

规格承认书

SPECIFICATION FOR APPROVAL

日期 Date	2025/11/13
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客户
CUSTOMER: 扬立铭

客户料号
CUSTOMER NO: RG477V

品名
PART NAME: WIFI双频 Antenna

供方料号
SUPPLIER NO: YJW01.137.210.301A

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	CHECK	DESIGN
ChenGuoqiang	ZhangLiqun	ChenXingyi

YJ-RD-F04-A

承认书项目表

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RoHS

Compatible

REV.

DESCRIPTION

DATE

A

首次发行

2025-10-22

18.3

9.1

YJ-RG47

7V-WIFI

双频-V01

布線區

焊点區

備注:

1. 材質：一对半基材；FPC厚度：0.1mm。
2. 顏色/表面處理：焊点鍍金；背面3M9471膠帶分割線
顏色：黑色油墨，白色絲印。
3. 尺寸：帶*為重點尺寸。
4. 公差：未標注公差參照標準公差。
5. 包裝方式：使用微黏包裝出貨。

PART NAME: WIFI双频 Antenna

PART NO.: YJW01.137.210.301A

DATE: 2025-10-22

APPROVED BY

CHECKED BY

DESIGNED BY

UNITS: mm

SCALE: 1/1

REVISION: A

Tolerance

X.X ±0.50

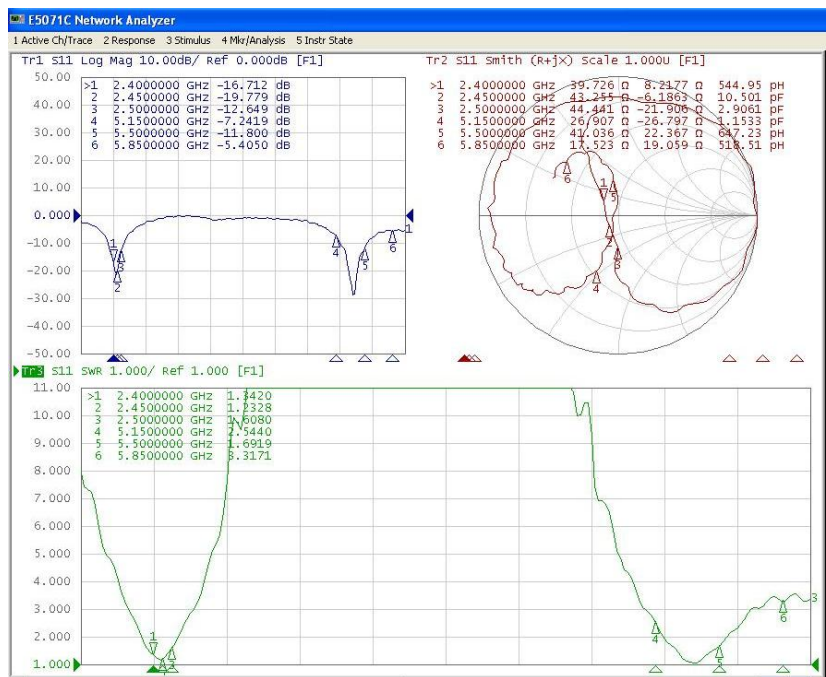
X.XX±0.15

X° ±3°

天线规格
Antenna Specification

Electrical Properties	
Frequency	2.4-2.5GHz 5.15-5.85GHz
Impedance	50 Ohm Nominal
V.S.W.R	2.0 Max@2.4-2.5GHz 3.5 Max@5.15-5.85GHz
Gain	3.7 dBi@2.4-2.5GHz 2.2 dBi@5.15-5.85GHz
Radiation	Omni-directional
Polarization	Linear
Physical Properties	
Connector	None
Cable Type	None
Cable Length	None
Cable Color	None
Operating Temp.	-40 ~ +85 °C
Storage Temp / Humidity	25±5°C / <70%

Agilent E5071C S Parameter Test // WiFi1 Antenna



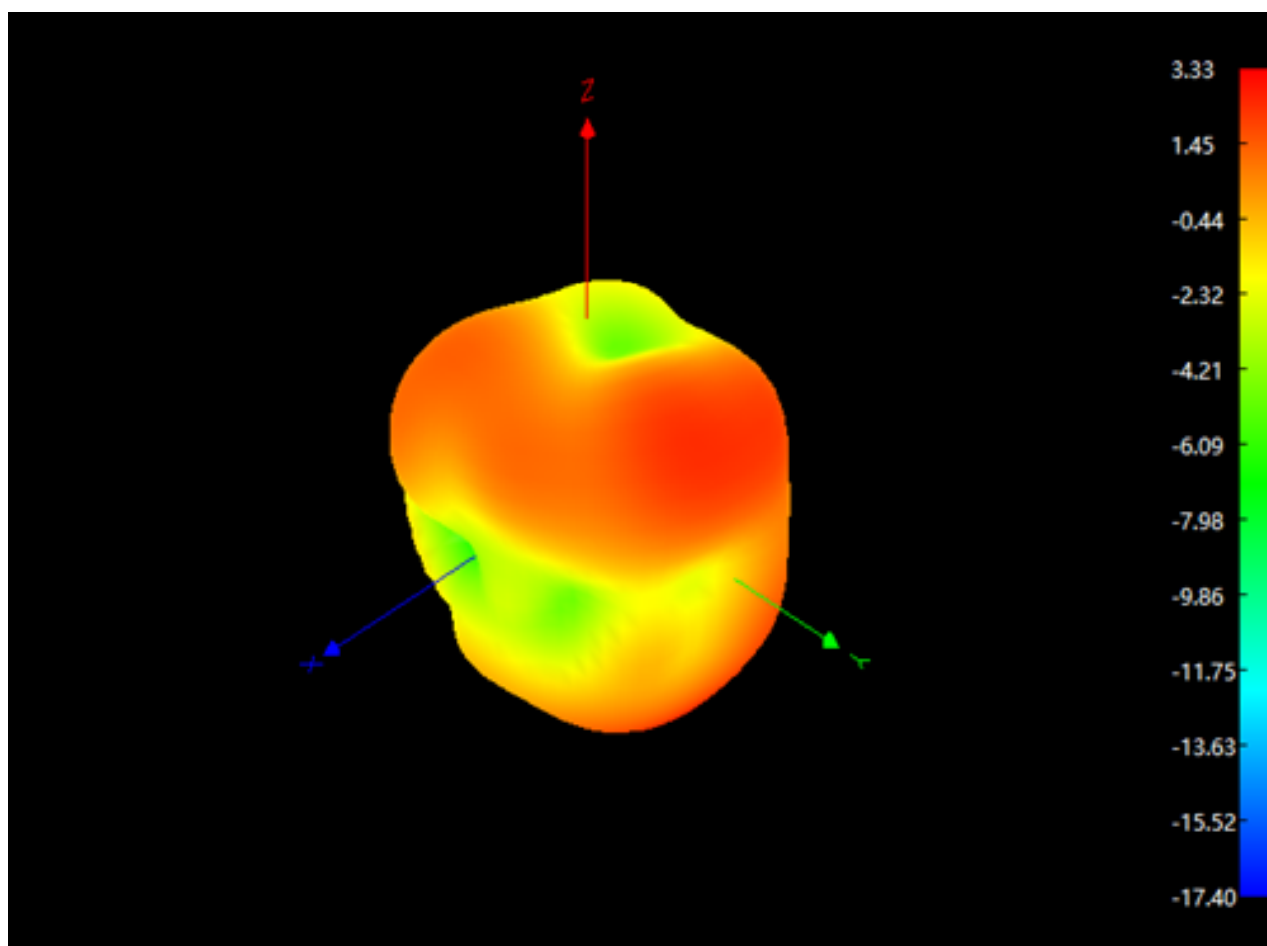
Passive Test For WiFi1 Antenna(2.4G)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	45.6	-3.4	3.3
2410	47.3	-3.3	3.3
2420	47.3	-3.3	3.2
2430	47.0	-3.3	3.1
2440	48.0	-3.2	3.1
2450	51.5	-2.9	3.5
2460	50.2	-3.0	3.3
2470	52.5	-2.8	3.7
2480	51.8	-2.9	3.4
2490	53.2	-2.7	3.7
2500	50.4	-3.0	3.3

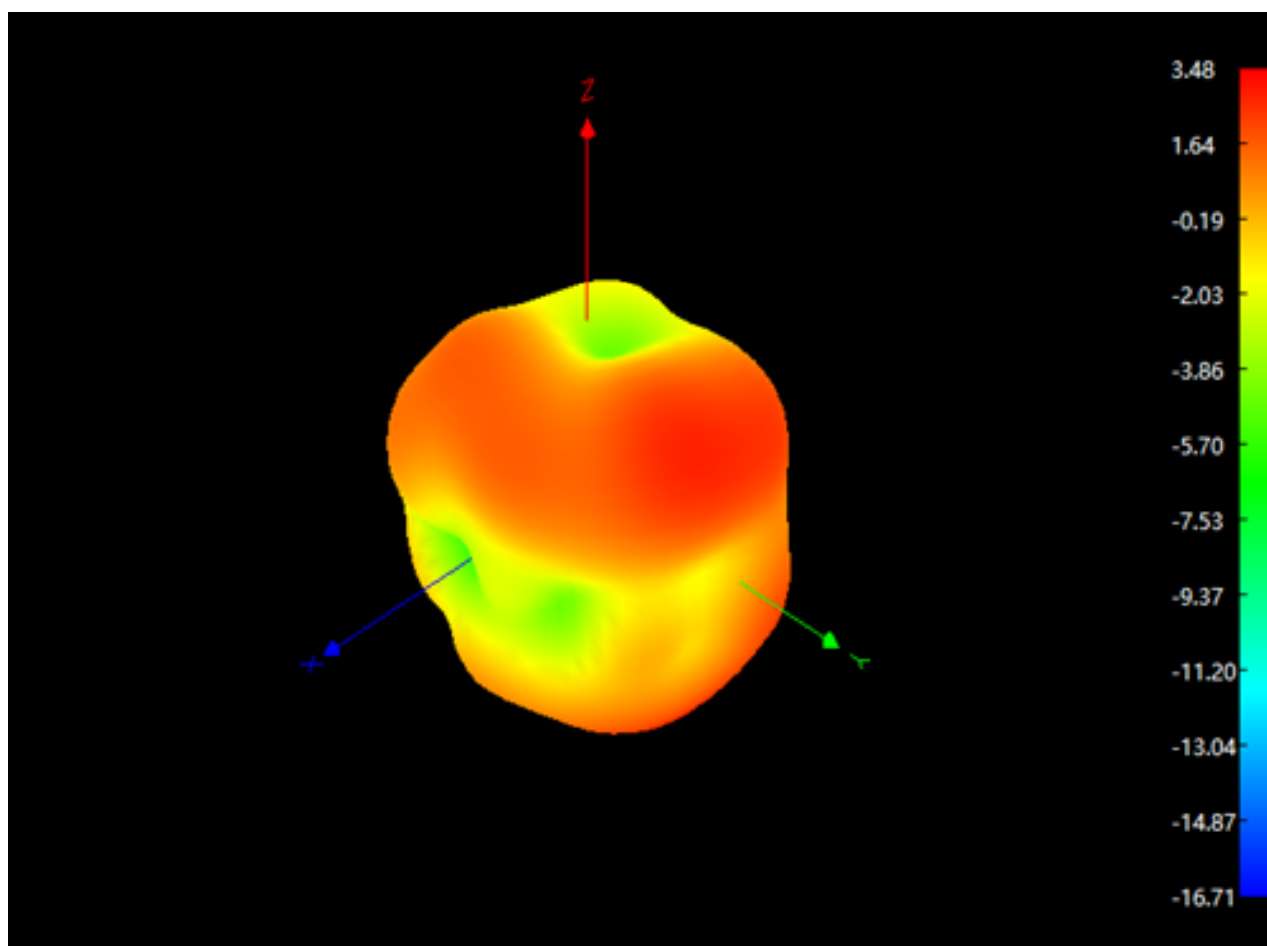
Passive Test For WiFi1 Antenna(5.8G)

