



规格承认书

SPECIFICATION FOR APPROVAL

日期 Date	2024/12/24
编号 File No	24122401
版本 Revision	1.0

客户
CUSTOMER: Shenzhen Tilta Technology Co. Ltd.

客户料号
CUSTOMER NO: 31112.00038.00.00


品名
PART NAME: WiFi Antenna

供方料号
SUPPLIER NO: YJL01.050.027.101A

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	CHECK	DESIGN
 ChenGuoqiang	XieLi	ChenXingyi

YJ-RD-F04-A





承认书项目表

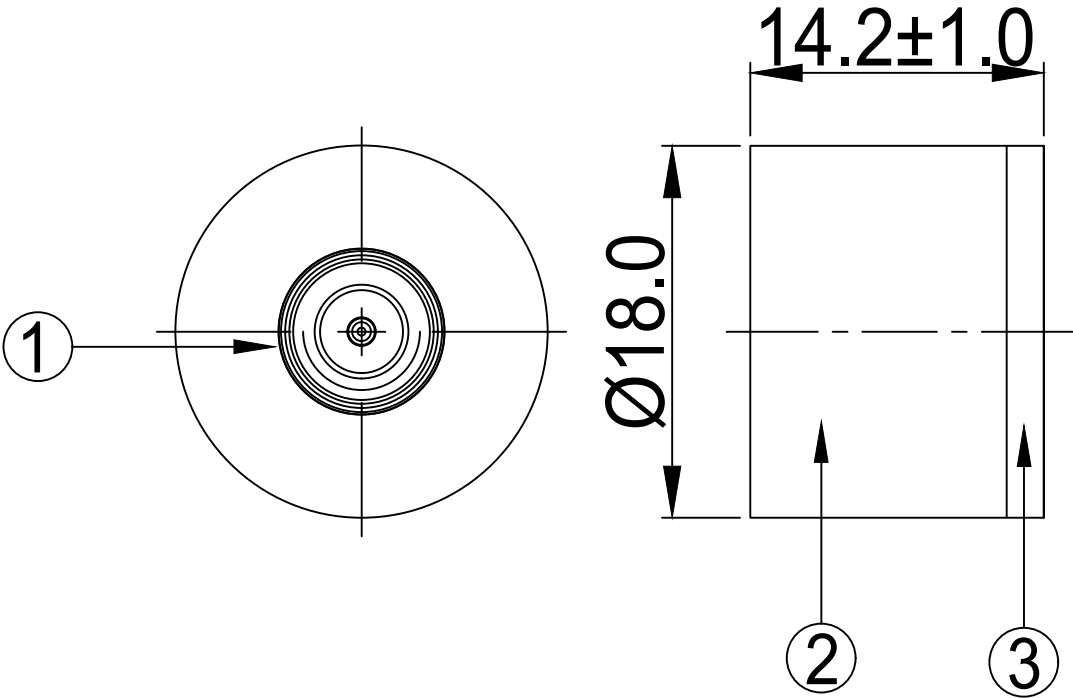
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11	N/A	N/A	N/A
12	-	-	-
13	-	-	-



RoHS
Compatible

CUSTOMER	
PART NO	

REV.	DESCRIPTION	DATE
△	首次发行	2024-12-21



3	Antenna Cap 2	Ø18.0*3.0mmABS, Color:Black	PLA100XXA.B01	1
2	Antenna Cap 1	Ø18.0*13.2mmABS, Color:Black	PLA100XXA.B01	1
1	SMA Male	Cu Au Plated	CON10178A.P01	1
NO	PART NAME	DESCRIPTION	Part Number	Q.TY

<div><div>EG</div><div>东莞市一佳电子通讯科技有限公司 DONGGUAN YIJIA ELECTRONICS COMMUNICATION TECHNOLOGY CO.,LTD</div></div>				
PART NAME: WiFi Antenna				
PART NO.: YJL01.050.027.101A			DATE: 2024-12-21	
APPROVED BY	CHECKED BY	DESIGNED BY		Tolerance
何清军	林斌	陈俊		X.X ±0.50
				X.XX±0.15
				X° ±3°



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	2.8 dBi
Radiation	Omni-directional
Polarization	Linear
Physical Properties	
Connector	SMA Male
Cable Type	None
Cable Length	None
Cable Color	None
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

