SPECIFICATION FOR APPROVAL

承認書

Customer Name	DIVA / QISDA
Description	1.00mm Piech FPC
XINYA P/N	FN23-xxRWA-2AK
Customer P/N	3FMxxx17910(F0338)/2K.K2241.008
Designed by	张福康
Checked by	李政达
Approved by	金卫星
DATE	2026. 04. 16

CUSTOMER SIGNATURE		
Prepared By	Checked By	Approved By
		設計驗證 工程課 2026 -04- 20 發行
PLEASE RETURN TO US ONE COPY OF SPECIFICATION FOR APPROVAL WITH YOUR APPROVED SIGNATURES.		

苏州新亚电通股份有限公司

SUZHOU XINYA ELECTRIC COMMUNICATION CO., LTD.

COMPONENT SPEC VERSION RECORD

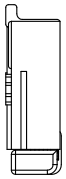
CUSTOMER PART NO.	3FMxxx17910 2K.K2241.008	XINYA PART NO.	FN23-xxRWA-2AK

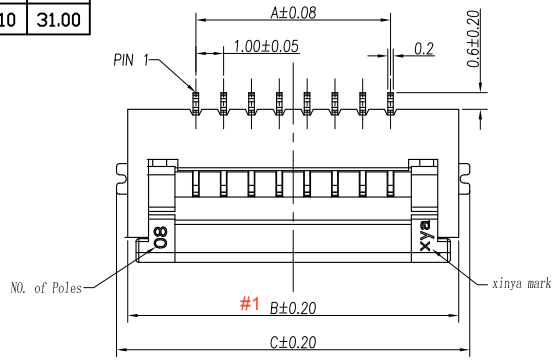
VER	MINUTE OF CHANGES	XINYA CHECK	RELEASE DATE
A	CHECKED AND RELEASED	金卫星	Apr-16-26

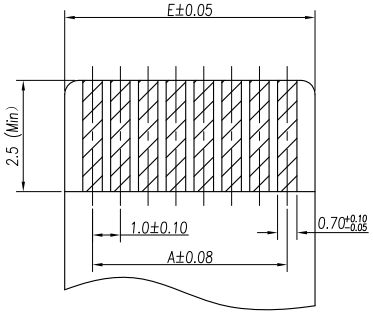
版本 REV.	日 期 DATE	DCN NO.	变更内容 DESCRIPTION	制图 DRAWN

成品规格图号DRAWING NO. FN23002S

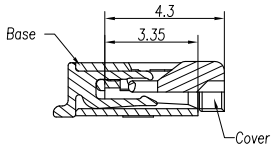
NO.of Contacts	DIMENSIONS				
	A	B	C	D	E
4	3.00	7.90	8.70	5.10	5.00
5	4.00	8.90	9.70	6.10	6.00
6	5.00	9.90	10.70	7.10	7.00
7	6.00	10.90	11.70	8.10	8.00
8	7.00	11.90	12.70	9.10	9.00
30	29.00	33.90	34.70	31.10	31.00







Recommend FPC/FFC Layout
Thickness:0.3±0.03



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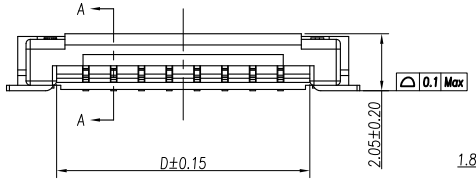
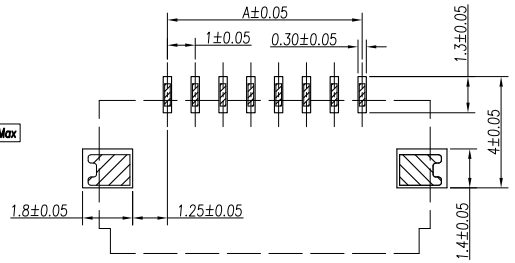
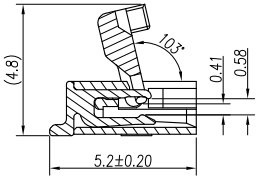
COVER CLOSE





P.C.B Layout REF.



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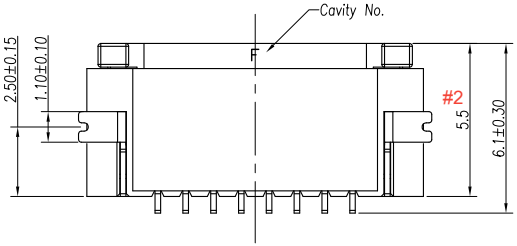
COVER OPEN



Ordering Code:

FN23 – XX R XX–2A K
① ② ③ ④ ⑤

① Series NO.

