Components	标准来源 Standard sources of lead	类型 Type	标准值 Standard value (mg/m <sup>3</sup> )	备注 Remarks
铜 Copper	GBZ2.1-2019	PC-TWA	铜尘 Copper dust 铜烟 Copper smoke 0.2	--
锌 Zinc	--	--	无可用数据 No data	--
铁 Iron	--	--	无可用数据 No data	--
铅 Lead	GBZ2.1-2019	PC-TWA	铅尘 Lead dust: 0.05 铅烟 Lead smoke: 0.03	G2B (铅 lead)

**临界不良健康效应 Critical adverse health effects:**

组分 Components	临界不良健康效应 Critical adverse health effects
铜 Copper	呼吸道、皮肤刺激；胃肠道反应；金属烟热 Respiratory tract and skin irritation; Gastrointestinal reaction; Metal smoke fever
锌 Zinc	无可用数据 No data
铁 Iron	无可用数据 No data
铅 Lead	中枢神经系统损害；周围神经损害；血液学效应 Central nervous system damage; Peripheral nerve damage; Hematological effect

**监测方法 Monitoring methods:**

组分 Components	生物监测指标 Biological monitoring index	职业接触生物限制 Biological restriction of occupational exposure	采样时间 Sampling time
铜 Copper	无可用数据 No data	--	--
锌 Zinc	无可用数据 No data	--	--
铁 Iron	无可用数据 No data	--	--
铅 Lead	血中铅 Lead in blood	2.0μmol/L (400μg/L)	接触三周后 Three weeks after contact

**工程控制 Engineering control:**

物品或制成品在其原始状态下,在搬运或正常使用过程中通常不需要工程控制。Engineering control is usually not required in the process of handling or normal use of an article or finished product in its original state.

金属粉尘具有潜在的爆炸性,必须在产生的源头收集。Metal dust is potentially explosive and must be collected at the source.

将排放源封闭和/或隔离开。Close and / or isolate the emission source.

应该使用有防火设计的真空吸尘器吸尘，以减少粉末积聚。Vacuum cleaner with fire-proof design should be used to reduce powder accumulation.

选择湿式清洗器比干燥式灰尘采集器更合适。Wet cleaner is more suitable than dry dust collector.

进行金属喷雾的车间应该设计成光滑墙面，尽量减少障碍物如壁架的存在，因为可能积聚粉尘。The workshop for metal spraying should be designed as a smooth wall to minimize obstacles such as the existence of the frame, because it may accumulate dust.

采用新风通风系统。设计需符合特定工艺以及使用的化学品或污染物。Fresh air ventilation system is adopted. The design needs to conform to the specific process and the chemicals or contaminants used.

作业场所应与其他作业场所分开。The workplace should be separated from other workplaces.

#### 个体防护装备 Personal protective equipment:

##### 呼吸系统防护 respiratory system protection:

保持工作场所通风，佩戴合适的防护口罩以减少呼吸系统接触。Keep the workplace ventilated and wear appropriate protective masks to reduce respiratory system contact.

大量泄漏时，穿戴化学防护服包括正压式呼吸器。Wear chemical protective clothing including positive pressure respirator in case of large leakage.

通风不足的情况下，可能需要使用呼吸器。In case of insufficient ventilation, a respirator may be required.

##### 眼睛防护 Eye protection:

带侧框保护的安全护目镜。Safety goggles with side frame protection.

化学护目镜 Chemical goggle

防毒面具可以代替安全护目镜和面罩。Gas masks can replace safety goggles and masks.

洗眼器 Eye washer

##### 皮肤和身体防护 Skin and body protection:

防护设备的类型必须根据特定工作场所中的危险物的浓度和含量来选择。The type of protective equipment must be selected according to the concentration and content of hazardous substances in the specific workplace.

保暴露于超过职业标准的有毒金属微粒时，需特种防护服，必要时，进行限制工作区。When exposed to toxic metal particles exceeding the occupational standard, special protective clothing is required. If necessary, restricted working area is required.

工作服。coverall.