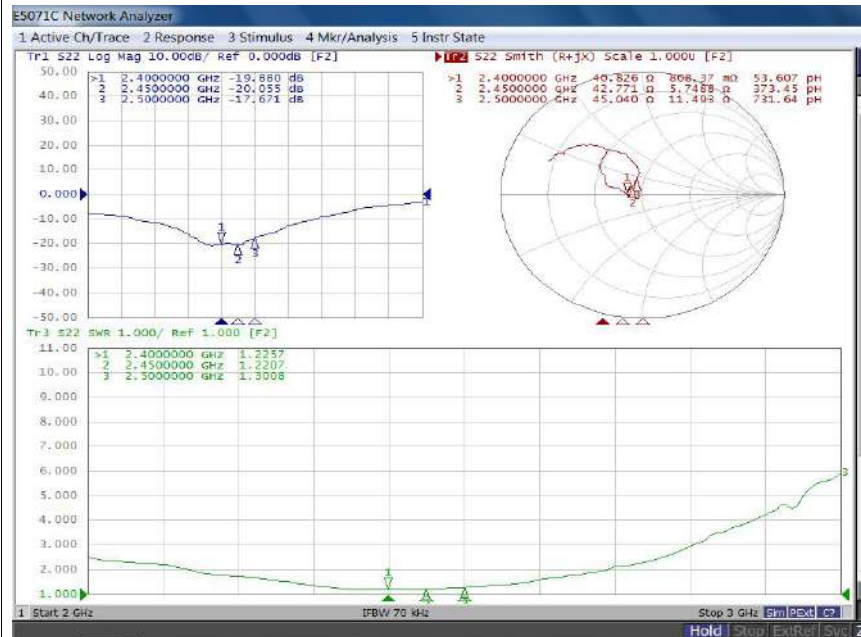




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DONGGUAN YIJIA ELECTRONICS COMMUNICATION TECHNOLOGY CO., LTD

Antenna Performance Test

*Agilent
E5071C
S22
Parameter
Test //
WiFi
Antenna*

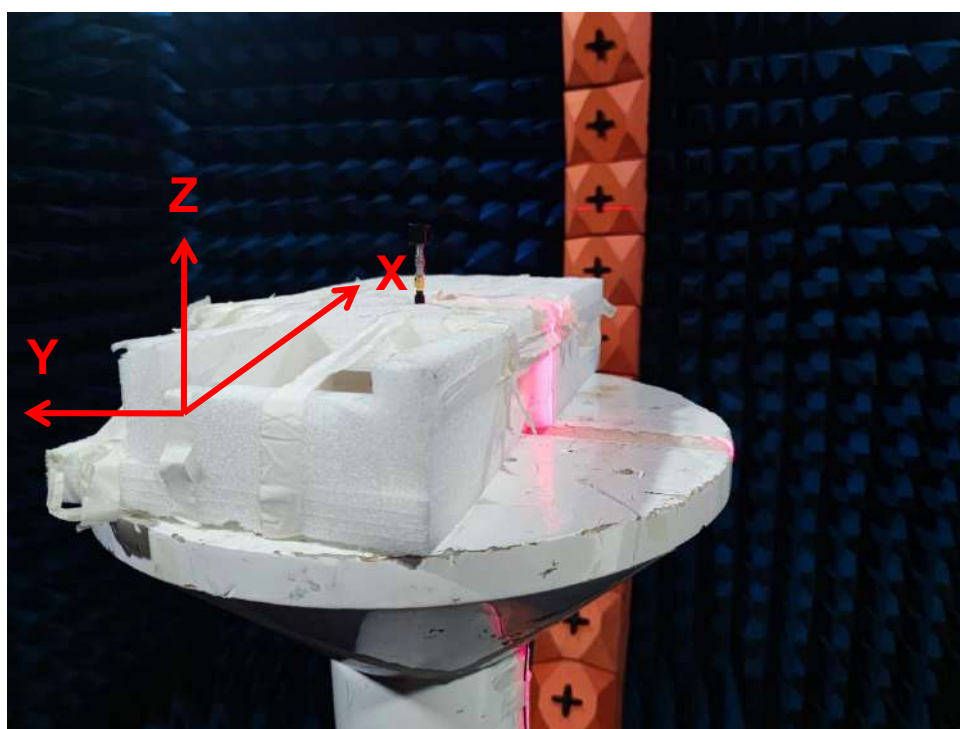
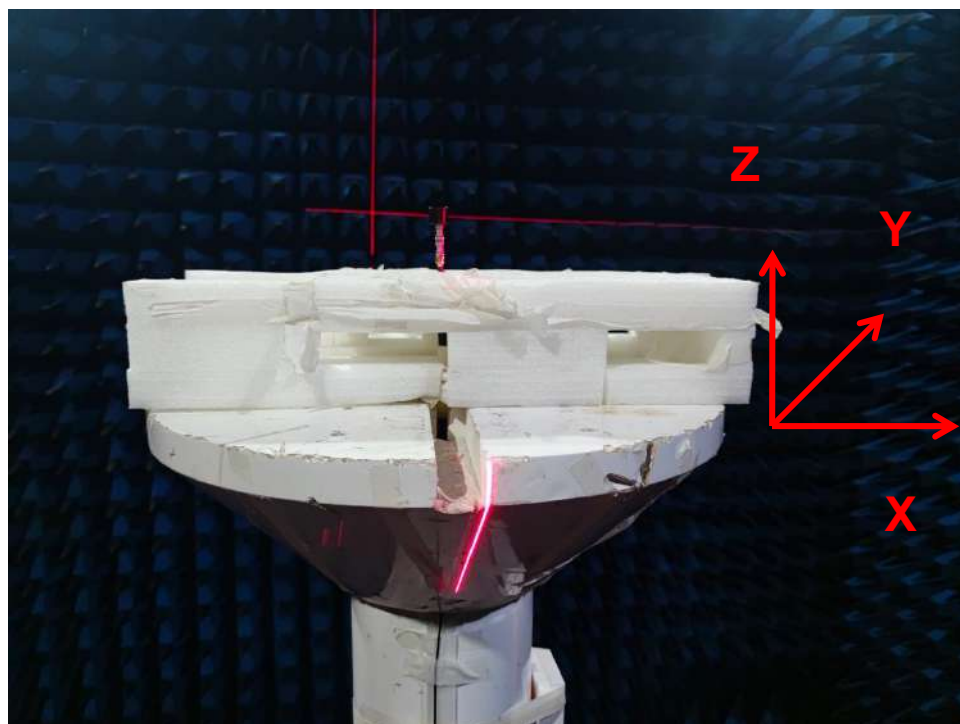


Yuanfu Industrial Park, No.59, Muyu Road, Shatou Community, Chang'an Town,
Dongguan, Guangdong Tel:0769-82586086 Fax:0769-82586086



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Antenna Passive Test



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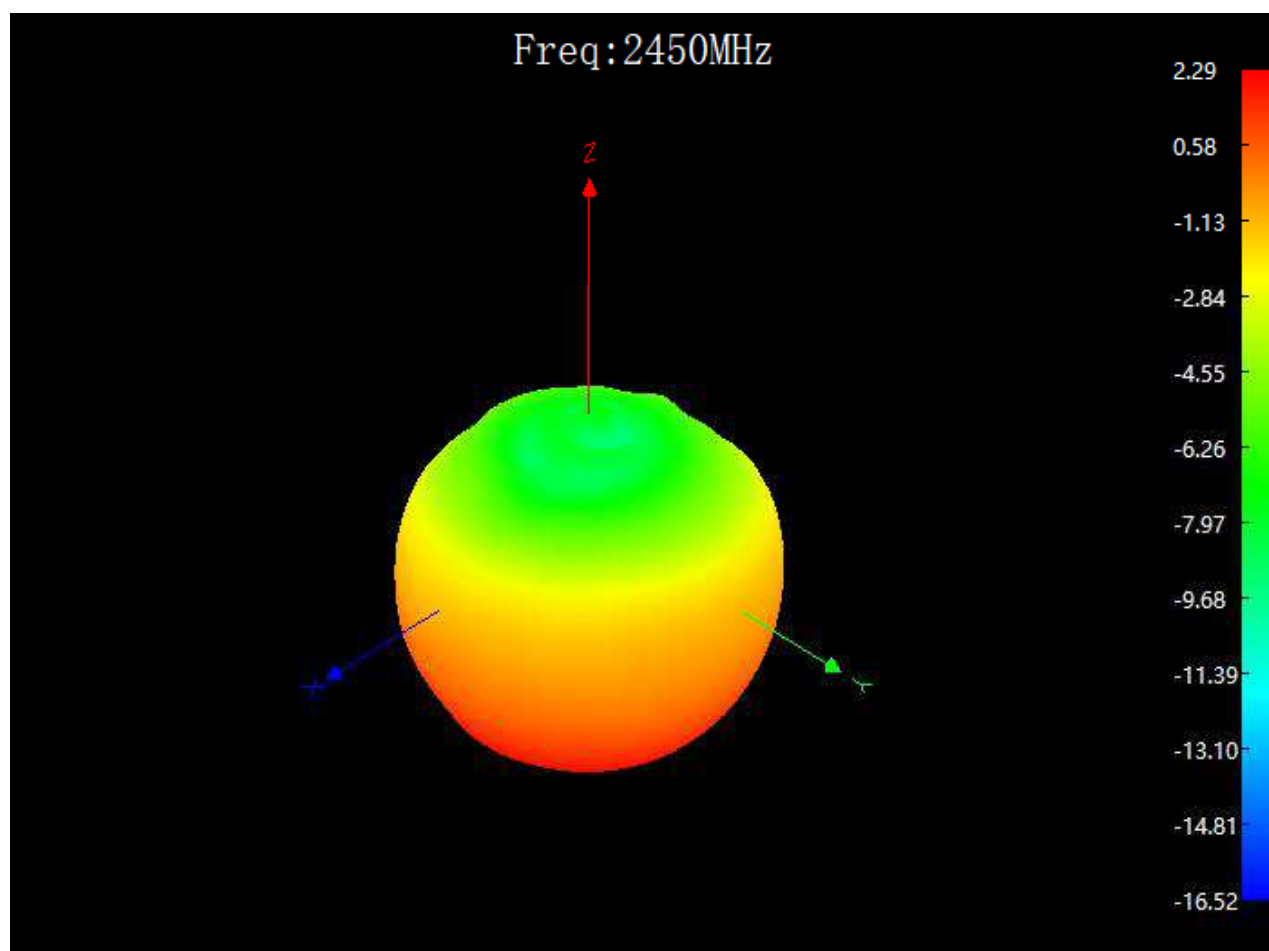


Passive Test For WiFi Antenna(2.4G)			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	42.5	-3.7	2.2
2410	43.3	-3.6	2.5
2420	42.7	-3.7	2.5
2430	41.9	-3.8	2.5
2440	41.6	-3.8	2.4
2450	41.0	-3.9	2.3
2460	40.8	-3.9	2.7
2470	40.8	-3.9	2.8
2480	40.7	-3.9	2.8
2490	41.1	-3.9	2.7
2500	41.7	-3.8	2.7