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	55.0	-2.6	1.6
5200	57.7	-2.4	1.9
5250	57.9	-2.4	2.1
5300	58.9	-2.3	1.9
5350	58.2	-2.4	1.9
5400	62.7	-2.0	2.2
5450	58.1	-2.4	1.8
5500	52.5	-2.8	1.3
5550	60.8	-2.2	1.9
5600	57.0	-2.4	1.4
5650	46.3	-3.3	0.5
5700	51.2	-2.9	1.1
5750	55.1	-2.6	1.3
5800	43.9	-3.6	0.7
5850	42.7	-3.7	0.9

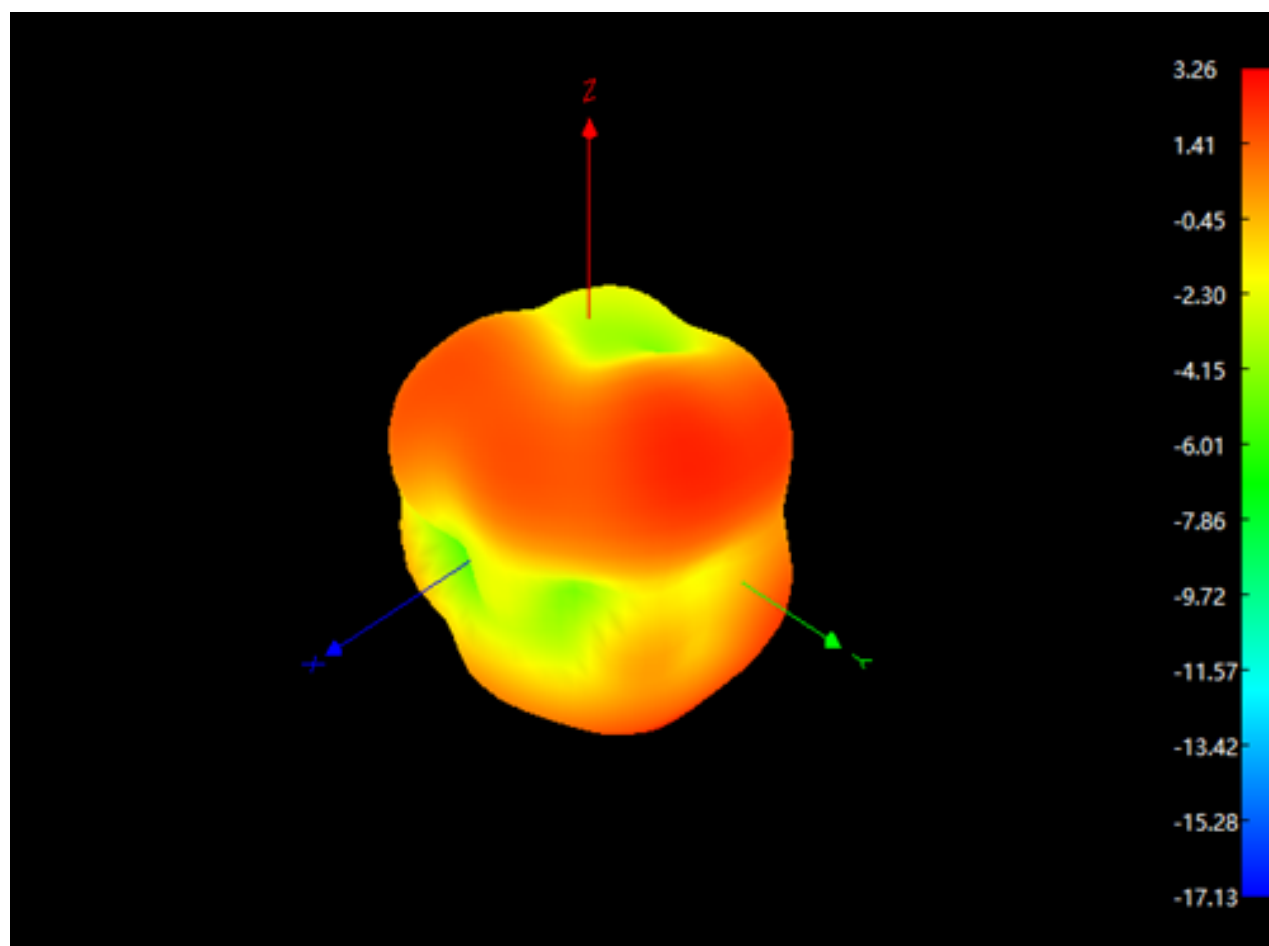
Radiation Pattern For WiFi1 Antenna (2400MHz)



Radiation Pattern For WiFi1 Antenna (2450MHz)

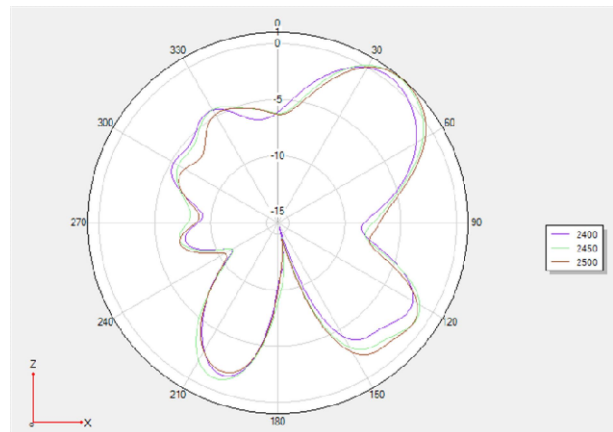


Radiation Pattern For WiFi1 Antenna (2500MHz)