P.V.C.围裙 apron

提供安全淋浴。Provide safety shower.

**手防护 Hand protection:** 轻质橡胶手套。light rubber gloves.

## 第九部分理化特性

### Part 9 physical and chemical properties

外观与性状: 黄铜色固体 Appearance and character: Brass solid	
项目 Project	说明 Explain
气味 Smell	无味 tasteless
pH 值 value	无数据 No data
熔点 Melting point range (°C)	无数据 No data
沸点 boiling point (°C)	无数据 No data
闪点 flash point (°C)	无数据 No data
爆炸极限 Explosion limit	无数据 No data
蒸气压 Vapor pressure	无数据 No data
蒸气密度 Vapor density(空气 air=1)	无数据 No data
密度/相对密度 Density / relative density (kg/m <sup>3</sup> )	8.47
溶解性 Solubility	无数据 No data
n-辛醇/水分配系数 N-octanol / water ratio material	无数据 No data
自燃温度 Spontaneous combustion temperature (°C)	无数据 No data
分解温度 decomposition temperature (°C)	无数据 No data
气味阈值 Odor threshold	无数据 No data
蒸发速率 Evaporation rate	无数据 No data
易燃性(固体、气体)Flammability (solid, gas)	Not applicable

## 第十部分稳定性和反应性

### Part 10 stability and reactivity

**稳定性 Stability:** 与不相容的物质存在不稳定性。见第七部分。There is instability with incompatible substances. See part seven.

**危险反应 Hazardous response:**

不会发生危险聚合反应。No hazardous polymerization will occur.

碎片、细屑和粉尘反应性相当高 The reactivity of debris, fine chips and dust is quite high;

水-慢慢产生易燃/易爆的氢气和热 (更细小的微粒 (如细屑和粉尘) 会大大提供产生率) Water - slowly producing flammable / explosive hydrogen and heat (smaller particles (such as fines and dust) can greatly provide the production rate)

热-氧化的速度取决于温度和颗粒的大小 The speed of thermal oxidation depends on the temperature and the size of the particles

强氧化剂-剧烈反应，并产生大量的热；当加热或熔化时与硝酸盐 (如硝酸铵和含有硝酸盐化肥) 发生爆炸性反应。Strong oxidant - reacts violently and produces a large amount of heat; Explosive reactions with nitrates (such as ammonium nitrate and fertilizers containing nitrates) when heated or melted.

酸和碱-反应生产易燃/易爆的氢气；更小的颗粒 (如细屑和粉尘) 会大大增加产生的速度。The production of flammable / explosive hydrogen by acid and alkali reaction; Smaller particles (such as fines and dust) can greatly increase the rate of production.

卤代化合物- (包括卤化灭火剂) 可能与细碎的或熔融的金属剧烈的反应。Halogenated compounds (including halogenated fire extinguishing agents) may react violently with finely broken or molten metals.

氧化铁（铁锈）和其他金属氧化物（如铜和铅氧化物），可能会发生剧烈的铝热反应，由弱火源引发，产生相当多的热量。Iron oxide (rust) and other metal oxides (such as copper and lead oxide) may have severe aluminum thermal reaction, which is caused by weak fire source, and generates considerable heat.

当加热到 800 摄氏度（1470 华氏度）以上时，铜粉和水可能会剧烈的反应，生产氢气。When heated to 800 degrees Celsius (1470 degrees Fahrenheit), copper powder and water may react violently to produce hydrogen.

细碎的金属（如粉末或金属丝）可能具有能够发生铝热反应/爆炸的足够的表面氧化物。Finely broken metals (such as powders or wires) may have sufficient surface oxides capable of producing aluminum thermal reactions / explosions.