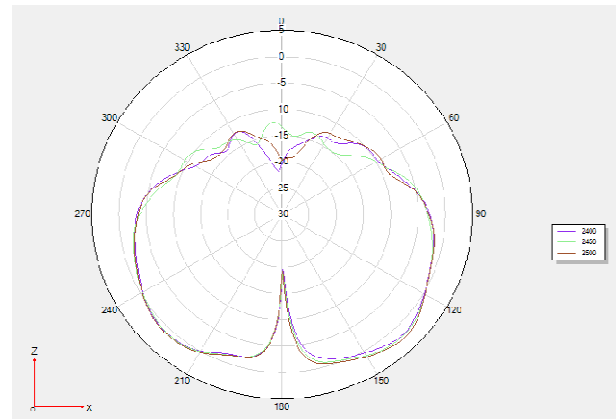
Radiation Pattern For WiFi Antenna(2450MHz)



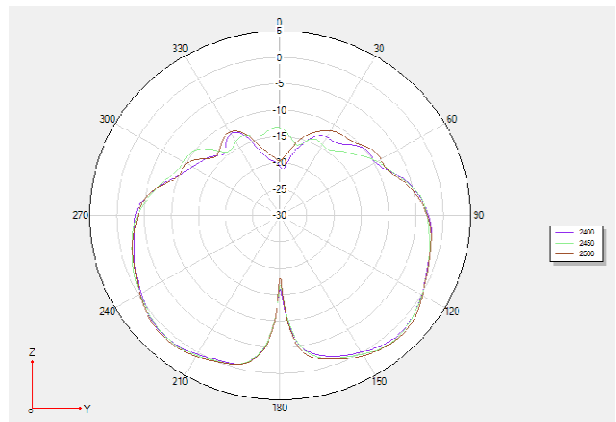


Radiation Pattern For WiFi Antenna

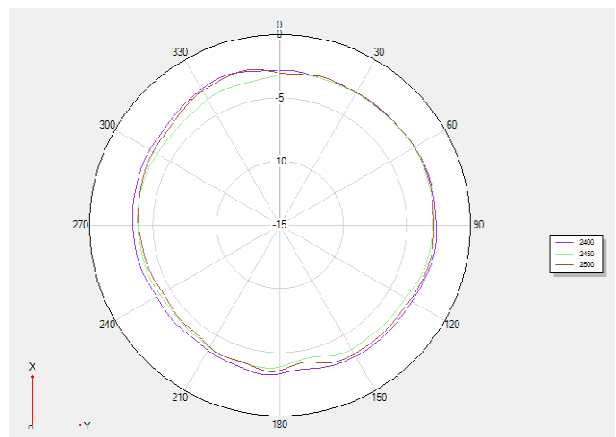
Phi 0°



Phi 90°



Theta 90°





东莞市一佳电子通讯科技有限公司
DONGGUAN YIJIA ELECTRONICS COMMUNICATION TECHNOLOGY CO., LTD

*WiFi
Antenna*

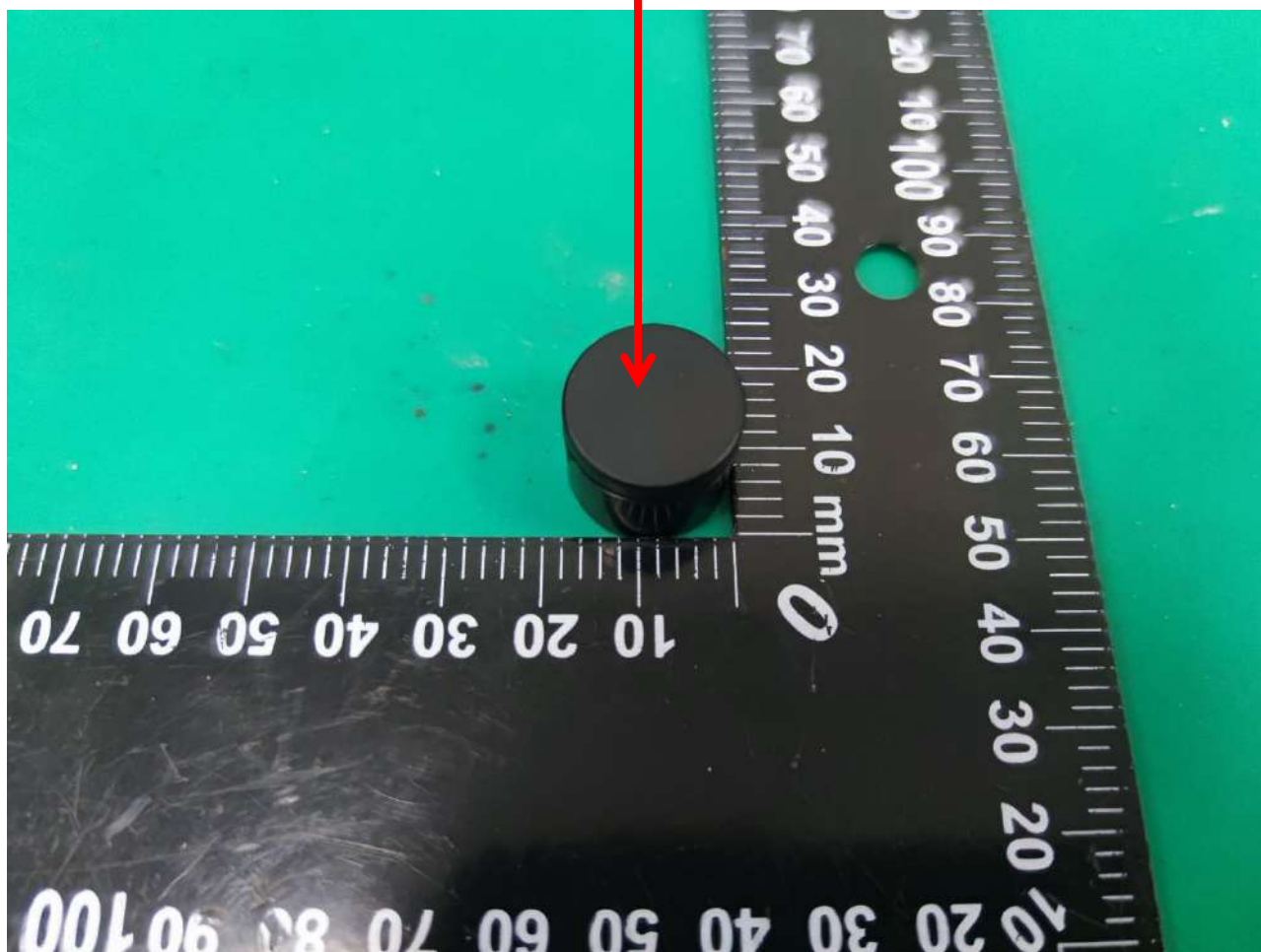


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东莞市一佳电子通讯科技有限公司
DONGGUAN YIJIA ELECTRONICS COMMUNICATION TECHNOLOGY CO., LTD

WiFi Antenna



Yuanfu Industrial Park, No.59, Muyu Road, Shatou Community, Chang'an Town,
Dongguan, Guangdong Tel:0769-82586086 Fax:0769-82586086

Product name: **POLYLAC® ABS**

Version 5

Section 1. Identification of the substance/ mixture and of the company/ undertaking

1.1 Product identifier

Product name: **POLYLAC® ABS**

This safety data sheet pertains to the following products:
PA-777D

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Mixture used for the production of molded plastic articles