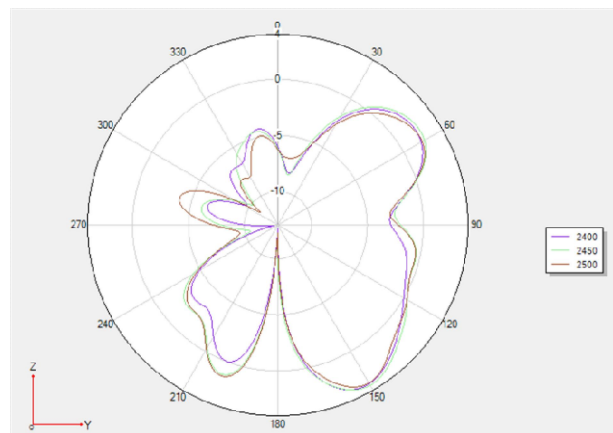


Radiation Pattern For WiFi1 Antenna

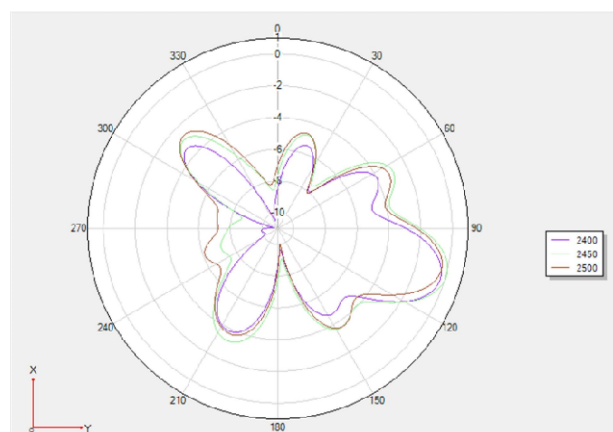
Phi 0°



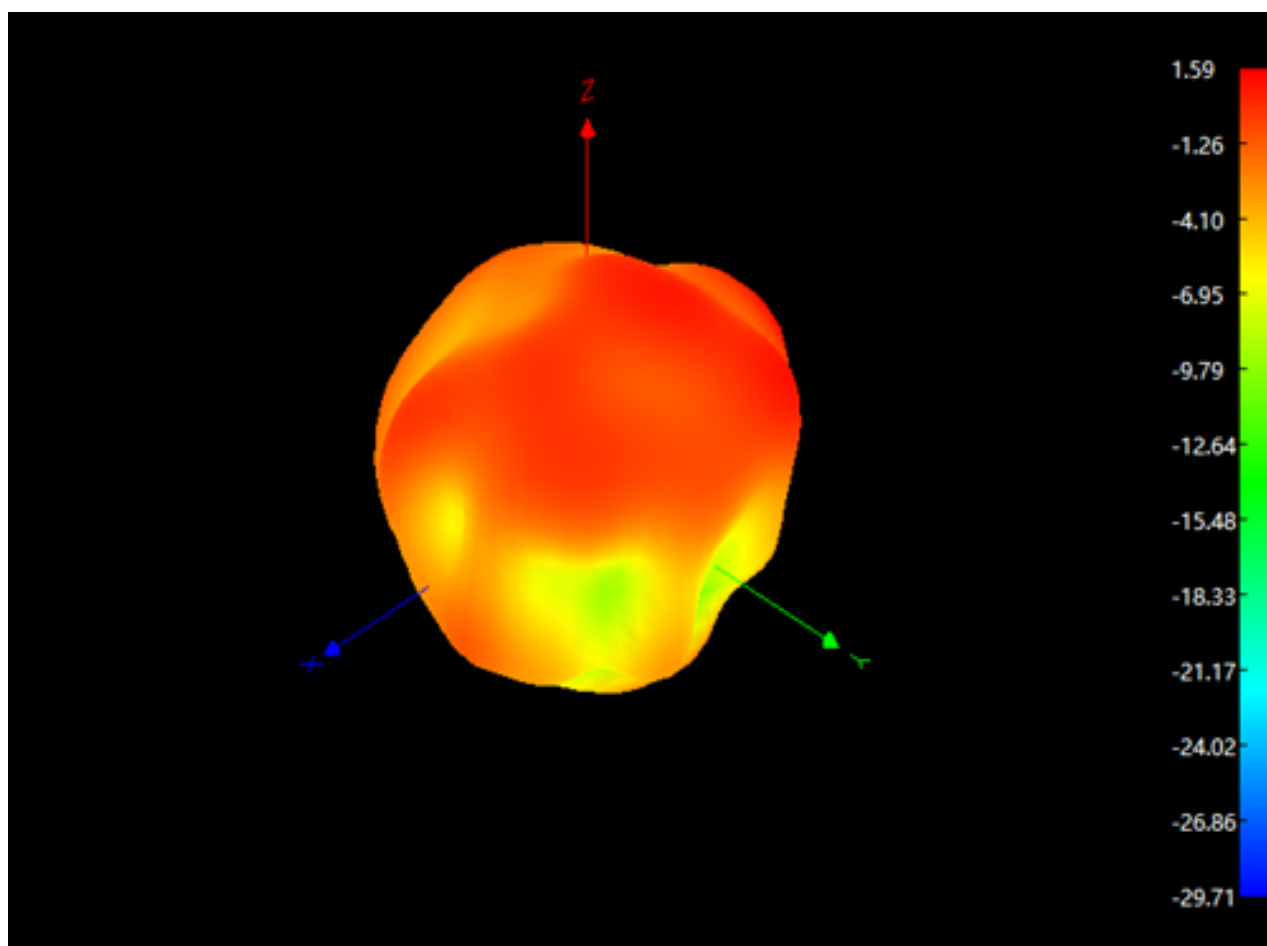
Phi 90°



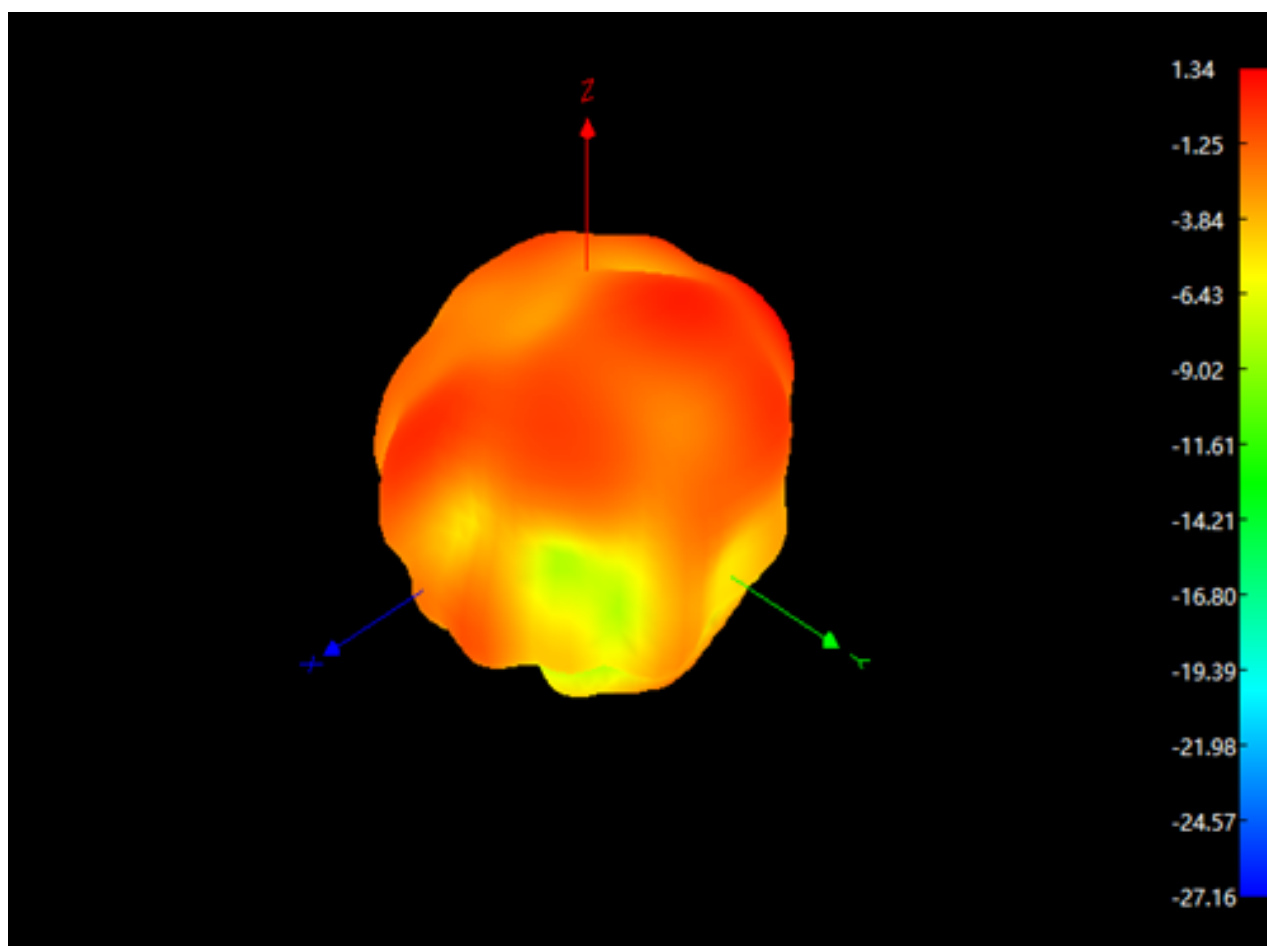
Theta 90°



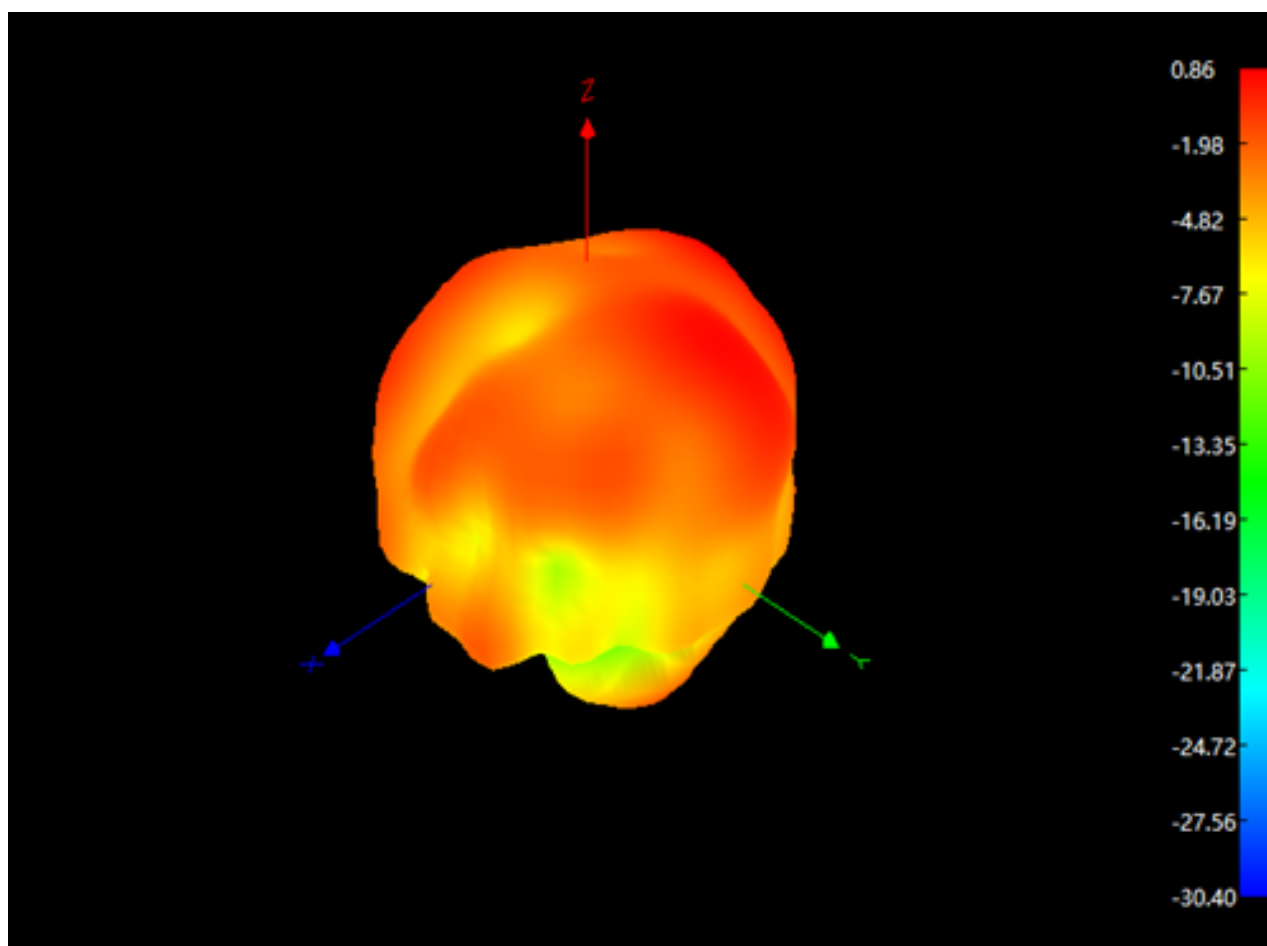
Radiation Pattern For WiFi1 Antenna (5150MHz)



Radiation Pattern For WiFi1 Antenna (5500MHz)

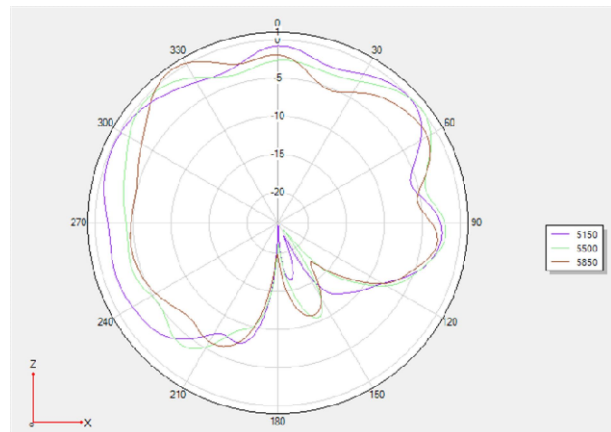


Radiation Pattern For WiFi1 Antenna (5850MHz)