**应避免的条件:** 见第七部分。Conditions to be avoided: see Part 7.

**禁配物:** 见第七部分。Forbidden: see Part 7.

**危险分解物:** 见第五部分。Hazardous decomposition: see part V.

## 第十一部分毒理学信息

### Part Xi toxicological information

#### 急性毒性 Acute toxicity

组分 Components	LC <sub>50</sub> /LD <sub>50</sub>
铜 Copper	LD <sub>50</sub> =300~2500mg/kg bw 大鼠 Rats 口服 By mouth LD <sub>50</sub> =2000mg/kg bw 大鼠 Rats 经皮 Transdermal 4hr LC <sub>50</sub> =5.11mg/L air 大鼠 Rats 吸入 Inhalation
锌 Zinc	LD <sub>50</sub> =630mg/kg 大鼠 Rats 口服 By mouth
铁 Iron	LD <sub>50</sub> =30000mg/kg 大鼠 Rats 口服 By mouth
铅 Lead	无数据 No data

**皮肤刺激/腐蚀 Skin irritation / corrosion:** 无数据 No data

**严重眼损伤/刺激 Severe eye injury / irritation:**

组分 Component: 铜 Copper

接触铜烟会刺激眼睛。Exposure to copper smoke can irritate the eyes.

Mackison, F. W., R. S. Stricoff, and L. J. Partridge, Jr(eds.). NIOSH/OSHA-Occupational Health Guidelines for Chemical Hazards. DHHS(NIOSH) Publication No.81-123(2VOLS). Washington, DC: U. S. Government Printing Office, Jan.1981.,p.2

组分 Component: 锌 Zinc

该物质已被证明具有轻微刺激性，在兔子的试验中显示出结膜发红和水肿等反应。Component: zinc this substance has been proved to be slightly irritant and showed conjunctival redness and edema in rabbits.

(Initial Risk Assessment Report(NITE,CERI,NEDO)(2007))

组分 Component: 铁 Iron

据其它毒性信息：在豚鼠角膜中植入铁颗粒产生锈环，引起锈环周围白细胞浸润。According to other toxicity information: implantation of iron particles into the cornea of guinea pigs produces rust ring, which causes leukocyte infiltration around the rust ring.

Grant, W.M. Toxicology of the Eye. 2nd ed. Springfield, Illinois: Charles C. Thomas, 1974.,p.602

呼吸或皮肤过敏 Respiratory or skin allergy: 无数据。No data.

生殖细胞突变性 Germ cell mutagenicity: 无数据。No data.

**致癌性 carcinogenicity:**

组分 Component: 铅 Lead

怀疑致癌。Suspected of cancer.  
(IARC Supplement 7(1987))

**生殖毒性 Reproductive toxicity:**

组分 Component: 铅 Lead

据报道人类暴露，存在精子形成障碍的影响。It has been reported that human exposure has the effect of spermatogenesis disorder.

(EHC 3(1977) ,ACGIH(7th,2001),DFGOTvol.17(2002))

在女性职业暴露实例中存在无排卵。There is anovulation in female occupational exposure cases.

(EHC 3(1977))

新生儿认知功能发育障碍。Neonatal cognitive dysfunction.

(ACGIH(7th,2001),DFGOTvol.17(2002),PATTY(4th,1944))

**特异性靶器官毒性 一次接触 Specific target organ toxicity One touch:**

组分 Component: 铜 Copper

铜烟会刺激上呼吸道。Copper smoke can irritate the upper respiratory tract.

(ACGIH(7th,2001))

**特异性靶器官毒性 反复接触 Specific target organ toxicity Repeated contact:**

组分 Component: 铜 Copper

据报道：暴露于高浓度空气的工人中观察到的肝肿大。Hepatomegaly was reported in workers exposed to high concentrations of air.

((EHC 200(1998))

组分 Component: 铅 Lead

据报道：人类暴露，观察到抑制血红素合成、肾病和脑疾病；影响周围神经和中枢神经系统功能、心血管系统的功能；抑制免疫作用。According to reports: human exposure, observed inhibition of heme synthesis, kidney disease and brain disease; Affect the function of peripheral nerve, central nervous system and cardiovascular system; Inhibition of immune function.

(PATTY(4th,1994))

**吸入危害 Inhalation hazard:** 无可用数据。No data.

**潜在的健康危害 Potential health hazards:** 进行焊接、钎焊、镀锌和熔炼操作时，可能产生“金属烟雾热”。When welding, brazing, galvanizing and smelting operations are carried out, "metal smog heat" may be generated.