1.3 Details of the supplier of the Safety Data Sheet

Supplier: CHIMEI Corporation

Address: No. 398, Sec. 1, Zhongzheng Rd., Rende Dist., Tainan City, 717010, Taiwan

Telephone: +886 6 2663000 Ext. 1347

1.4 Emergency telephone number

Emergency telephone : +886 6 2663000 Ext. 2501

Section 2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Directive 67/548/EEC or 1999/45/EC: Not classified as hazardous (polymeric state)

Classification according to Regulation (EC) N° 1272/2008 (CLP): Not classified as hazardous (polymeric state)

2.2 Label elements

Not labelled as hazardous

2.3 Other hazards

vPvB/PBT assessment: not available

Section 3. Composition/information on ingredients

3.1 Composition of the substance/ preparation

Substance or Preparation Substance
Content

CAS	Name	content
9003-56-9	Acrylonitrile-Butadiene-Styrene Copolymer	>84%
9010-96-2	α-methylstyrene copolymer	<7%
31621-07-5	N-Phenylmaleimide copolymer	<7%
-	Additives	≤2%

Impurities Contributing to Hazard None

3.2 Additional information:

Product name: **POLYLAC ® ABS**

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Preparation does not contain dangerous substances above limits that need to be mentioned in this section according to applicable legislation.

Reach Info:

-	Registration No.
Acrylonitrile	01-2119474195-34-0045
Styrene	01-2119457861-32-0006 01-2119457861-32-0007 01-2119457861-32-0057 01-2119457861-32-0065 01-2119457861-32-0081
Buta-1,3-diene	01-2119471988-16-0044
N-phenylmaleimide	—

Section 4. First-aid measures

4.1 Description of first aid measures

General notes: Remove affected persons from the danger area, at the same time ensuring your own safety. Remove all contaminated clothing immediately

Following inhalation: In case of gases evolving from melted resin, move subject to fresh air. Treat symptomatically

Following skin contact: In case of pellets or powder, wash with water. In case of smelt, wash affected skin area and clothing with plenty of (soap and) water. Seek medical advice

Following eye contact: In case of pellets or powder, flush with plenty of water for at least 15 minutes. Seek medical advice if any dust particles still remain.

In case of gases evolving from melted resin of high temperature, flush with plenty of water for at least 15 minutes. Seek medical advice if necessary

Following ingestion: Induce vomiting. Rinse mouth with water. Seek medical advice if necessary

4.2 Most important symptoms & effects both acute & delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

4.3 Indication of any immediate medical attention and special treatment needed: -

If burn is present, treat as any thermal burn, after decontamination. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

Section 5. Fire-fighting measures

Product name: **POLYLAC ® ABS**

Version 5

Revision Date: March 15, 2023
Print Date: April 14, 2023

5.1 Extinguishing media

Suitable extinguishing agents: water spray, dry powder, foam, carbon dioxide
Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

For safety reasons unsuitable extinguishing agents: High power water jet

5.2 Special hazards arising from the substance or mixture

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon dioxide. Carbon monoxide.

5.3 Advice for firefighters

Protective equipment: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

Further measures: -

5.4 Additional information:

Hazchem-Code: -
Cool endangered containers with water jetspray.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment & emergency procedures

Pellets or powder remained on ground may cause slipping
Wear protective equipment
Ensure adequate ventilation
Keep away from ignition sources
Keep unprotected persons away

6.2 Environmental precautions

Gather pellets and powder thoroughly to avoid birds or fishes taking from draining water.
Do not allow product to reach sewage system or water bodies. Inform respective authorities in case product reaches water, sewage system or soil

6.3 Methods and material for containment and cleaning up

Avoid generation of dust. Remove all sources of ignition.
Collect dry and place in appropriate containers for disposal. Subsequent cleaning.
Particular danger of slipping when spread on the ground.

6.4 Reference to other sections

See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment.

Section 7. Handling and storage

7.1 Precautions for safe handling

Product name: **POLYLAC ® ABS**

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Protective measures: Provide adequate ventilation, and local exhaust as needed. Do not breathe dust. In the case of the formation of dust: Withdraw by suction. Molten material: Avoid contact with the substance.

Measures to prevent fire: Prevent from fire around handling area

Measures to prevent aerosol and dust generation: maintain good housekeeping standards to prevent accumulation of dust. To avoid dust explosion resulting from the existence of powder, electrostatics eliminators and grounding should be fixed to such equipment as air transferring pipes, bag filters and hoppers. Use electrically conductive filters for bag filters.

Measures to protect the environment: -

Advice on general occupational hygiene: -

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions: Keep the material at a cool dry place. Protect from direct sunlight, rain and violent temperature fluctuation. Fire is inhibited around storage area.

Requirements for storage rooms and vessels: Store in a well-ventilated place. Keep container tightly closed. Protect against heat /sun rays.

Suitable materials and coating: -

Unsuitable materials or coatings: -

Further information on storage conditions: -

7.3 Specific end use(s)

Recommendations: See the recommended processing condition and technical data sheet on this product for further information.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Exposure Limits: Although some of the additives used in this product may have exposure guidelines, these additives are encapsulated in the product and no exposure would be expected under normal handling conditions.

8.2 Exposure control

Appropriate engineering controls: Install eyes washer and shower in the place of operation. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits

Personal protection:

- Respiratory protection: Wear masks for cleaning molding machines
- Hand protection: Heat-insulating gloves when handling molten form
- Eye protection: Wear safety glasses for general purpose. Wear chemical goggles for cleaning molding machines
- Skin and body protection: Gloves necessary for handling melted resin
- Hygiene measures: Wash hands after handling

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8.3 Environmental exposure controls

Product related measures to prevent exposure: None specific
Instruction measures to prevent exposure: None specific
Organizational measures to prevent exposure: None specific
Technical measures to prevent exposure: None specific
Environmental exposure controls: Do not allow product to reach sewage system or water bodies

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	Physical state: solid, granulate
Odour	Odourless or negligible
Colour	Natural or whitish
Odour threshold	No data available
pH	Not applicable
Melting point / freezing point	Not applicable
Initial boiling point and boiling range	Not applicable
Flash point	>400°C
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Not applicable
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density (H ₂ O=1)	1.08~1.15 g/cm ³
Bulk density	Not available
Solubility(ies)	Not soluble
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	>400 °C
Decomposition temperature	>300 °C
Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	Not oxidizing

9.2 Other safety information: -

Section 10. Stability and reactivity

10.1 Reactivity: Non-reactive under normal handling and storage conditions

10.2 Chemical stability: Stable under normal handling and storage conditions

10.3 Possible hazardous reaction: Polymerization will not occur.

10.4 Conditions to avoid: Avoid temperatures above 300 °C. Exposure to elevated temperatures can cause product to decompose.

10.5 Incompatible materials: Strong oxidizing agents, Gasoline, aldehydes, ketone

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Processing may release fumes and other decomposition products. At temperatures exceeding melt temperatures, polymer fragments can be released. Fumes can be irritating. Decomposition products can include and are not limited to: Combustible gases. In case of fire may be liberated: smoke, Styrene-Monomer, aldehydes and acids (organic), carbon monoxide and carbon dioxide (CO₂).