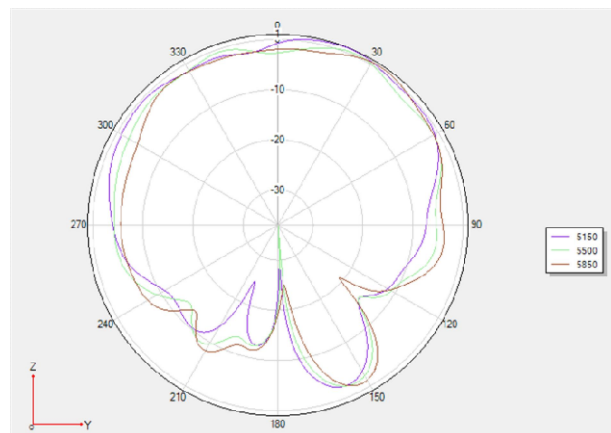


Radiation Pattern For WiFi1 Antenna

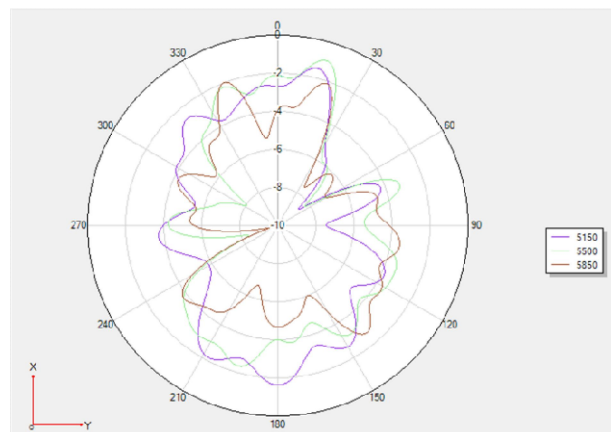
Phi 0°



Phi 90°



Theta 90°



Antenna Active Test

Active Test For WiFi Antenna							
Band	Channel	Data Rate	TRP	EIRP	Data Rate	TIS	EIS
WIFI 2.4G 802.11b	1	11Mbps	17.9	22.3	11Mbps	-86.5	-90.4
	6		17.5	21.8		-86.8	-90.2
	11		17.2	21.3		-86.4	-90.2
WIFI 2.4G 802.11g	1	6Mbps	17.1	22.1	54Mbps	-76.2	-81.0
	6		16.3	20.8		-75.1	-79.6
	11		16.9	21.7		-75.6	-79.7
WIFI 5G 802.11a	36	6Mbps	15.0	21.3	54Mbps	-73.1	-79.0
	149		14.1	20.5		-71.8	-78.4
	165		14.2	20.5		-70.1	-77.6

Device



WiFi1 Antenna





化学品安全技术说明书

修订：2018.11.09

SDS 编号：

产品名称：氰化亚金钾

版本号：

第一部分 化学品及企业标识

化学品中文名：氰化亚金钾

化学品英文名：Gold potassium cyanide

企业名称：南昌盛华有色金属制品厂

企业地址：江西省南昌市湾里区罗亭工业园南安公路以北

邮 编：330041

传 真：0791-83761160

联系电话：0791-83763532

电子邮件地址：shengyou@shengyou.cn

企业应急电话：0791-85257099

产品推荐及了限制用途：重要的电镀化工原料，是集成线路板或工艺品的
主要镀金原料。

第二部分 危险性概述

紧急情况概述：毒害品

GHS 危险性类别：急性毒性-经口-2,特异性靶器官系统毒性一次接触-2,对水环境的危害-急性 1,对水环境的危害- 长期慢性 1,呼吸或皮肤过敏-皮肤致敏 1

标签要素：

象形图：



警示词：危险

危险信息：吞咽致死；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；可能引起皮肤过敏性反应。

防范说明：

预防措施：操作后彻底洗，作业场所不得进食、饮食水和吸烟。

不要吸入粉尘/烟/气体/蒸汽/喷雾.受沾染的工作服不得带出工作场地.戴防护手套.作业后彻底清洗.使用本产品时不要进食、饮水和吸烟.避免释放到环境中.

应急响应：发生火灾时,根据着火原因选择适当灭火剂灭火，皮肤

接触:立即脱去被污染的衣着,用流动清水或 5%硫代硫酸

钠溶液冲洗至少 20min。眼镜接触：立即提起眼睑，用

大量流动清水或生理盐水彻底冲洗至少 15min。吸入：

迅速脱离现场至空气新鲜处。保持呼吸道通畅。如呼吸

困难，给氧。呼吸、心跳停止，立即进行心肺复苏术。

食入：饮足量温水，催吐，用 1:5000 高锰酸钾或硫代硫酸钠洗胃。

安全储存：储存于阴凉、干燥、通风良好的库房、专仓专储，专

人保管、远离火种，热源、包装密封，防止受潮。

废弃处置：包装物应用水清洗后，用漂白粉或液氯作破氰降毒回收

处理，达到国家排放标准后再行排放。

物理化学危险：遇酸或吸收空气中的二氧化碳、水份可分解出剧毒的氰化氢气体。受高热分解，放出高毒的烟气。

健康危害：口服本剧毒品非骤死者，先出现感觉无力、头痛、眩晕、恶心、呕吐、四肢沉重以及呼吸困难等症状，随后面色苍白、失去知觉、甚至呼吸停止而死亡。

环境危害：对水生物有害

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.
氰化亚金钾	≥99.9%	13967-50-5

第四部分 急救措施

急救：

皮肤接触：用硫酸亚铁水溶液洗涤后，用肥皂水及清水冲洗、就医。

眼睛接触：拉开眼睑，用流动清水冲洗 15min、就医。

吸入：脱离现场至空气新鲜处，呼吸停止时，立即进行人工呼吸。

吸入亚硝酸异戊酯，肌肉注射亚硝酸钠-硫代硫酸钠。

食入：误服者，饮适量温水，催吐，用 1：5000 高锰酸钾或 5% 硫代硫酸钠溶液洗胃、就医。

第五部分 消防措施

特别危险性：本品虽属不燃物，但应该防止外界火灾对其造成的影响和威胁。灭火时严禁使用二氧化碳灭火器，否则有

剧毒氰化氰气体产生。

灭火方法和灭火剂：用水、黄砂、干粉灭火器扑救

灭火注意事项及措施：切忌冲入氰化亚金钾火灾现场中，以防止毒水流淌，造成大量中毒。禁用酸碱性或四氯化碳灭火器，消防人员进入火场前，应佩戴好防毒面具。

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：根据氰化亚金钾泄漏扩散情况以及所涉及的区域建立警戒区，并在通往事故现场的主要干道上实行交通管制，除消防及应急处理人员外，其他人员禁止进入警戒区，并迅速撤离无关人员。作业人员应佩戴个人防护用品及防毒面具，并有相应的监护措施。

环境保护措施：防止泄漏物进入水体、下水水道。

泄漏化学品的收容、清除方法及所使用的处置材料：小心将地面的固体收集并用水溶解处理掉；地面残留物应用五倍次氯酸钠溶液分解清除，深埋于土中。

第七部分 操作处置与储存

操作注意事项：操作人员佩戴防毒面罩、操作场地应配备灭火器材、监控设备，库房双人双锁、强排通风。搬运时轻装轻卸，保持包装完整，防止洒漏；分装和搬运作业要注意个人防护；储存于阴凉、干燥、通风良好的库房；专仓专储，

专人保管；远离火种，热源；包装密封，防止受潮；不能与酸类、氯酸盐、亚硝酸钠（钾）、粮食、种子、饲料、各种日用品混装、混运；操作现场不得吸烟、饮水、进食。

储存注意事项：贮存和使用氰化亚金钾过程中，要切记不要与酸类、亚硝酸盐、硝酸盐等物质放置一处，或者把氰化亚金钾暴露于酸性环境下，这样会降低产品质量和使用效果；也不可长期贮藏在潮湿的环境里和露天堆放，宜在通风干燥地点贮藏，实行专库或专柜，双人双锁保管，贮存时要进行检验，定期养护，控制贮存场所的温湿度，并进行相应的通风或降潮湿措施，贮藏地点要准备相应的防毒口罩、面具及个人防护用品，以及相应的消防设备，装卸时要穿戴好个人防护用品，并防止破损漏撒及雨淋水湿。库房应配备灭火器材、监控设备，库房双人双锁、强排通风

第八部分 接触控制/个体防护

接触限值：1mg/m³

生物限值：无资料

监测方法：气相色谱法

工程控制：生产过程密闭，操作场地通风，提供安全淋浴和洗眼设备。

呼吸系统防护：佩戴自吸式防毒面罩。

眼睛防护：佩戴安全防护眼镜

皮肤和身体防护：穿戴防护工作服。

手 防 护：戴防化学品手套。

其他防护：操作现场不得吸烟、饮水、进食。工作后沐浴更衣，保持良好的卫生习惯。

第九部分 理化特性

外观与性状：白色结晶性粉末

PH 值（指明浓度）：	10-11	熔点/凝固点(℃)：	小于-50℃
沸点或初沸点(℃)：	无资料	密度 (g/cm ³)：	3.45 g/cm ³
相对蒸气密度（空气=1）：	无资料	相对水密度（水=1）：	无资料
燃烧热（kJ/mol）：	无资料	饱和蒸气压（kpa）：	无资料
临界压力（Mpa）：	无资料	临界温度（℃）：	无资料
闪点（℃）：	无资料	n-辛醇/水分配系数（log _K ow）：	无资料
分解温度（℃）：	200	引燃温度（℃）：	无资料
爆炸下限[%（v/v）]：	无资料	爆炸上限[%（v/v）]：	无资料
易燃性：	不燃物		

溶解性：易溶于水、微溶于乙醇中。

第十部分 稳定性和反应性

稳定性：在正常条件下稳定

禁配物：酸类、亚硝酸盐、硝酸盐等

避免接触条件：避免皮肤直接接触

危险反应：与酸接触反应产生剧毒氰化氢气体

危险分解产物：剧毒氰化氢气体

第十一部分 毒理学资料

急性毒性：毒性指数 LD₅₀ 为 20.9mg/Kg(大鼠经口)