## 第十二部分生态学信息

### Part 12 ecological information

#### 生态毒性 Ecotoxicity:

组分 Component	生态毒性 Ecotoxicity
铜 Copper	96hr LC <sub>50</sub> =0.0028~9.150mg/L 鱼类 fish 48hr EC <sub>50</sub> =0.001~1.213mg/L 甲壳纲 Crustacea 96h EC <sub>50</sub> =0.047mg/L 藻类或其他水生植物 Algae or other aquatic plants
锌 Zinc	96hr LC <sub>50</sub> =2.55mg/L 鱼类 fish 72h ErC <sub>50</sub> =0.15mg/L 藻类或其他水生植物 Algae or other aquatic plants
铁 Iron	无可用数据 No data
铅 Lead	96hr LC <sub>50</sub> =0.0408~40.540mg/L 鱼类 fish 48hr LC <sub>50</sub> =0.026~3.1158mg/L 甲壳纲 Crustacea 72hr EC <sub>50</sub> =0.0205~0.364mg/L 藻类或其他水生植物 Algae or other aquatic plants

**持久性和降解性 Persistence and degradability:** 无可用数据。No data.

**潜在的生物累积性 Potential bioaccumulation:** 无可用数据。No data.

#### 土壤中的迁移性 Mobility in soil:

组分 Component: 铜 Copper

研究了铜在纯有机云杉深林土壤中的可浸出性。只有在 PH 值为 2.8 时, 随着浸出时间的延长, 铜才会发生明显的迁移。因此, 除非降雨的酸碱度降低至 <3, 否则酸性降雨不会导致有机土壤中铜的大量迁移。The leaching ability of copper in the soil of pure organic spruce deep forest was studied. Only when the pH value is 2.8, with the extension of leaching time, copper will migrate obviously. Therefore, unless the pH of rainfall is reduced to less than 3, acidic rainfall will not lead to a large amount of copper migration in organic soil.

据估计, 这些土壤顶部几厘米处约 50% 的铜被有机结合, 约 18% 为羟基碳酸盐形式, 约 7% 处于吸附状态, 约 11% 被其他阴离子结合, 6% 被不可逆地吸附。在 PH4-5 时, 只有 3% 的铜可以用于水提取; 因此, 在这个酸碱度下只有 3% 是迁移的。It is estimated that about 50% of copper is organically bound, about 18% is in the form of hydroxyl carbonate, about 7% is in adsorption state, about 11% is bound by other anions, and 6% is irreversibly adsorbed at the top of these soils. At ph4-5, only 3% copper can be used for water extraction; Therefore, at this pH, only 3% is mobile.

在城市化地区, 土地清理、剖面破坏和酸雨增加的影响可能会增加这些土壤中铜的迁移。In urbanized areas, the effects of land clearing, profile destruction and increased acid rain may increase the migration of copper in these soils.

(Tyler G; Water,Air,Soil Poullut 9(2):137-48(1978) as cited in USEPA; Health Issue Assessment: Copper p.18(1987)EPA/600/8-87/001)

**其他有害效应 Other harmful effects:** 无可用数据。No data.

## 第十三部分废弃处置

### Part XIII disposal

废弃处置前应参阅国家和地方有关法规。Before disposal, relevant national and local regulations should be referred to.

**废弃化学品:** 在任何情况下, 向下水道排放废液都应遵守当地的法律法规。咨询制造商有关回收的方法, 或咨询当地废弃物管理部门有关废弃方法。应避免或尽可能的减少废弃物的产生。Waste

chemicals: in any case, the discharge of waste liquid into sewers should comply with local laws and regulations. Consult the manufacturer about the recycling method, or consult the local waste management department about the waste method. Waste should be avoided or reduced as much as possible.

污染包装物: 包装材料可能含有该物质残留, 应和该物质的废弃物一样处理。清洁后的包装材料应根据当地法规进行回收或再利用处理。Contaminated packaging: packaging materials may contain residues of the substance and should be treated as waste of the substance. Clean packaging materials should be recycled or reused according to local regulations.