Product name: **POLYLAC ® ABS**

Version 5

Revision Date: March 15, 2023
Print Date: April 14, 2023

Section 11. Toxicological information

11.1 Information on toxicological effects

Toxicological effects:

- Acute toxicity (oral): Based on available data, the classification criteria are not met. Mild acute toxicity
- Acute toxicity (dermal): Based on available data, the classification criteria are not met. Mild acute toxicity
- Acute toxicity (inhalative): Based on available data, the classification criteria are not met. Mild acute toxicity
- Skin corrosion/irritation: Lack of data.
- Eye damage/irritation: Lack of data.
- Sensitisation to the respiratory tract: Lack of data. The chemical structure does not suggest a specific alert for such an effect.
- Skin sensitisation: Based on available data, the classification criteria are not met. Not sensitizing
- Germ cell mutagenicity/Genotoxicity: Lack of data. The chemical structure does not suggest a specific alert for such an effect.
- Carcinogenicity: Based on available data, the classification criteria are not met.
- Reproductive toxicity: Lack of data. The chemical structure does not suggest a specific alert for such an effect.
- Effects on or via lactation: Lack of data.
- Specific target organ toxicity (single exposure): Lack of data.
- Dusts: Can cause skin, eye and respiratory tract irritation.
- Specific target organ toxicity (repeated exposure): Lack of data.
- Processing, thermal hazards: Vapours: Can cause skin, eye and respiratory tract irritation.

Symptoms

- Dust: Can cause skin, eye and respiratory tract irritation.
- The melted product can cause severe burns.
- Irritating to eyes, respiratory system and skin.
- In case of ingestion: Swallowing may cause gastrointestinal irritation and pain of guts.

Section 12. Ecological information

12.1 Toxicity

Not expected to be acutely toxic, but material in pellet or bead form may mechanically cause adverse effects if ingested by waterfowl or aquatic life.

12.2 Persistence and degradability

Further details:

- Biodegradation: Product is not readily biodegradable.
- Degradation at UV-radiation/sunlight
- Environmental half-life period: ≥ 100 days (estimated)
- The product is likely to persist in the environment.

Effects in sewage plants:

- In sewage treatment plants it may be separated mechanically.

12.3 Bioaccumulative potential

To avoid bioaccumulation plastics should not be disposed in the sea or in other water environments.

12.4 Mobility in soil

In the terrestrial environment, material is expected to remain in the soil., In the aquatic environment, material will sink and remain in the sediment.

Product name: **POLYLAC ® ABS**

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Revision Date: March 15, 2023
Print Date: April 14, 2023

12.5 Results PBT & vPvB assessment

This mixture has not been assessed for persistence, bioaccumulation and toxicity (PBT).

12.6 Other adverse effects:

General information: Do not allow to enter into ground-water, surface water or drains.

12.7 Additional information: -

Section 13. Disposal considerations

13.1 Waste treatment methods

Product / Packaging disposal: Dispose in accordance with the current local regulations.

Waste codes according to European Waste Catalogue: -

Waste treatment-relevant information: Inadequate incineration may generate toxic gases such as CO, HCN, AN and SM

Sewage disposal-relevant information: -

Other disposal recommendations: -

Section 14. Transport information

ADR/RID

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

Special Provisions: no data available

Hazard identification No: no data available

ADNR / ADN

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

no data available

IMDG

Product name: **POLYLAC ® ABS**

Version 5

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

EMS Number: Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

ICAO/IATA

14.1 UN number

Not applicable

14.2 UN proper shipping name

Proper Shipping Name: NOT REGULATED

14.3 Transport hazard class(es)

Not applicable

14.4 Packing Group

Not applicable

14.5 Environmental hazards

Not considered environmentally hazardous based on available data

14.6 Special precautions for user

no data available

Section 15. Regulatory information

15.1 Safety, health and environmental regulations /legislation specific for the substance or mixture

Authorization and / or restrictions on use: None

15.2 Chemical Safety Assessment

For this substance a chemical safety assessment is not yet required.

Section 16. Other information

16.1 Indication of changes

Version 1: First issue according to Regulations (EC) 1907/2006 (REACH) & 1272/2008 (CLP)

16.2 Abbreviations and acronyms

AGS	Ausschuss für Gefahrstoffe	LoW	List of Waste
AF	Assessment Factor	MARPOL	MARine POLLution
BCF	BioConcentration Factor	MIE	Minimum Ignition Energy
CAS	Chemical Abstract Service	N°EC	European Commission number

Product name: **POLYLAC ® ABS**

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CMR	Carcinogenic, Mutagenic and Reprotoxic	NFPA	National Fire Protection Association
CSR	Chemical Safety Report	NIOSH	National Institute of Occupational Safety and Health
DFG	German Research Foundation	NOEC	No Observed Effect Concentration
DNEL	Derived No Effect Level	NOELR	No Observed Effect Loading Rate
EC	European Commission	OECD	Organisation for Economic Co-operation and Development
EC50	Effective Concentration (required to induce a 50% effect)	OEL	Occupational Exposure Limit
EEC	European Economic Community	OSHA	Occupational Safety and Health Administration
EWC	European Waste Catalogue Code	PBT	Persistent Bioaccumulable Toxique
IDLH	Immediately Dangerous to Life or Health	PNEC	Previsible Non Effect Concentration
IBC	International Bulk Chemical	QSAR	Quantitative Structure-Activity Relationship
Koc	Soil/Water Partition Coefficient	STOT	Specific Target Organ Toxicity
Kow	Octanol/Water Partition Coefficient	TCLo	Toxic Concentration Low
LC50	Lethal Concentration 50	TDLo	Toxic Dose Low
LD50	Lethal Dose 50	UN	United Nations
LEL	Lower Explosive Limit	UVCB	Unknown or Variable Composition Complex Reaction Products, or Biological Materials
LL100	Lethal Loading	vPvB	very Persistent, very Bioaccumulative
LOEC	Lowest Observed Effect Concentration		

16.3 Key literature references and sources for data

<http://esis.jrc.ec.europa.eu/>
<http://echa.europa.eu/>
<http://gestis-en.itrust.de>

16.4 Training advice: -

16.5 Further information: According to the guidance version 2.0 for monomers and polymers from the European Chemicals Agency dated as of April 2012, the classification of the polymer takes into account the classification of all its constituents, such as unreacted monomers. These constituents in fact should be taken into account for classification of the polymer. This means that the same classification methods as for mixture should be applied to polymer substances.

In order to determine a classification for the studies about the water soluble fraction as well as the absorption should be performed on the polymer as such.

To the best of our knowledge and belief, the information contained herein is accurate and obtained from sources believed to be reliable. No representation is made that the information is complete or the material is suitable for all purposes. The final determination as to the suitability of the user's intended use of the material is the sole responsibility of the user. All materials may present unknown hazards even when used in common applications and accordingly, it is the sole responsibility of the user to understand and address all potential hazards, including those identified herein. The information set forth in Sections 11 and 12 reflects data available as of the date hereof. It is anticipated that such data will be updated.