皮肤刺激或腐蚀：皮肤红肿、瘙痒

眼睛刺激或腐蚀：眼粘膜刺激

生殖细胞突变性：无资料

致癌性：无资料

生殖毒性：无资料

特异性靶器官系统毒性一次接触：2

特异性靶器官系统毒性反复接触：无资料

吸入危害：吞咽致死

第十二部分 生态学资料

生态毒性：对大部分动物有毒害作用

持久性和降解性：无资料

潜在的生物累积性：无资料

迁移性：无资料

第十三部分 废弃处置

废弃处置方法：

产品：固体如果泄露，应该小心将地面的固体收集并用水溶解处理掉；

地面残留物应用五倍次氯酸钠溶液分解清除，深埋于土中

不洁的包装：包装物应用水清洗后，用漂白粉或液氯作破氰降毒回收

银处理，达到国家排放标准后再行排放。

废弃注意事项：处置前应参阅国家和地方有关法规

第十四部分 运输信息

联合国危险货物编号（UN 号）：1588

联合国运输货物名称：氰化亚金钾

联合国危险性分类：6.1 类

包装类别：60001

包装标志：毒害品

海洋污染物：是

运输注意事项：公路运输氰化亚金钾时，车辆必须是剧毒品运输车。

在装好氰化亚金钾行车前，要认真检查货物捆绑是否扎实，是否泄漏， 行车途中要经常停车检查货物是否松绑、雨淋等状况，发现问题及时解决，停车住宿必须在有人 24 小时值班巡查的正规停车场，卸完货物后要认真及时、 清洗车辆，以防止氰化亚金钾泄漏、污染、丢失、被盗及中毒。

第十五部分 法规信息

法规信息：下列法律和标准，对化学品德文安全使用、储存、运输、装卸、分类和标准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》：列入，将该物质划为第 6.1 类毒害品。

《危险货物品名表》：(GB122268-2012) :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：2015 年 11 月 09 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 20576-2006~GB20602-2006) 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-STEEL:指在遵守 PC-TWA 前提允许短时间 (15min) 接触浓度。

TLV-C: 瞬时亦不得超过的限值。是占们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 8h 或每周工作 40h 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致产生不良反应。

TLV-STEEL: 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。

RIECS: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。

AOGIH:是指美国政府工业卫生学家会议。

First, chemical products and materials for business

Chemical name: PSM-800FSDM-A/SMH-800 liquid solid plate ink
Other names:
Use and restricted use of construction: flexible printed circuit board (PI/Cu), hand machine roof board
Name, address and address of the creator, entrant or supplier: Creator: Yueli Reachability Co., Ltd. Address: No.22 Jingjian Fourth Road, Guanyin District, Taoyuan City: 886-3-4836651
Urgent/true: 886-3-4836651, true: 886-3-4837487

Second, the hazard identification of resources and materials

Hazard classification of chemical products:
Health and environmental hazards: Acute toxicity (swallowing) 4, rot/skin irritation 2, heavy weight/eye irritation 2, skin Pass sensitive substance first, carcinogenic substance second, and hazardous substance second (acute toxicity).
Indication of content:
Symbol number:

Warning language:
Warning hazard
warning interest:
Harmful to swallow Cause skin irritation Causing severe eye irritation may cause skin hypersensitivity and suspected carcinogenesis Toxic to aquatic organisms
Hazard prevention measures:
Put the container in a place with good ventilation far away from the high temperature Do not eat or drink when using Remove the blindfold/face mask immediately when your clothes are contaminated If you touch your eyes, wash them with plenty of water immediately, and then ask the mud to wear suitable gloves Do not inhale gas/gas/steam gas/gas before use Place it in the upper lock Do not place until you know all safety precautions Avoid releasing release in the environment
Other hazards:-

III. Composition
identification of

PSM-800FSDM-A/SMH-800



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capital mixture:

Liquid solid plate ink PSM-800FSDM-A/SMH-800		
Chemical geology:		
Chinese and English names of hazardous components	Register number of Chemical Digest Service (CAS No.)	Degree or degree (percentage of components)
Oxygen acrylate oligmer Epoxy acrylate oligmer	28064-14-4	50%
Silicon dioxide Fused silica	7631-86-9	13%
Aromatic solution	64742-94-5	4%

Methyl dipropylene glycol	34590-94-8	4%
Carbon black	1333-86-4	3.5%
BaSO ₄ sulfate	13462-86-7	24%
Photoinitiator and the others	5495-84-1	1.5%

Fourth, first aid measures

First aid methods for the same road:

Inhalation: 1. Take self-protection measures before rescue.

2. Remove pollution sources or move patients to new places.

3. If a patient stops breathing, artificial respiration should be given immediately by the person who has been adalmed. If the heart stops, cardiopulmonary resuscitation should be given. When the patient inhales and swallows toxic substances, mouth-to-mouth artificial respiration should be used directly, and pocket masks and other medical equipment should be used for artificial respiration.

4. Maintain the patient's safety and normal temperature. 6. Treat the cure quickly.

Pi Mo: Wash the contaminated area with harmonious water for at least 20 minutes, and remove contaminated clothes, shoes and leather products before water. Eye touching: Immediately open the eyelids and wash the contaminated eyes with water for at least 20 minutes, and immediately take care of them.

Intake: 1. If the patient will be frustrated, or has been frustrated, he can feed anything.

2. It can induce vomiting and give 240-300ml of water.

3. If you vomit spontaneously, rinse your mouth and supply water repeatedly.

The most important diseases and harmful effects:-

Protection against first aid workers:-

Tips for doctors:-

V. Fire measures

Suitable for fire: chemical dry powder, wine foam, carbon dioxide, water, fire: water, water, foam water.

Special hazards that may be encountered during fire;

1. Its steam gas and decomposition products are burning and toxic.

2. Its steam gas is heavier than its empty gas, and it can spread to distant fire sources and give birth to tempering.

3. The combination of steam and big gas may lead to explosion.

4. When this object is indoors, outdoors or in sewers, it is in danger of steam explosion.

Special Fire Procedure:

1. In a safe distance from the place of fire, keep in the upwind position.

2. You can use water containers to disperse steam gas to wash the leakage and sparse the leakage, so as to protect the rescue staff.

3. Water in the flame of the container around, so that the container is cold, until the fire is cold. Keep the bottom of the container safe.

4. Poker or move all ignition sources.

Special protection of firefighters: Firefighters must wear air respirators, fire clothing and protection gloves.

VI. Leakage and management methods

Things people should pay attention to:

1. Restrict personnel from entering until the spillover area is completely cleaned up.

2. The work of cleaning up by the person who is negated.

3. Wear appropriate civil air defense.

Attention to matters in the environment:

1. Remove the ignition source.

2. Maintain ventilation in the leakage area.

3. Be in the upper wind and avoid going into the lower place.

4. Remove or separate burning and combustible materials under conditions that endanger the safety of people.

5. At least 100 to 200 meters away from the pollution source.

Cleaning method:

1. You can touch the leaked materials.

2. Avoid leakage entering sewers or dense spaces.
3. Where safety permits, prevent or reduce spills.
4. Block the leakage with soil, sand or similar and combustible objects that will respond to the leakage.
5. When there is a small amount of spill, it should be absorbed by the reaction with the leakage. Contaminated absorbed and discharged materials have the same model
6. Harmfulness must be placed in the appropriate container that is covered and indicated. Wash the spill area with water.
7. When there is a large amount of spill: fire fighting, emergency management and business response to seek help.

VII. Safe Location and Storage Methods

Place:

1. It is stored in a place where it is dry and ventilated, and avoids direct light and ignition source.
2. Far away things such as strong oxides, strong acids and water.
3. Use grounding, use the device without spark, and ventilate the wind system.
4. Store a small amount in the refrigerator, and use the explosion-proof refrigerator.
5. Department of police reports leaked outside the city.
6. It is necessary to separate the storage area from the work area, restrict people from entering and leaving the storage area, and show warnings.
7. Avoid collision, and the nearest fire system.
8. You can work alone, and another person needs to be on standby for rescue.
9. In the work area, use the containers that can be used to burn the liquid body, and all the barrels and slots should be grounded, and the containers must be connected to each other.
10. Use the smallest possible amount, and use a suitable ventilation system in the designated area.
11. The target indication container should be covered when in use.

Storage:

1. It is stored in a place where it is dry and ventilated, and avoids direct light and ignition source.
2. Store a small amount in the refrigerator, and use the explosion-proof refrigerator.
3. It is necessary to separate the storage area from the work area, restrict people from entering and leaving the storage area, and show warnings.
4. The target indication container should be covered when in use.

Eight, the preventive measures

Engineering control:

1. The wind system of the single use of the step to generate sparks and grounding.
2. The discharge port leads directly to the outside, and the important measures for protection are taken.
3. When using this object in large quantities, it may be necessary to install local gas and process dense.
4. Supply fully new and fresh air gas to supplement the air gas drawn out by filling and discharging the air gas system.

Control number:-

Average capacitance of eight small hours/average capacitance of short hours/maximum capacitance:-

Biological fingerprint:-

Civil air defense:

:: Breathing protection: 1. Chemical materials containing machine vapor poison cans or self-made breathing protection equipment.
2. Constant quantity type gas supply type breathing protection device, animation type breathing protection device containing machine steamed gas pot, mask containing machine steamed gas pot, comprehensive self-galvanizing breathing protection device, comprehensive gas supply type breathing protection device, and comprehensive chemical school poison breathing protection device containing machine steam poison pot. 3. Positive full-blown breathing protection equipment or positive full-blown gas-supplied breathing protection equipment with auxiliary positive self-blown breathing protection equipment.
4. There is a mask for steaming gas canister, and an escape type self-breathing protection tool.

Hand protection: Butyl rubber is the best, chlorinated polyethylene, polyvinyl acid, fluorinated cortex, butyl rubber/chloroprene rubber, fluorinated rubber, chloroprene rubber/natural rubber galaxy cover, fluorinated cortex/chloroprene rubber are also good anti-scorching gloves.

Eye protection: 1. Anti-chemical safety eye protection.

2. Full cover.

3. Don't wear shaped eyes.

1. Work shoes and body clothes.

2. There should be a bath/wash in the work area.

The measures for living:

1. Remove contaminated clothes quickly after work, and then wear them after washing them.

2. The work place is forbidden to smoke cigarettes or eat.
3. After taking care of this thing, you must wash your hands.
4. Keep the property clean.