② Circuits number

③ R: Right Angle

④ Plating Code:

Definition	Code
◎Matte Tin plated:	WA

⑤ Packing:

K: Reel

設計驗證
工程課
2026 -04- 20
發行

SPECIFICATIONS:

1.Voltage rating: 50V AC/DC
2.Current rating: 0.5A AC,DC
3.Temperature range: −40°C~+85°C
4.withstand voltage: 500V AC/minute
5.Insulation resistance: 100MΩ Min.
6.Contact resistance: 20mΩ Max.
7.Material:
Housing: High Temperature Thermoplastic,UL94V−0.Natural
Contact: Phosphor Bronze/Matte Tin−plated
Mounted Ear: Copper alloy/Matte Tin−plated

3FMxxx17910(F0338)

GENERL TOLERANCE		制 图 (DR.)	Ring.li	料 号 PART NO.	FN23−XXRXX−2AK	版 本 REV.	A
X.±0.30	X.°±2°	审 核 (CHK.)	Knox.Jin	品 名 TITLE	P1.00 SMT	页 次 SHEET	1/1
.X±0.25	.X°±1°	核 准 (APPD.)	Knox.Jin	客户料号 CUTM.NO.			
.XX±0.20	.XX°±0.5°	第1版 (OR.D.)	2012.06.01				
.XXX±0.10	.XXX°±0.5°	单 位 UNITS	MM	比 例 SCALE	1:1		

Xya 苏州新亚电通股份有限公司
SUZHOU XINYA ELECTRIC COMMUNICATION Co. LTD.

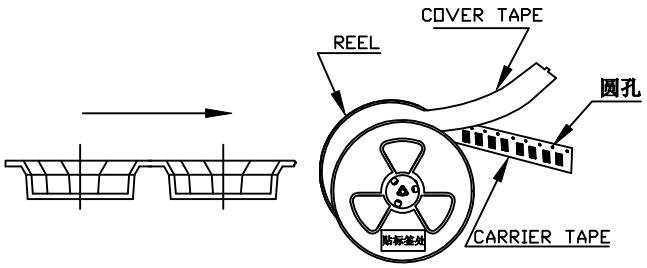
苏州新亚电通股份有限公司 包装作业规范

文件编号	MP9375	适用产品	FN23-08RXX-2AK（钰纬）	页次	1/1	版别	A

包装作业图示及说明 (PACKING OPERATION DIAGRAM & INSTRUCTION)

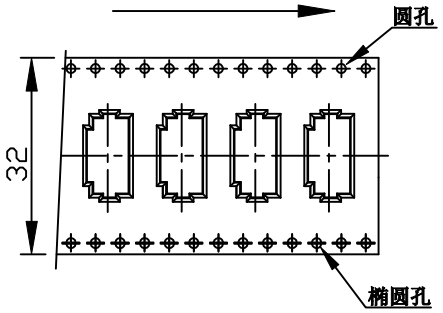
一

1）将成品放入CARRIER TAPE槽内，排列方式如图。成品摆放方式如图：
2）如右图所示：载带圆孔在前，载带出口在右侧顺时针方向，标签贴在靠近自己一面的REEL上。



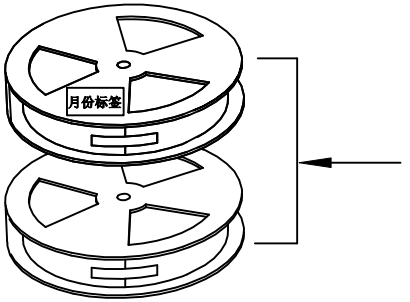
二

1）载带包装时前后各预留10个空穴以上。
2）COVER TAPE较CARRIER TAPE长且用TAPE固定.
3）REEL盘上贴月份标签。



三

1）如图所示包装，TAPE REEL先放入防水袋CE105中并封好，每卷包装CARRIER TAPE不得断带或重叠连续，未装满的REEL装入零数箱，以胶带封箱。
2）一盘REEL可以包装2000PCS成品.
3）一箱可装7个REEL盘，共装14000PCS产品。
4）外箱侧面右下角贴月份标签。