物质安全数据表 (MSDS)

1、物料及厂商资料

中文名称: HPb59-1、HPb59-3、C3601、C3602、C3604铜合金
用途: 用于水暖卫浴、玩具文具、电子电器、汽车配件、五金加工等工业领域
企业名称: 东莞市荣耀金属材料有限公司
地址: 东莞市寮步镇竹园村元英路原裕盛市场 B1栋 1号
邮编: 523000
电子地址邮编: 770182901@qq.com
传真号码: +86-0769-2198 7103
企业应急电话: +86-0769-2198 7103
技术说明书编码: 无
生效日期: 2022-08-16
国家应急电话: 112 119



2、成份/组成信息

混合物			
物料名称: HPb59-1、HPb59-3、C3601、C3602、C3604铜合金			
化学成份			
化学元素	名称	CAS No.	百分比 (wt%)
Cu	铜	7440-50-8	57-61
Fe	铁	7439-89-6	<0.5
Ni	镍	7440-02-0	<0.3
Sn	锡	7439-89-6/7440-31-5	<1.0
Pb	铅	7439-92-1	1.8-3.7
Cd	镉	7440-43-9	<0.01
Zn	锌	7440-66-6	余量



3、危害辨识资料

危害或危害信息：粉尘和烟雾有危害
对眼睛的影响：刺激性
对皮肤的影响：长期接触粉尘的工人常发生接触性皮炎
吸入的影响：引起呼吸道刺激症状，发生支气管炎或支气管肺炎，甚至肺水肿
吞咽的影响：吞咽存在危害，恶心、呕吐、腹泻
慢性症状：长期吸入可引起肺部纤维组织增生

4、急救措施

皮肤接触：脱去污染的衣着，用肥皂水及清水彻底冲洗，就医
眼睛接触：立即翻开上下眼睑，用流动清水或生理盐水冲洗至少 15 分钟，就医
吸入、吞咽：迅速脱离现场至空气新鲜处，误服者立即漱口，饮牛奶或鸡蛋清就医

5、消防措施

危险特征：其粉体遇高温、明火能燃烧
有害燃烧产物：氧化铜
灭火方法及灭火剂：干粉、沙土
灭火注意事项：禁止用水



6、泄漏处理方法

应急处理：隔离泄漏污染区，周围设警示标志，切断火源。应急处理人员戴好防毒面具，穿一般消防防护服。
消除方法：避免扬尘，使用无火花工具收集于干燥净洁有盖的容器中，转移回收。当水体收到污染时，可采用加入纯碱中和，使铜以碱式碳酸铜形式沉淀而从水中转入污泥中，而污泥再做进一步的无害化处理。对于受铜污染的土壤，可采取排土、土层改良、深耕、施加石灰质矿物及磷酸钙等措施治理。

7、操作处理与储存



操作注意事项：制品边缘及断面容易割伤皮肤，应小心处置 机械加工（如切削及研磨等），如产生粉尘应小心眼睛及皮肤接触，需佩戴保护器具
储存注意事项：储存于干燥通风良好室内场所或具有温湿度控制之空间； 严禁暴露于室外或温湿度高的密闭空间； 避免与酸、碱、盐类等化学物质一起储存。

8、接触控制/个体防护

暴露限制：Cu⇒ OSHA PEL:1.0mg/m ³	Pb⇒ OSHA PEL:0.05mg/m ³
Fe⇒ OSHA PEL:1.0mg/m ³	Sn⇒ OSHA PEL:2.0mg/m ³
Zn⇒ OSHA PEL:10.0mg/m ³	
工程控制：安装排气装置，在熔铸时应安装通风装置（熔铸时由于金属挥发会产生粉尘）	
个人防护措施：一般不需特殊防护，但需防止烟尘危害	

9、物理及化学性质

外观与性状：黄色金属		
气味：无味	PH 值：N/A	密度：约为 8.5g/cm ³
蒸气压：N/A	蒸气密度：N/A	熔点：约为 900℃
溶解性：不溶于水，溶于碱、盐酸、硫酸		
主要用途：用于加工机械、电子零部件如螺钉螺母、阀件、五金零件等		

10、稳定性及反应活性

稳定性：一边条件下相当稳定	禁配物：N/A
避免接触条件：酸、碱、盐类禁止接触	聚合危害：N/A
分解产物：N/A	

11、毒性资料

急毒性：属微毒类。污染来源为冶金、电镀、催化、仪表、合金和化工等的水和废渣	
亚急性和慢性毒性：无相关资料	
刺激性：无相关资料	致敏性：粉尘接触皮肤少数人过敏
致突变性：无相关资料	致畸性：无相关资料
致癌性：无相关资料	其它：无相关资料



12、生态学资料

生态毒性：无相关资料	生物降解性：无相关资料
非生物降解性：无相关资料	生物富集或生物积累性：无相关资料
其它有害作用：利用含铜废水灌溉农田或施用含铜污泥，铜可积累在土壤中。随水进入到土壤中的铜可被土壤吸持。土壤中的腐殖酸、富里酸含有羧基、酚基、羰基等含氧基团，能与铜形成螯合物而固定铜	

13、废弃处置

废弃物性质：工业固体废物
废弃处置方法：回收再利用
废弃注意事项：与其他废弃物分开放置，便于在利用

14、运输信息

危险货物编号：非危险货物	UN 编号：N/A
包装标识：N/A	包装类别：N/A
包装方法：散装或包装箱	
运输注意事项：防止货物跌落、重压、渗水	

15、法规信息

无相关法规

16、其他信息

参考文献：GB16483《化学品安全技术说明书编写规定》



物质安全技术说明书(MSDS)

1. 产品及企业标识

- 产品名：聚四氟乙烯棒
- 产品英文名：PTFE
- 生产企业名称：维业新材料科技（嘉兴）有限公司
- 地址：浙江省平湖市独山港振业路 333 号 3 号楼
- 邮编：314100
- 生效日期：2023 年 1 月 3 日

2. 成分/组成信息

主要成份	含量%	CAS 编号
聚四氟乙烯（PTFE）	100	9002-84-0

3. 危险性概述

- 危害性类别：不在《常用危险化学品的分类及标志》（GB 13690-92）中
- 侵害途径：吸入，眼睛接触，皮肤接触。
- 健康危害：正常处理时不会产生危害。当加工时，材料在超过分解温度时可能产生有毒气体。吸入，灰尘会引起呼吸道刺激。暴露在 PTFE 分解产物中，可能导致聚合体烟雾发烧症状。有流感症状（高烧、冷颤、肌肉痛）；眼睛接触，灰尘会导致机械性刺激；皮肤接触，灰尘会导致机械性刺激；

4. 急救措施

- 皮肤接触：无需就医。
- 眼睛接触：用大量水冲洗，不要揉搓眼睛，如症状持续，需立刻就医。
- 吸入：移到新鲜空气中，保持呼吸通畅，如症状持续，需立刻就医。
- 食入：无需就医。

5. 消防措施

- 有害燃烧产物：一氧化碳，二氧化碳，氟化氢。

- 灭火方法及灭火剂：使用水雾，泡沫，干粉和 CO₂。
- 灭火注意事项：消防员应携带自给式空气呼吸器 (SCBA) 和全身防护服。

6. 泄露应急处理

- 隔离泄露污染区,限制出入。
- 个人防护措施，如有毒气体产生，穿戴合适的个人防护用品。不要吸入粉尘。清除火源。防止接触皮肤和眼睛；环境预防措施，防止进入下水道，地表水或者土壤；清除方法，清扫或者铲入合适的容器，等待废弃处理。防止产生气载灰尘。

7. 操作处置与储存

- 操作注意事项：密闭操作，提供良好的自然通风条件。
操作人员必须经过专门培训，严格遵守操作流程。建议操作人员佩戴自吸过滤式防尘口罩。
远离火种，热源，工作场所严禁吸烟。
使用防爆型的通风系统和设备。避免产生粉尘。避免与氧化剂接触。
搬运时要轻装轻卸，防止包装及容器损坏。
配备相应品种和数量的消防器材及泄露应急处理设备。倒空的容器可能残留有害物。
- 储存注意事项：储存于阴凉，通风的库房。
远离火种，热源。应与氧化剂分开存放，切忌混储。
配备相应品种和数量的消防器材。
储区应备有合适的材料收容泄露物。

8. 接触控制/个体防护

- 中国MAC (mg/m³) :未制定标准
- 眼睛防护：必要时，佩戴化学安全防护眼镜。
- 其他：如有潜在暴露的地方，提供安全淋浴或者洗眼器。当材料被加工或者产生过多粉尘，不要抽烟或者保留烟雾物质在生产区域。吃饭或者抽烟前彻底清洗手。