IX. Physical and Chemical Geology

Outside (physical state, color, etc.): black cream	Gas flavor: bad smell
Olfactory value:-	Melting level:-25 °C
PH value:-	Boiling/boiling: 218-219 °C
Combustibility (solid and gas):-	Fire: > 75 °C
Decomposition temperature:-	The method of wearing a cup: () carrying a cup (V) wearing a cup
Spontaneous combustion temperature: spontaneous combustion	Explosion boundary:-
Steaming gas:-	Steaming density: 6.07
Density: 1.24 ~ 1.26 (water = 1)	Solubility: Slightly soluble in water
Octanol/water partition number (log Kow):-	Dispersion rate:-

X. Stability and Reaction

Stability: Stability under sealed dry container.
Possible hazard response under special conditions:-
Types to be avoided: leakage, flame and other ignition sources.
Things to avoid: acid, oxidation
Hazardous decomposition: carbon monoxide

XI. Toxic Materials

The road: leather, inhalation, eyes, food
Symptoms: irritation, drowsiness, dizziness, tiredness, pain, nausea, difficulty breathing and
Acute toxicity: Inhalation: 1. Steaming gas will irritate nose, throat and lungs. Pi Fou: 1. Liquid body or solution will cause heavy irritation and burning pain. 2. Steaming gas can cause irritation. 3. After being picked up by the skin, the liquid will be absorbed to the poisoned amount. Eyes: 1. Steaming gas will irritate eyes and stimulate them. 2. Liquid body will cause heavy burning and injury to eyes. Intake: 1. It will cause bright local irritation to the mouth and digestive tract.
Chronic toxicity or long-term toxicity:-

Twelve, raw materials

Raw toxicity:-
Persistence and degradation: Avoid entering the water source inlet and waterway, which is harmful to aquatic organisms.
Bioaccumulability:-
Reactionality in soil:-
Other good effects:-

XIII. Methods of abandoning and abandoning places

Discarding method: 1. Examining the principle of phase method. 2. According to the pieces of the store to be disposed of waste materials. 3. Specific incineration or burial can be used.
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Fourteen, Dictate to send materials

Lian He Guo Bian No.:-



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The name of the joint country is:-
Classification of the hazards of Dirk: It is judged as ordinary goods according to Fujian Commercial Report 0128227
Packaging and fitting: It can be arranged according to ordinary goods
Marine pollutants (yes/no): no
Special delivery methods and precautions:-

XV. French Materials

Suitable usage:
1.If you work safely, you will be able to apply it
2.Road traffic safety rules
3.Methods and standards for the storage and removal of waste materials
4.Harmful academic products and general knowledge
5.What you can do in your work, what you can do, and what you can do

XVI. Other materials

Take part in the text	1.RTECS Materials, TOMES PLUS CD-ROM, Vol. 41, 1999 2.HSDB Materials, TOMES PLUS CD-ROM, Vol. 41, 1999
Superficial site	Mingjia: Youli Lian Lian Co., Ltd. Address/: No.22, Jingjian Fourth Road, Guanyin District, Taoyuan City: 886-3-4836651
Table person	Calling for: the principle of science and technology Name (Seal): Huang Zhihui
Table date	2021.01 1.10
Per	Among the above-mentioned materials, "-" means that there is no related materials at present, while the symbol number "/" means that this person is compatible with the material and is suitable for use

The above-mentioned materials are provided by our company, which is correct for the above-mentioned materials, but it is still difficult to avoid them.
The materials and materials of each project are only for reference, and users should judge their availability according to their corresponding needs.

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

- 1.1 Material Name: Flexible Copper-Clad Polyimide Laminates
1.2 Part Number: LPI-HF
1.3 Use of Material: Printed Circuit Boards
1.4 Date of Prepared: April 22nd, 2021
1.5 Company Identification: Jiu Jiang Flex Co., Ltd.
1210Qianjin Road (E) Jiujiang, Jiangxi, China 332006
1.6 Emergency Telephone Number: 86-792-8358899
1.7 Telephone Number for Information: 86-792-8358899, 8355813

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

Composition / substance		CAS#	%
PI	polyimide	25038-81-7	2.93~28.11
Adhesive	Epoxy resin	25036-25-3	2.42~6.81
	Flame Retardant (additive type)	225789-38-8	0.49~1.36
	Rubber	9003-18-3	1.45~3.99
Copper foil	Copper	7440-50-8	92.66~59.72

SECTION 3 HAZARDOUS IDENTIFICATION

Dust, soot, combustion gases produced when burning, of inhaled, ingested or absorbed through skin it will be harmful or irritating to the eyes, skin, mucous membrane, respiratory system, allergies can be caused to skin, flammable irritating and sensitive.

SECTION 4 FIRST-AID MEASURES (on Dust)**Inhalation:**

Remove to fresh air. Obtain medical attention if symptoms persist.

Eye Contact:

Flush immediately with large amounts of water. Do not rub eyes. Obtain medical attention if symptoms persist.

Skin Contact:

Wash area of contact thoroughly with soap and water. Do not rub or scratch. Obtain medical attention if symptoms persist.

Ingestion: Drinking water as much as possible, emetic, and see doctor.

SECTION 5 FIRE FIGHTING MEASURES

Extinguishing Agents

Following extinguishing media can be used:

Carbon dioxide extinguisher

Dry powder fire extinguisher

Water Pump

Foam fire extinguisher

Hazards of Unusual burning and Explosion:

The material produces carbon monoxide, carbon dioxide, nitrogen, oxides of nitrogen, smoke and dust when extremely high temperature or burning.

Personal Protective Equipment

As in any burning, wear self-contained breathing apparatus and full protective gear.

Upper limit of Flammability: not ascertained

SECTION 6 EMERGENCY HANDLING OF LEAKAGE

Emergency handling:

Block the leakage area to avoid dust flying and wear protective equipment, use vacuum cleaner to clean the leakage.

SECTION 7 HANDLING AND STORAGE

Handling: Wear cotton gloves to protect product damage and hand lacerated.

Storage conditions

The material should be stored in dry, ambient temperature wrapped with PE film.

Environment: Keep away from heat, ignition sources, and direct sunlight.

Other conditions: Keep cartons tightly closed when not in use.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory protection:

No general requirements. If the occurrence of dust, gas or smoke processing or processing, is stimulating to employees, to use NIOSH/MSHA approved respiratory protection measures. Engineering control should be excluded from the need for respiratory support.

Ventilation:

Once air exhaust exposure exceeds limits, or visible smoke, dust, exhaust gas, the ventilation at site should be accompanied by all the heat process at the same time.

Mechanical operations:

Optimize and follow good industrial operation as possible as you can.

Eye Contact:

With eye-glasses on during all process

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	PI film Copper-Clad Laminate with adhesive
Physical State:	solid
PH:	Not Applicable
Melting point:	no data
Relative density (water =1):	more than 1
Boiling point:	no data
The relative vapor density (air =1):	more than 1
Saturated vapor pressure (kPa):	Not Applicable
Heat of combustion (kJ/mol):	no data
The critical temperature (c):	Not Applicable
The critical pressure (MPa):	Not Applicable
The octanol / water partition coefficient of numerical:	Not Applicable
Flash point (°C):	Not Applicable
Upper explosive limit% (V/V):	Not Applicable
Ignition temperature (c):	no data
The lower limit of explosion% (V/V):	Not Applicable
Solubility:	insoluble
Application:	used for making printed circuit board

SECTION 10 STABILITY AND REACTIVITY

Stability:

Storage for one year at 5°C to 30°C and RH less than 75%

Conditions to Avoid:

High Humidity, direct sunlight,

The copper side may have violent reaction with followings:

Acetylene, ammonium nitrate, bromide, chlorate, iodic acid, chlorine, ClF_3 , $\text{Pb}(\text{N}_3)_2$, $(\text{Cl}_2+\text{OF}_2)$, ethylene oxide, fluoride, hydrogen peroxide, nitric acid hydrazide, hydrazoic acid, H_2S , K_2O_2 , NaN_3 , Na_2O_2 .

SECTION 11 TOXICOLOGICAL INFORMATION

Sensitization: Long time skin contact may cause dermatitis

Acute Poisoning: Inhalation of dust may cause thirst, fever, headache, weakness, symptom of respiratory disorders.

SECTION 12 ECOLOGICAL INFORMATION

Normal condition: No big influence may caused to ecology.

Waste Disposal Method

To dispose based on local, state or national laws.

Tank treatment: Not applicable.

SECTION 13 DISPOSAL CONSIDERATION

Hazardous wastage: NO.

Waste Disposal Method

To bury or burn at specified place based on national laws.

SECTION 14 TRANSPORTATION INFORMATION

No special regulation on this product for domestic or international transportation.

SECTION 15 REGULATORY INFORMATION

Must be complied with domestic or local regulation

SECTION 16 REGULATORY INFORMATION

14.1 INTERNATIONAL REGULATIONS:

EU Directive 2011/65/EU (RoHS): Compliant

SECTION 17 OTHER INFORMATION

Issued by: QC Department of Jiu Jiang Flex Co., Ltd

Disclaimer:

The data sheet information is true and accurate, but all statements and recommendations do not contain any guarantee. The consequence of the material shall be from practice. This report does not include all the circumstances that the user may encounter during operation. Each aspect of the operation may be increased or decreased during operation. All health and safety information contained in this report shall be submitted to you employees and customers. Users are responsible to take appropriate measures in practical operations.

CHUNG YU INDUSTRY CORPORATION

Material Safety Data Sheet

Section 1 : Chemical Product and Company Identification

Product name	Thermal curable two-component marking ink
Other means of identification	ZSR-150 ZM-400WF
Recommended use of the chemical and restrictions on use	Use in PCB fabrication.
Manufacturer/Supplier identification	CHUNG YU INDUSTRY COPORATION
Manufacturer/Supplier address	618 Yen-Ping Rd., sec. 3, Ping-Jeng, Tao-Yuan, Taiwan
Emergency telephone No.	(886-3)4641205
FAX No.	(886-3)4644839

Section 2 : Hazards Identification Information

Hazard classifications of the product	Inflammable liquids(II),Carcinogens, (II), Inhalation of hazardous substances (I)
Label elements	 Hazard symbols: Fire Caution catchwords: Danger Hazard massages: Inflammable liquids and vapor Harmful to swallow Skin irritation Eye irritation
Other hazards	—

Section 3 : Composition, Information on Ingredients

Mixture :

Chemical name	Concentration(% of contents)	CAS. NO.
Epoxy resin	50	25085-99-8
Barium sulfate	15	7727-43-7
Titanium dioxide	30	13463-67-7
Naphtha	5	8030-30-6

Section 4 : First-aid Measures

The first-aid measures for different exposure routes:	
Eyes contact	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids.
Skin contact	Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.
Swallow	Do not induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation	Remove from exposure to fresh air immediately.
The most important symptoms and hazardous effects	Headache, nausea
Notes to Physicians	Please provide the MSDS for physicians.