#### 第十四部分运输信息

##### Part 14 transport information

空运 Air transport (IATA/DGR61<sup>st</sup>) /海运 Ocean shipping (IMDG-Code 39-18) /陆运 land transportation (JT/T617 -2018)

联合国危险货物编号 UN dangerous goods number (UN 号) : --

联合国危险性分类 UN risk classification: --

包装类别 Package category: --

其他信息 Other information: --

使用者需知的特殊防范措施 Special precautions for users:

在装载前应经过肉眼检查, 确保其结构可供使用, 集装箱的内壁、箱顶和箱底没有突出或损坏, 所有内部衬垫或盛装物质的设备没有裂缝、破损或任何可能影响其载货能力的损坏。有些物质, 如废物, 可能会彼此之间发生危险反应, 一些不同类别的物质和不受本规章限制的货物也有可能彼此之间发生危险反应, 这类物质不应混装在同一散装货箱中。应保证装载安全。Before loading, visual inspection shall be carried out to ensure that the structure is serviceable, that the inner wall, top and bottom of the container are not protruded or damaged, and that all internal liners or equipment containing materials are free of cracks, damage or any damage that may affect its carrying capacity. Some substances, such as waste, may react dangerously with each other, and some substances of different categories and goods not subject to these regulations may also react dangerously with each other. Such substances should not be mixed in the same bulk container. Loading safety shall be ensured.

海洋污染物 (是/否) Marine pollutants (yes / no): 否 no

#### 第十五部分法规信息

##### Part 15 regulatory information

下列法律、法规、规章和标准, 对该化学品的管理作了相应规定 The following laws, regulations, rules and standards have made corresponding provisions on the management of this chemical:

危险化学品安全管理条例 Regulations on safety management of dangerous chemicals:

组分 Component	CAS No.	危险化学品目录 List of dangerous chemicals	高毒物品目录 List of highly toxic substances	中国现有化学物质 Existing chemical substances in China
铜 Copper	7440-50-8	未列入 Not included	未列入 Not included	列入 Inclusion
锌尘、锌粉 Zinc dust, zinc powder	7440-66-6	列入 Inclusion	未列入 Not included	列入 Inclusion
铁 Iron	7439-89-6	未列入 Not included	未列入 Not included	列入 Inclusion
铅 Lead	7439-92-1	未列入 Not included	列入 Inclusion	列入 Inclusion

## 第十六部分其它信息

### Part 16 other information

编制时间 **Created Date:** 2021.06.21

编制部门 **Compiling Department:** 技术质量部 Technical quality department

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#### 缩略语和首字母缩写 **Abbreviations and acronyms:**

ACGIH:美国政府及工业卫生协会 (American Conference of Governmental Industrial Hygienists )

BCF:生物浓缩因子(Bioconcentration factor)

BOD:生化需氧量 (Biochemical oxygen demand)

CAS:化学文摘社 (Chemical Abstracts Service)

EC50:半数效应浓度 (Median effective concentration)

IARC:国际癌症研究中心 (International Cancer Research Center)

IATA:国际空运联合会 (International Air Transport Federation)

IECSC:中国现有化学品目录 (List of existing chemicals in China)

IMDG:国际海运危险货物 (International Maritime Dangerous Goods)

LC50:半数致死浓度 (Median lethal concentration)

LD50:半数致死剂量 (Median lethal dose)

NIOSH:美国国家职业安全健康研究所 (National Institute of occupational safety and health)

NOEC:无可观察效应浓度 (No observable effect concentration)

NTP:美国国家毒理学项目 (National Toxicology Program)

OSHA:美国职业安全与卫生管理局 (Occupational safety and Health Administration)

PC-STEL:短时间接触容许浓度 (Permissible concentration for short time exposure)

PC-TWA: 时间加权平均容许浓度 (Time weighted average allowable concentration)

PEL:容许暴露限值 (Permissible exposure limits)

REL:推荐的接触限值 (Recommended contact limits)