9. 物理、化学、机械与电力特性

- 外观形态：通常为固态白色，半透明体,有板、棒、管、膜及异性部件等形态。
- 熔点：327 °C

- 标准相对密度：2.1~2.3g/cm³
- 吸水率：≤0.00
- 拉伸强度：15-30 Mpa
- 断裂伸长率：200-350 %
- 介电常数：2.5-10Kv/mm

10. 稳定性和反应活性

- 禁配物：强氧化剂

11. 毒理学资料

- 无资料提供

12. 生态学资料

- 无资料提供

13. 废弃处置

- 废弃处理方法：请回收废料。在允许接受化学品废物设备中进行处理。如燃烧处理有可能产生氟化氢。

14. 运输信息

- 运输注意事项：起运时包装要完整，装载应稳妥。运输过程中要确保容器不泄露，不倒塌，不坠落，不损坏。严禁与氧化剂等混装混运。运输途中应防暴晒，雨淋，防高温。

15. 法规信息

- 国内化学品安全法规：《危险化学品安全管理条例》（2002 年 3 月 15 日国务院发布），针对危险化学品的安全生产、使用、储存、运输、装卸等方面均作出了相应规定。
- 国际法规：欧盟指示 2002/95/EC（RoHS）符合

16. 其他信息

- 参考文献： 无资料
- 提示：本表所含的信息来源于我们认为准确的数据，但是未提供有关数据准确性或相关使用结果的明确或暗示性的保证。
- 嘉善伟业四氟制品厂对于由本材料导致购买方，用户或第三方所发生的人生伤害或财产损失不承担任何责任。相关材料使用的风险则由购买方或用户承担。

深圳市永利电镀制品有限公司

物質安全資料表 (MSDS)

製造單位	名稱: 深圳市永利电镀制品有限公司	
	地址: 深圳市寶安區松崗鎮碧頭第三工業區;	電話: 18907399828
製錶人	職稱: 品保部經理	姓名: (簽章) 刘喜意
製錶日期	2021.4.25	
产品名称	氰化亚金(I)钾 版本: 1	SDS 编号: zjlfds01

第一部分 化学品及企业标识

化学品中文名: 氰化亚金(I)钾

化学品英文名: Gold potassium cyanide; Potassium aurous cyanide

生产企业名称: 烟台招金励福贵金属股份有限公司

生产企业地址: 山东省招远市国大路288号 邮编: 265400

联系电话: 05358111378

企业应急电话: 05358111278

传 真: 0535-8112277

电子邮件地址: zjlfahb@163.com

产品推荐及限制用途: 产品广泛用于电子线路板、半导体、连接器、军工产品、航天、珠宝首饰、钟表、电铸工艺等行业。

第二部分 危险性概述

紧急情况概述: 吞咽致死; 可能引起皮肤过敏性反应; 一次接触致器官损害;
对水生生物毒性非常大。

GHS 危险性类别: 急性毒性-经口, 类别 2 皮肤致敏物, 类别 1 特异性靶器官毒性
-一次接触, 类别 2 危害水生环境-急性危害, 类别 1 危害水生环境-长期危害, 类别 1

标签要素:

象形图:



警示词: 危险

危险信息: 吞咽致死; 可能引起皮肤过敏性反应; 一次接触致器官损害;
对水生生物毒性非常大; 对水生生物毒性非常大并且有长期持续影响;



防范说明：

预防措施：作业场所不得进食、饮水或吸烟。操作后彻底清洗接触部位。避免吸入粉尘、烟气、气体、烟雾、蒸气、喷雾。污染的工作服不得带出工作场所。戴防护手套。禁止排入环境。

应急响应：隔离泄漏污染区，限制出入。建议应急处理人员戴防毒面具（全面罩），穿防毒服。不要直接接触泄，用大量的次氯酸钠进行破氰处理。

安全储存：储存于阴凉、通风良好的库房。远离火种、热源。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“五双”管理制度。

废弃处置：无使用价值的化学品经回收后，用大量的次氯酸钠破氰处理后废弃。

物理化学危险：遇酸会产生剧毒、易燃的氰化氢气体。在潮湿空气或二氧化碳中即缓慢发出微量氰化氢气体。遇酸或露置空气中能吸收水分和二氧化碳分解出剧毒的氰化氢气体。遇高热分解释出高毒烟气。

健康危害：抑制呼吸酶，造成细胞内窒息。吸入、口服或经皮吸收均可引起急性中毒。口服 50~100mg 即可引起猝死。非骤死者临床分为 4 期：前驱期有粘膜刺激、呼吸加快加深、乏力、头痛；口服有舌尖、口腔发麻等。呼吸困难期有呼吸困难、血压升高、皮肤粘膜呈鲜红色等。惊厥期出现抽搐、昏迷、呼吸衰竭。麻痹期全身肌肉松弛，呼吸心跳停止而死亡。长期接触小量氰化物出现神经衰弱综合征、眼及上呼吸道刺激。可引起皮疹。

环境危害：对水生生物有害。

第三部分 成分/组成信息

√ 物质 混合物

危险组分	浓度或浓度范围	CAS No.
氰化亚金(I)钾	≥99.95%	13967-50-5

第四部分 急救措施



急救:

- 皮肤接触: 立即脱去污染的衣着, 用流动清水或 5%硫代硫酸钠溶液彻底冲洗至少 20 分钟。就医。
- 眼睛接触: 用水细心地冲洗 15 分钟。如戴隐形眼镜可方便地取出, 取出隐形眼镜, 继续冲洗。立即呼叫应急中心或就医。
- 吸入: 1、人员一旦中毒昏迷后, 由在场其他员工将其抬出现场至空气新鲜处, 保持呼吸道畅通。如呼吸困难, 给输氧。 2、迅速拨打 120 急救电话, 详细说明情况、地址, 并派人员到路口迎接。 3、打电话的同时由在场的其他人员给予中毒人员吸入亚硝酸异戊酯 (1-2 支) 置棉花捏碎, 每次吸入半分钟, 两分钟吸入一次, 总量不超过 5 支。 4、呼吸心跳停止时, 立即进行人工呼吸 (勿用口对口) 和胸外心脏按压等心脏复苏术。
- 食入: 1、立即离开现场。 2、饮足量温水, 并催吐。 3、在发生事故的同时, 其他员工迅速拨打 120 急救电话, 详细说明情况、地址, 并派员工到路口迎接。 4、迅速用 1: 5000 高锰酸钾或 5%硫代硫酸钠溶液洗胃。

第五部分 消防措施

特别危险性: 遇酸或露置空气中能吸收水分和二氧化碳, 分解出剧毒的氰化氢气体。遇高热分解释放出高毒烟气。

灭火方法和灭火剂: 使用雾状水、干粉灭火。

灭火注意事项及措施: 遇酸或露置空气中能吸收水分和二氧化碳, 分解出剧毒的氰化氢气体。遇高热分解释放出高毒烟气。消防人员必须佩戴正压自给式呼吸器, 穿全身消防服, 在上风向灭火。

第六部分 泄漏应急处理

作业人员防护措施、防护装备和应急处置程序: 隔离泄漏污染区, 限制出入。建议应急处理人员戴防毒面具 (全面罩), 穿防毒服。不要直接接触泄漏物。

环境保护措施: 用大量的次氯酸钠进行破氰处理。

泄漏化学品的收容、清除方法及所使用的处置材料: 小量泄漏: 小心扫起, 转移至安全场所。大量泄漏: 收集回收或运至废物处理场所处置。

第七部分 操作处置与储存

操作注意事项: 密封操作, 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毒面具 (全面罩), 穿防毒衣, 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。