Section 5 : Fire-fighting Measures

Suitable fire extinguishing media	Chemical dry powders, chemical foam, carbon dioxide
General information	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Specific fire-fighting methods	It's not suitable to use water extinguish.

Section 6 : Accidental Release Measures

Person-related precautionary measures	Do not inhale vapors / aerosols. Ensure supply of fresh air in enclosed rooms.
Environmental-protection measures	Do not allow to enter sewerage system.
Procedures for cleaning / absorption	Take up with liquid-absorbent material. Forward for disposal. Clean up affected area

Section 7 : Safe Handling and Storage Measures

Handling	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation.
Storage	Store in a cool(15~25°C), dry place. Keep container closed when not in use.

Section 8 : Exposure Controls Measures

Engineering controls	Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels.				
Control parameters					
	Term	8 hours time weighted average exposure limits TWA	Short-term exposure limits STEL	Maximum limits CEILING	Biological standards BEIs
	Solvent	100ppm	125ppm	—	—
Personal protective equipment	Eye protection: Wear safety glasses and chemical goggles if splashing is possible. Skin protection: Wear appropriate protective gloves and clothing to prevent skin exposure. Clothing: Wear appropriate protective clothing to minimize contact with skin. Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.				

Section 9 : Physical and Chemical Properties

Physical state : paste	Color : white
Odor threshold : —	Odor : slightly pungent
pH value : —	Melting point : —
Decomposition temperature : —	Boiling point : 110-190°C (solvent)
Flammability(solid, gas) : —	Flash point : 38-43°C (solvent)
Autoignition temperature : —	Test methods : —
Vapor pressure : <5 mmHg @ 25°C (solvent)	Explosion limits : —
Specific gravity/Density : 1.45~1.55 g/cm ³ (water=1)	Solubility in water : insoluble

Section 10 : Stability and Reactivity

Chemical stability	Stable under normal temperatures and pressures.
Conditions to avoid	Fire.
Incompatibilities with other materials	Strong oxidants.
Hazardous decomposition products	Irritating and toxic fumes and gases.
Hazardous polymerization	Has not been reported.

Section 11 : Toxicological Information

Information on the likely routes of exposure	Skins, swallow, inhale, eyes
Symptoms	Nausea, vertigo, irritation
Acute toxicity	Skins: Slight irritation Swallow: Nausea, vomit, and the other symptoms same as inhale Inhale: Cause the respiratory tract irritation, nausea, vomit, headache Eyes: The vapor cause eyes irritation LD50(solvent): >5000mg/kg (mouse, swallow) LC50: —
Further information	Further hazardous properties cannot be excluded. The product should be handled with the usual when dealing with chemicals

Section 12 : Ecological Information

Ecotoxic effect	Quantitative data on the ecologic effect of this product are not available.
Further ecologic data	No ecological problems are to be expected when the product is handled and due care and attention.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

1. United Nation number (UN No.): 1866
2. UN proper shipping name: —
3. Transport hazard classes: 3
4. Packing group: —
5. Marine pollutant (Yes/No): No
6. Specific transport measures and precautionary conditions: —

Section 15 - Regulatory Information

1. European / International Regulations : European labeling in accordance with EC Directives.
2. Other using condition should follow local regulations.

Section 16 - Additional Information

Organization that prepared the MSDS	Name: R&D	TEL: (886-3)4641205	
	Address: 618 Yen-Ping Rd., sec. 3, Ping-Jeng, Tao-Yuan, Taiwan		
Person who prepared the MSDS	Job: manager	Name: Wan-Hua Lee	
Date the MSDS was prepared	2018/12/20		

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

物质安全资料 (MSDS)

Material safety data

一. 物品与厂商资料 (Article and manufacturer information)

物品名称: 铜面抗氧化剂 OSP (Article name: copper surface antioxidant OSP)
物品编号 serial number: KBX-108H
联系电话 Contact number: 0755-27232150
传 真 Fax: 0755-29083002

二. 成份辨识资料 (Component identification data)

化学性质: 有机化合物之有机酸溶液 Chemical properties: organic acid solution of organic compounds			
危害物质名称 Name of hazardous	CAS 号 number	浓度范围 concentration range	备 注
冰醋酸 Glacial acetic	64-19-7	5%--15%	/
甲酸 formic acid	64-18-6	5%--10%	/
苯并咪唑 Imidazoprene	110534-15-1	3-5%	/
表面活性助剂 Surfactant	102-71-6	10%	/
纯净水 Purified water	/	77%--65%	/

三. 危害辨识资料 (hazard identification data)

最重要危害效应 Most important hazard effect	健康危害效应: 避免接触肌肤及眼睛. 穿著适当之防护衣物. Health hazard effect: avoid contact with skin and eyes. Wear appropriate protective clothing
	环境影响: 酸性 (Environmental impact: Acid)
	物理性及化学性危害: 腐蚀性 Physical and chemical hazards: corrosive
	特殊危害: 无 Special hazard: None

主要症状: 无 Main symptoms: None

物品危害分类: 未分类 Hazard classification: unclassified

四. 急救措施 (first aid measures)

不同暴露途径之急救方法: First aid methods of different exposure routes:

*皮肤接触: 若不慎与皮肤接触时, 立刻以大量清水冲洗, 最好是以淋浴冲洗, 于冲洗的同时, 将衣物脱下, 并继续冲洗最少 10 分钟, 若起水泡或持续红肿即刻就医, 受污染之衣物于再次使用前须水洗或干洗过。

*食入: 让伤者立即饮用 240-300ml 之水. 若伤者发生自然呕吐的情况时, 将伤者嘴部抬高并持续灌以开水. 以清水清洗嘴巴. 保持患者温暖并给予适当的休息, 即刻就医。

*Skin contact: in case of inadvertent contact with skin, wash immediately with plenty of water, preferably with a shower. Take off the clothes while washing, and continue to wash for at least 10 minutes. If there is blister or continuous swelling, see a doctor immediately. The contaminated clothes must be washed or dry cleaned before reuse.

*Ingestion: let the injured drink 240-300ml of water immediately. In case of natural vomiting, lift out the mouth of the injured and continuously fill with boiled water. Wash the mouth with clear water. Keep the patient warm and give proper rest, and seek medical treatment immediately.

*食入: 以清水冲洗嘴巴. 让患者饮用 1-3 杯以冲淡胃中的成份, 催吐并立即送医, 若患者逐渐丧失意识, 不可喂食任何食物。

眼睛接触: 立刻以大量清水冲洗眼睛, 并保持眼皮撑开, 且至少冲洗 15 分钟. 若持续红肿或疼痛即刻就医.,

吸入: 将患者移至空气新鲜处, 若呼吸困难则给予氧气帮助呼吸. 立即送医.

*Ingestion: rinse the mouth with clear water. Let the patient drink 1-3 cups to dilute the ingredients in the stomach, induce vomiting and send to the doctor immediately. If the patient gradually loses consciousness, do not feed any food

Eye contact: wash eyes immediately with plenty of water, keep eyelids open, and wash for at least 15 minutes. If there is continuous swelling or pain, see a doctor immediately,

Inhalation: move the patient to fresh air. If breathing is difficult, give oxygen to help breathe. Send to the doctor immediately

最重要症状及危害效应:

暴露途径: 吸入, 食入, 眼睛及肌肤接触吸收. 会影响眼睛, 皮肤, 呼吸系统, 肝脏, 肾脏, 血液, 神经系统.

对身体不同部位的危害:

眼睛: 水溶液或蒸气会严重刺激结膜及伤害眼角膜.

皮肤: 会对皮肤造成刺激. 若大面积的接触及长期暴露, 液体将经由肌肤吸收明显至毒的数量. 重复或长期接触有以下效应: 皮肤炎, 肝脏损伤, 肾脏损伤, 头痛, 中央神经系统衰竭, 血液失序, 暂时或永久性失明.

食入: 大量吞食会有以下效应: 严重刺激嘴巴, 喉咙和消化道, 肝脏损伤, 肾脏损伤, 中央神经系统衰竭, 血液失序, 暂时或永久性失明.
吞食可能会致命.

吸入: 暴露在蒸气或烟雾下会有以下效应, 严重刺激鼻子, 喉咙和呼吸道, 咳嗽, 呼吸困难, 恶心, 想睡, 肺水肿.

Most important symptoms and harmful effects:

Exposure route: inhalation, ingestion, eye and skin contact absorption. It will affect eyes, skin, respiratory system, liver, kidney, blood, nervous system

Hazards to different parts of the body:

Eyes: aqueous solution or vapor can seriously stimulate the conjunctiva and damage the cornea

Skin: can cause skin irritation. If large area contact and long-term exposure, the liquid will be absorbed through the skin to the amount of poison. Repeated or long-term contact has the following effects: dermatitis, liver damage, kidney damage, headache, central nervous system failure, blood disorder, temporary or permanent blindness

Ingestion: massive ingestion has the following effects: severe mouth, throat and digestive tract irritation, liver damage, kidney damage, central nervous system failure, blood disorder, temporary or permanent blindness

Swallowing can be fatal

Inhalation: exposure to vapor or smoke can have the following effects, severely irritating the nose, throat and respiratory tract, coughing,

Dyspnea, nausea, sleepiness, pulmonary edema

对急救人员防护: 活性炭口罩, 胶手套.

Protection for first aid personnel: masks, rubber gloves

对就医之提示: 请依症状治疗.

Tips for medical treatment: please treat according to symptoms

五. 灭火措施(Extinguishing measures)

适用灭火剂: 可使用喷水, 护醇泡沫, 干粉或二氧化碳灭火.

Suitable for extinguishing agents: spray water, alcohol foam, dry powder or carbon dioxide fire extinguishing.

灭火时可能遭遇之特殊危害: 未知

Special hazards that may be encountered during fire fighting: unknown

特殊灭火程序: 未知

Special fire fighting procedure: unknown

消防人员之特殊防护设备: 请穿著全套衣物和配带自我维生装置

Special protective equipment for firefighters: please wear a full set of clothes and self-sustaining equipment

六. 泄漏处理方法: leakage treatment method:

处置: 必须于通风之良好之状态下使用

Disposal: must be used in a well ventilated state

储存: 必须储存在原来的容器中, 并存放于干燥低温, 通风良好, 远离直接日晒

Storage: must be stored in the original container, dry and low temperature, well ventilated, away from direct sunlight

七. 操作处置与储存 Handling and storage

操作注意事项: 密闭操作。操作人员要注意个人防护。搬运时要轻拿轻放, 防止包装或容器损坏。备配泄漏应急处理设备。倒空的容器可能残留有害物。

Operation precautions: closed operation. Operators should pay attention

to personal protection. Handle with care when handling to prevent damage to the package or container. Prepare leakage emergency treatment equipment. Empty containers may contain harmful substances.