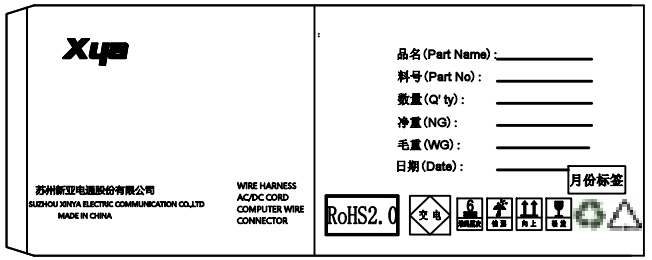


四 包装材料：

1. CARRIER TAPE: CAXXX
2. COVER TAPE : CAH32
3. PLASTIC REEL :CAR32
4. 外箱 **CT026 (350*350*300)**
5. 防水袋 **CE105**

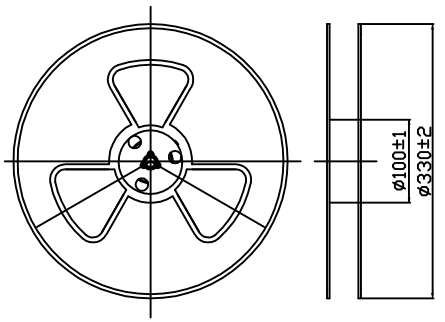
备 注 (REMARK)

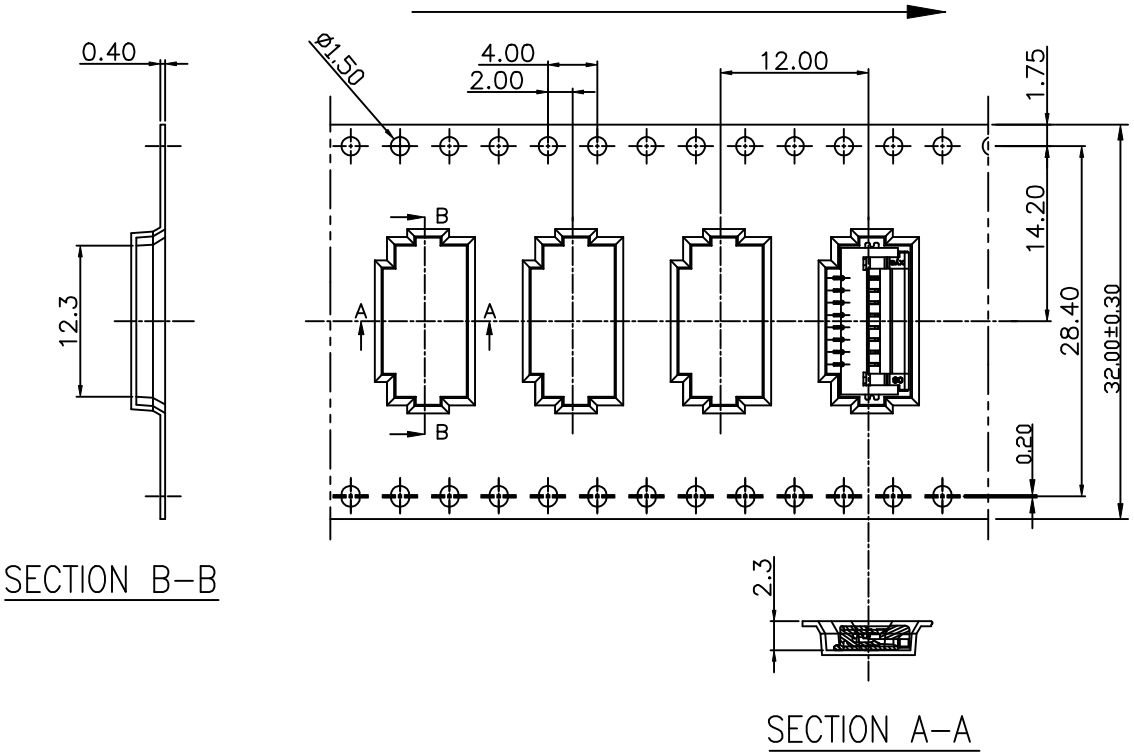
1. 若有未装满之零数箱，必须以缓冲材料等塞满.
2. 包装中如有CARRIER断带则以零数卷包装.
3. 对于单个零数卷包装的产品，以最小包装方式出货，如多个零数卷产品，可以合理的放置在一个纸箱内出货，纸箱外作标示。