第十部分 稳定性和反应性

稳定性：稳定。

禁配物：酸类、强氧化剂、水。

避免接触的条件：潮湿的空气。

危险反应：遇酸或露置空气中能吸收水分和二氧化碳，分解出剧毒的氰化氢气体。遇高热分解释放出高毒烟气。

危险分解产物：氰化氢、氧化氮。

第十一部分 毒理学资料

急性毒性：LD₅₀：6.4 mg/kg(大鼠经口)；4300 μg/kg(大鼠腹腔)。它可经呼吸道、皮肤或消化道吸收，产生急性症状。经口消化道吸收的致死剂量有很大不同，取决于当时胃中是否有食物存在。。

皮肤刺激或腐蚀：对动物皮肤的刺激性实验结果为重度刺激。

眼睛刺激或腐蚀：对动物眼睛的刺激性实验结果为重度刺激。

呼吸或皮肤过敏：长期接触小量氰化物出现神经衰弱综合征、眼及上呼吸道刺激。皮肤接触可产生斑疹、丘疹和疱疹等。

生殖细胞突变性：暂无数据。现尚无定论，最近动物实验证明长期经口摄入微量氰化物对小鼠繁殖有影响，动物的子代(一、二年代)死亡率升高，妊娠次数明显下降、死胎可增多，丙烯腈等有机氰对动物有致瘟和诱变作用，对人尚未证实。

致癌性：未见氰化物会导致人类致癌或动物致癌的报道。美国环境保护局确认氰化物不是人类致癌物。

生殖毒性：未见关于氰化物会直接引起出生缺陷的报道。然而在热带信用木薯根茎的人群中，由于母亲怀孕期间接触氰化物和硫代氰酸盐，婴儿出生时就伴有甲状腺疾病。经口摄入木薯根茎的大鼠和小鼠都出现了生殖系统的有害效应。

特异性靶器官系统毒性——一次性接触：无资料。

特异性靶器官系统毒性——反复接触：无资料。

吸入危害：无资料。

第十二部分 生态学资料

生态毒性：高等动物的HCN急性中毒症状有共同之处，即最初呼吸兴奋，经过麻痹，横转侧卧，昏迷不醒，痉挛，窒息，呼吸麻痹，最后致死。对狗、猫和猴则是规律性的呕吐。据文献介绍，牛一次摄入氰化物的致死量为0.39~0.92g。



羊为 0.04~0.10g, 马为 0.39g, 狗为 0.03~0.04g, 羊一次摄入的致毒剂量为 1.05mg/kg 体重。氰化氢对牛的吸入致死浓度为 103mg/L。狗为 0.35mg/L, 猫为 0.12 mg/L, 小鼠 0.044 mg/L, 大鼠 0.12 mg/L, 家兔 0.35 mg/L, 鸽子为 0.125~0.150 mg/L, 对狗、猫、猴的吸入中毒浓度也与人的中毒浓度相近。

鱼的种类	观察指标	总氰化物浓度 (mg/L)
白鲢	安全浓度	0.32
鲫鱼与草鱼	致死浓度	0.15~0.2
鲫鱼	最小致死浓度	0.2
鮰鱼	半致死浓度	0.39
白鲢鱼	最小致死浓度	(4天) 0.06
鳊鱼	最小致死浓度	(4天) 0.2
河鲢	死亡	(5~6天) 0.05
虹鳟	中毒	(翻肚 3天) 0.07
大翻车鱼	存活	(4天) 0.40

持久性和降解性: 水中微生物可破坏低浓度的氰化物, 使其成为无毒的简单物质, 但要消耗掉水中部分溶解氧, 这就是含氰废水所以能用活性污泥处理的基本原理, 但若氰离子浓度较高, 则会对细菌产生毒害作用, 从而影响废水的生化处理过程。据研究, 氰化物浓度大于 1mg/L 时, 将影响活性污泥的处理能力。通过生物滤池的含氰废水, 其浓度亦不应大于 2mg/L。氰化物在水中的存在将降低水中的溶解氧, 使生化需氧量降低, 消化作用降低还会产生一系列的水质问题。

潜在的生物累积性: 氰化物广泛地存在于自然界中。动植物体内都含有一些氰类物质, 有些植物如苦杏仁、白果、果仁、木薯、高粱等含有相当量的含氰糖甙。它水解后释放出游离的氰化氢, 在一些普通粮食、蔬菜中也可检出微量氰。

迁移性: 多数氰化物易溶于水, 因此排入自然环境中的氰化物易被水(或大气)淋溶稀释、扩散, 迁移能力强。该物质对环境有污染, 特别是雾雨、酸雨天气。要注意其逸散的气体对大气的污染, 对水体应给予特别注意。

第十三部分 废弃处置

废弃处置方法:

-产品: 使用价值的化学品经回收后, 用大量的次氯酸钠破氰处理后废弃。

-不洁的包装: 其废包装盒要经过严格的冲洗回收, 并无害化处理后才能废弃。

废弃注意事项: 处置前应处理者必须佩带齐全好劳动防护用品, 废弃物转交给有处理资质的厂家进行处理。



第十四部分 运输信息

联合国危险货物编号 (UN 号)：1588

联合国运输名称：固态无机氰化物

联合国危险性分类：6.1

包装类别：II

包装标志：第 6.1 类 有毒物质

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。

海洋污染物 (是 / 否)：是。对水环境的危害-急性 1。

运输注意事项：运输前应先检查包装容器是否完整，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。运输途中应防雨淋、防高温。公路运输时要按规定路线行驶，勿在居民区和人口稠密区停留。

第十五部分 法规信息

法规信息：下列法律法规和标准，对化学品的安全使用、储存、运输、装卸、分类和标志等方面均作了相应的规定：

化学品分类、警示标签和警示性说明规范系列标准 (GB 20576-2006~GB20602-2006)。

《危险化学品名录》2015：列入，将该物质划为第 6.1 类毒害品。

《危险货物品名表》(GB 12268-2012)：列入，将该物质划为第 6.1 类毒害品。

第十六部分 其他信息

最新修订版日期：2021 年 4 月 25 日

修改说明：本 SDS 按照《化学品安全技术说明书 内容和项目顺序》(GB/T16483-2008) 标准编制；由于目前国家尚未颁布化学品 GHS 分类目录，本 SDS 中化学品的 GHS 分类是企业根据化学品分类、警示标签和警示性说明规范系列标准 (GB 30000.2-2013~GB30000.29-2013) 自行进行的分类，待国家化学品 GHS 分类目录颁布后再进行相应调整。

缩略语说明：

MAC：指工作地点、在一个工作日内、任何时间有毒化学物质均不应超过的浓度。

PC-TWA：指以时间为权数规定的 8h 工作日、40h 工作周的平均容许接触浓度。



PC-STEL：指在遵守 PC-TWA 前提允许短时间（15min）接触的浓度。

TLV-C：瞬时亦不得超过的限值。是专门对某些物质如刺激性气体或以急性作用为主的物质规定的。

TLV-TWA：是指每日工作 8 小时或每周工作 40 小时的时间加权平均浓度，在此浓度下终身工作时间反复接触对几乎全部工人都不会产生不良效应。

TLV-STEL：是在保证遵守 TLV-TWA 的情况下，容许工人连续接触 15min 的最大浓度。此浓度在每个工作日中不得超过 4 次，且两次接触间隔至少 60min。它是 TLV-TWA 的一个补充。

IARC：是指国际癌症研究所

RTECS：是指美国国家职业安全与健康研究所的化学物质毒性数据库

HSDB：是指美国国家医学图书馆的危险物质数据库

ACGIH：是指美国政府工业卫生学家会议

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