储存注意事项:

储存于阴凉、干燥、通风良好的库房。库内湿度最好小于 85%。包装必须密封。应与易（可）燃物、碱类、氧化剂等分开存放，切忌混存。

储区应备有合适的材料收容泄漏物。

Storage precautions:

Store in a cool, dry and well ventilated warehouse. The humidity in the warehouse should be less than 85%. The packaging must be sealed. It shall be stored separately from inflammable (combustible), alkali, oxidant, etc., and shall not be mixed.

The storage area shall be equipped with appropriate materials to contain the leakage.

八. 暴露预防措施 Exposure precautions

工程控制: 建议使用工程化系统来预防或控制暴露的情形发生, 其中应包括人力的围堵, 机械式的通风设备(排气) 及处理时防护设备的控制。

Engineering control: it is recommended to use an engineering system to prevent or control the occurrence of exposure, which shall include the containment of manpower, mechanical ventilation equipment (exhaust) and the control of protective equipment during treatment.

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:1 毫克/立方

*生物指针:无

Control parameters:

*Eight hour daily average allowable concentration / short time average allowable concentration / maximum allowable concentration: 1 mg / m³

*Biological pointer: None

个人防护设备:

*呼吸防护:当有可能暴露于高蒸气浓度下, 需配带呼吸保护装置. 必须依据工作场地之空气中物质的浓度, 配戴适当之防毒面具且不可以超出防毒

面罩之工作时限.

*手部防护:配带nitrile或Butyl 橡胶制手套. 亦可使用你的专业安全人员建议的耐酸碱手套.

*眼睛防护:必须随时配戴护目镜.

*皮肤及身体防护:穿著一般工作服

Personal protective equipment:

*Respiratory protection: when it is possible to be exposed to high vapor concentration, it is necessary to wear respiratory protection device. It is necessary to wear appropriate gas mask according to the concentration of substances in the air of the workplace and the working time limit of the gas mask shall not be exceeded

*Hand protection: wear nitrile or butyl rubber gloves. You can also use the acid and alkali resistant gloves recommended by your professional safety personnel

*Eye protection: goggles must be worn at all times

*Skin and body protection: wear general work clothes

卫生措施:必须于通风良好之状态下使用.

Hygienic measures: it must be used in a well ventilated state

九. 物理及化学性质 Physical and chemical properties

物质状态:液体 Material state: liquid	形状: 液态 Shape: liquid
颜色: 蓝色至沉清液体	气味: 刺激性
PH 值: ≥ 3.0	沸点: 100℃
分解温度:	闪火点: 90 摄氏度
自燃温度:	爆炸界限: 无界定
蒸气压: 同水	蒸气密度: 重于空气
比重: 1.0-1.03	(对水)溶解度: 完全可溶解
Color: blue to clear liquid smell: irritant PH value: 3.0 boiling point: 100 °C Decomposition temperature: flash point: 90 °C Spontaneous combustion temperature: explosion limit: no limit	

Vapor pressure: same as water vapor density: heavier than air
Specific gravity: 1.0–1.03 (for water) solubility: completely soluble

十. 安全性及应性 Safety and response

安定性:在正常状况下是安定的.

特殊情况下可能之危害反应:

应避免之状况:接触不兼容的物质,暴露于直接日晒.

应避免之物质:强还原剂,强碱.

危害分解物:无

Stability: stable under normal conditions

Possible hazardous reactions under special circumstances:

Conditions to avoid: exposure to incompatible substances, direct sun exposure

Substances to be avoided: strong reducing agent, strong base

Hazardous decomposition products: None

十一. 毒性资料 Toxicity data

急毒性:1900mg/kg

局部效应:刺激

致敏感性:有

慢毒性或长期毒性:中等

特殊效应:无

Acute toxicity: 1900mg / kg

Local effect: stimulation

Sensitivity: Yes

Slow or long term toxicity: medium

Special effect: None

十二. 生态资料 Ecological data

可能之环境影响/环境流布:本产品为非挥发性但为水溶性物质并会被分隔为不同含水区间. 此产品难吸收在土壤或沉淀物之上. 但会被溶解到土壤中. 本产品会迅速溶于水中. 但会对水中生物产生危害。

Possible environmental impact / environmental distribution: This product is non-volatile but water-soluble and will be divided into

different water containing areas. This product is difficult to absorb on the soil or sediment, but it will be dissolved in the soil. This product will quickly dissolve in the water, but it will cause harm to aquatic organisms.

十三. 废弃处置方法 Waste disposal method

废弃得置方法:

废弃物处置:依据当地国家法规处置弃物及残留物. 此产品被评估具 RCRA 的物质, 但并不符合有害废弃物的标准, 若本品以购买时的形式补充丢弃, 依据 RCRA, 产品使用者有责任在丢弃时决定其是否符合 RCRA 有害废弃物的标准, 这是因为产品的使用, 转换, 混合, 处置等, 将可能使用成为有害物质。

废弃容器处置:在容器未被清洗干净前, 不可将标签去除. 空瓶可能仍含有有害之残留物需小心处理.

Disposal method:

Waste disposal: dispose of wastes and residues in accordance with local national regulations. This product is evaluated to have substances with RCRA, but it does not meet the standards of hazardous wastes. If this product is added and discarded in the form of purchase, according to RCRA, the user of the product is responsible for determining whether it meets the standards of RCRA hazardous wastes when it is discarded, because of the use, conversion, mixing, disposal, etc. of the product, will likely be used as a hazardous substance.

Disposal of waste container: do not remove the label before the container is cleaned. The empty bottle may still contain harmful residues which need to be handled carefully

十四. 运送资料 Shipping information

国际运送规定:

联合国编号:未分类

国内运送规定:

特殊运送方法及注意事项:

International Shipping Regulations:

UN No. : unclassified

Domestic delivery regulations:

Special delivery methods and precautions:

十五. 法规资料 Regulatory data

适用法规: 国标

Applicable regulations: National Standard

十六: 其它资料 Other information

公司名称	深圳市宝鑫化工技术有限公司	
制表人	职称:经理	姓名(签章): 吕平
制表日期:	2010/01/06	
Company name: shenzheng baoxinchemical technology co.ltd		
Preparer Title: manager name (seal): LV Ping		
Date of preparation: 2010 / 01 / 06		



Material Safety Data Sheet

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This material safety data sheet (MSDS) is provided as a courtesy in response to a customer request. This product is not regulated under, and a MSDS is not required for this product by the OSHA Hazard Communication Standard (29 CFR 1910.1200) because, when used as recommended or under ordinary conditions, it should not present a health and safety hazard. However, use or processing of the product not in accordance with the product's recommendations or not under ordinary conditions may affect the performance of the product and may present potential health and safety hazards.

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M(TM) Laminating Adhesives 9471LE, 9472LE, 9671LE, 9672LE, 9653LE, 9453LE
MANUFACTURER: 3M
DIVISION: Industrial Adhesives and Tapes
ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 06/20/2003
Supersedes Date: 05/22/2001

Document Group: 08-9111-9

Product Use:

Specific Use: Laminating Adhesive

SECTION 2: INGREDIENTS

<u>Ingredient</u>	<u>C.A.S. No.</u>	<u>% by Wt</u>
TACKIFIED ACRYLATE POLYMER	None	100

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Roll of Tape

Odor, Color, Grade: Tan, Acrylate odor when unrolled.

General Physical Form: Solid

Immediate health, physical, and environmental hazards: This product, when used under reasonable conditions and in accordance with the 3M directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:

No health effects are expected.

Skin Contact:

No health effects are expected.

Inhalation:

No health effects are expected. This product may have a characteristic odor; however, no adverse health effects are anticipated.

Ingestion:

No health effects are expected.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: No need for first aid is anticipated.

Skin Contact: No need for first aid is anticipated.

Inhalation: No need for first aid is anticipated.

If Swallowed: No need for first aid is anticipated.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	No Data Available
Flash Point	Not Applicable
Flammable Limits - LEL	Not Applicable
Flammable Limits - UEL	Not Applicable

5.2 EXTINGUISHING MEDIA

Use fire extinguishers with class B extinguishing agents (e.g., dry chemical, carbon dioxide).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Not applicable.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING

Avoid prolonged or repeated skin contact. This product is considered to be an article which does not release or otherwise result in exposure to a hazardous chemical under normal use conditions.

7.2 STORAGE

Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS

Not applicable.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection

Avoid eye contact.

8.2.2 Skin Protection

Avoid prolonged or repeated skin contact. Gloves not normally required.

8.2.3 Respiratory Protection

Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing

Not applicable.

8.3 EXPOSURE GUIDELINES

None Established

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:

Odor, Color, Grade:

General Physical Form:

Autoignition temperature

Flash Point

Flammable Limits - LEL

Flammable Limits - UEL

Boiling point

Roll of Tape

Tan, Acrylate odor when unrolled.

Solid

No Data Available

Not Applicable

Not Applicable

Not Applicable

Not Applicable

Vapor Density	Not Applicable
Vapor Pressure	Not Applicable
Specific Gravity	Approximately 1.01 [Ref Std: WATER=1]
pH	Not Applicable
Melting point	No Data Available
Solubility in Water	Nil
Evaporation rate	Not Applicable
Volatile Organic Compounds	No Data Available
Percent volatile	No Data Available
VOC Less H2O & Exempt Solvents	No Data Available
Viscosity	Not Applicable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

<u>Substance</u>	<u>Condition</u>
Hydrocarbons	During Combustion
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

Hazardous Decomposition: Under recommended usage conditions, hazardous decomposition products are not expected. Hazardous decomposition products may occur as a result of oxidation, heating, or reaction with another material.

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not applicable.

CHEMICAL FATE INFORMATION

Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Dispose of waste product in a sanitary landfill. As a disposal alternative, incinerate in an industrial or

commercial facility.

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14: TRANSPORT INFORMATION

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:

Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - No Delayed Hazard - No

STATE REGULATIONS

Contact 3M for more information.

CHEMICAL INVENTORIES

This product is an article as defined by TSCA regulations, and is exempt from TSCA Inventory listing requirements.

Contact 3M for more information.

INTERNATIONAL REGULATIONS

Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification

Health: 0 Flammability: 1 Reactivity: 0 Special Hazards: None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Reason for Reissue: The MSDS has been revised because 3M has adopted the 16-section ANSI/ISO format. The potential hazards of the product have not changed. We encourage you to reread the MSDS and review the information.

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