RTECS:化学物质毒性作用登记 (Registration of toxic effects of chemicals)

TDG: 联合国关于危险货物运输的建议书规章范本 (Model Regulations of the United Nations Recommendations on the transport of dangerous goods)

TLV: 阈限值 (Valve limit)

TOC: 总有机碳 (total organic carbon)

TSCA: 美国有毒物质控制法 (Us Toxic Substances Control Act)

TWA: 时间加权平均 (Time weighted average)

# 物质安全资料表 (MSDS)

## 一、 物质名称及厂商资料:

物质名称: 黑色 EVA 发泡胶

制造厂商名称: 惠州市繁中宝橡塑发泡厂有限公司

制造厂商地址: 广东省惠州市惠阳区秋长镇秋宝路新塘工业区

制造厂商联系方式: 电话 0752-6518111 传真 0752-3770000

## 二、 产品化学成份及组成:

成份(中文名称)	成份比例	化学物质识别码 CAS#
乙烯-醋酸乙烯共聚物	66 %	24937-78-8
碳酸钙	10 %	471-34-1
硬脂酸	1. 5 %	57-11-4
双叔丁基过氧异丙基苯	0. 5 %	25155-25-3
偶氮二甲酰胺	10 %	123-77-3
氧化锌	1 %	1314-13-2
炭黑	11 %	1333-86-4

## 三、 物质形态、气味: 板状固体

## 四、 气味: 轻微塑胶味

## 五、 物理性能:

压缩变型率: 4.5%以下

延伸度: 280 %

抗拉强度: 5kg ~ 10kg/cm<sup>2</sup>

吸水率: 0.005 以下 g/cm<sup>2</sup>

各硬度产品密度 :

25 度 0.109g/cm<sup>3</sup>

38 度 0.101g/cm<sup>3</sup>

45 度 0.124g/cm<sup>3</sup>

60 度 0.201g/cm<sup>3</sup>

70 度 0.239g/cm<sup>3</sup>

80 度 0.325g/cm<sup>3</sup>

## 六、 化学特性:

耐苯, 酸碱。

耐温: 65° 开始软化, 90° 将开始熔缩。

自然常温下使用, 5 年开始老化。

长期温度在 40°C 以上使用, 3 年开始出现老化

说明: 老化是指氧化后会变成粉末。

## 七、 健康、危险性概述:

健康危害: 在正常作业下、正常使用下无危害

安定性: 常温下极安定。

特殊状况下可能之危害反应：不会发生

危害之解物：无

危险性类别：易燃，应远离烟火

侵入途径：无

环境危害：无

健康影响：无

燃爆危险：本品可燃

## 八、急救措施：

皮肤接触：被熔融接触皮肤立即以大量清水冷却后依烫伤之临床处理。

眼睛接触：提起眼睑，用流动清水或生理盐水冲洗。就医。

吸入：不需要

食入：催吐、就医。

## 九、消防措施：

危险特性：易燃品，应远离烟火

灭火方法：消防人员须佩戴防毒面具、穿全身消防服，在上风向灭火。

灭火剂：水、泡沫、干粉、二氧化碳、砂土。

## 十、操作处置与储存：

操作注意事项：远离火种、热源。避免与氧化剂、化学品接触。

储存注意事项：储存于阴凉、自然通风条件的库房可存放 10 年。

远离火种、热源。

应与氧化剂、化学物品分开存放，切忌混储。

配备相应品种和数量的消防器材。

## 十一、接触控制/个体防护：

其他防护：工作现场严禁吸烟。保持良好的卫生习惯。

## 十二、产品用途：

产品用途：玩具、鞋材、箱包、电子电器、包装材料、工艺品、彩印丝印、运动器材的防护用品等辅料使用。

## 十三、废弃处置：

废弃处置方法：在当地政府及法令允许下回收加工循环使用或焚埋，亦可委托法定废弃物处理者。

## 十四、运输信息

注意事项：应成卷放入包装袋或成片放入包装袋中。严禁与氧化剂、化学品等混装混运。运输途中应防高温。

## 十五、法规信息

适用法规：无