核 定		审 核		制 定	

版本 REV.	日期 DATE	DCN NO.	变更内容 DESCRIPTION	制图 DRAWN





SECTION B–B

SECTION A–A

Note:
1. 搭配成品为：FN23-08RXX-2AK
2. 一小卷可装2000PCS成品。

RoHS

GENERL TOLERANCE		制图 (DR.)	吕华阳		料号 PART NO.	CA184	版本 REV.	A
X.±0.30	X.°±4°	审核 (CHK.)			品名 TITLE	载带	页次 SHEET	1/1
.X±0.25	.X°±3°	核准 (APPD.)			客户料号 CUTM.NO.			
.XX±0.20	.XX°±2°	第1版 (OR.D.)	2026.04.14		Xya 苏州新亚电通股份有限公司 SUZHOU XINYA ELECTRONIC COMMUNICATION Co. LTD.			
.XXX±	.XXX°±	单位 UNITS	MM	比例 SCALE 1:1				

PRODUCTION NAME：FN23-XX

1. SCOPE 应用范围

This product specification contains the test method, the general performance and requirement for 1.00mm pitch HEADER connector system.

2. REQUIREMENTS 必要条件

2.1. DESIGN AND CONSTRUCTION 设计规范

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

2.2. MATERIALS 材质

A. Housing：High Temperature Thermoplastic ,UL94V-0.Natural

B Contact：Copper Alloy.

2.3. RATINGS 规格

A. Current Rating：0.5A

B. Voltage Rating：50V AC/DC

C. Operating temperature:：-40℃~ +85℃

2.4. LEAD FREE 无铅要求

A. Cd、 Pb、 Hg、 $Cr6^{+}$、 PBDE、 PBB…Heavy Metals Content
Refer to ROHS.

3.TEST CONDITION 测试条件

3.1. The product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1.

3.2 TEST REQUIREMENTS AND PROCEDURES SUMMARY

测试规格及测试条件

Items 测试项目	**Test conditions** 测试条件	**Criteria** 判定标准
ELECTRICAL 电气特性		
Contact Resistance 接触阻抗	Measure the electrical resistance across a pair of mated connector contacts.	20 mΩ max Initial
Insulation Resistance 绝缘阻抗	Apply voltage of 500V DC between adjacent terminals.	100 MΩ min Initial
Dielectric Withstanding Voltage 耐电压	Apply 500V AC for 1 minute between adjacent terminals.	No evidence of break-down and flashover
MECHANICAL 机械特性		
Contact Retention Force 保持力	Pull terminals from hosing at maximum rate of 25 ±3mm/minute.	0.2kgf Min.
Withdrawal force 拔出力	Plug pull out socket shell be an alignment at a constant speed of 25mm/minute.	0.08kgf/pin Min.
ENVIRONMENTAL 环境测试		
Durability 耐久性	Insertion and withdrawal actuator up to 20 cycles at the speed rate of less than 10 cycles/minute	See Note Contact Resistance: 40 mΩ max Final
Vibration 振动测试	Vibration frequency range:10-55-10 Hz / min. Amplitude: 1.52mm Period: 2 hours for each direction X, Y, Z-axis.(2 hours in total)	No damage Discontinuity: 1 microsecond max. 40 mΩ max Final
Mechanical Shock 冲击	DC 1mA 490m/s2{50G}，3 strokes in each X.Y.Z. axes.	No Damage 1 ms.MAX. 40 mΩ max Final
Humidity 恒温恒湿	Temperature：40 ±2℃ Humidity：90 ~ 95 % (RH) Period: 96 hours (Measurement must be taken within 1 h after that. Water drops shall be removed.)	See Note Contact Resistance: 40 mΩ max
Thermal Shock 冷热冲击	One cycle consists of： (1) -40℃ for 30 minutes. (2) +85℃ for 30 minutes. Times of cycle：5 cycles.	See Note Contact Resistance: 40 mΩ max

Salt Spray 盐雾试验	Temperature：35 ±2℃ Salt solution：5 ±1% Duration：24 ±1h (After the test, salt deposit shall be removed in running water.)	Appearance: No damage. Contact Resistance: 40mΩmax
Resistance to soldering heat 耐焊接热	Lead-Free process Soldering temperature：260±5℃ Immersing time：10±0.5sec	NO damage
Solder ability 可焊接性	Soldering temperature：245 ±5℃ Immersing time：4~5sec	More than 95％ of immersed part shall be covered with solder.

Reflow soldering temperature condition graph

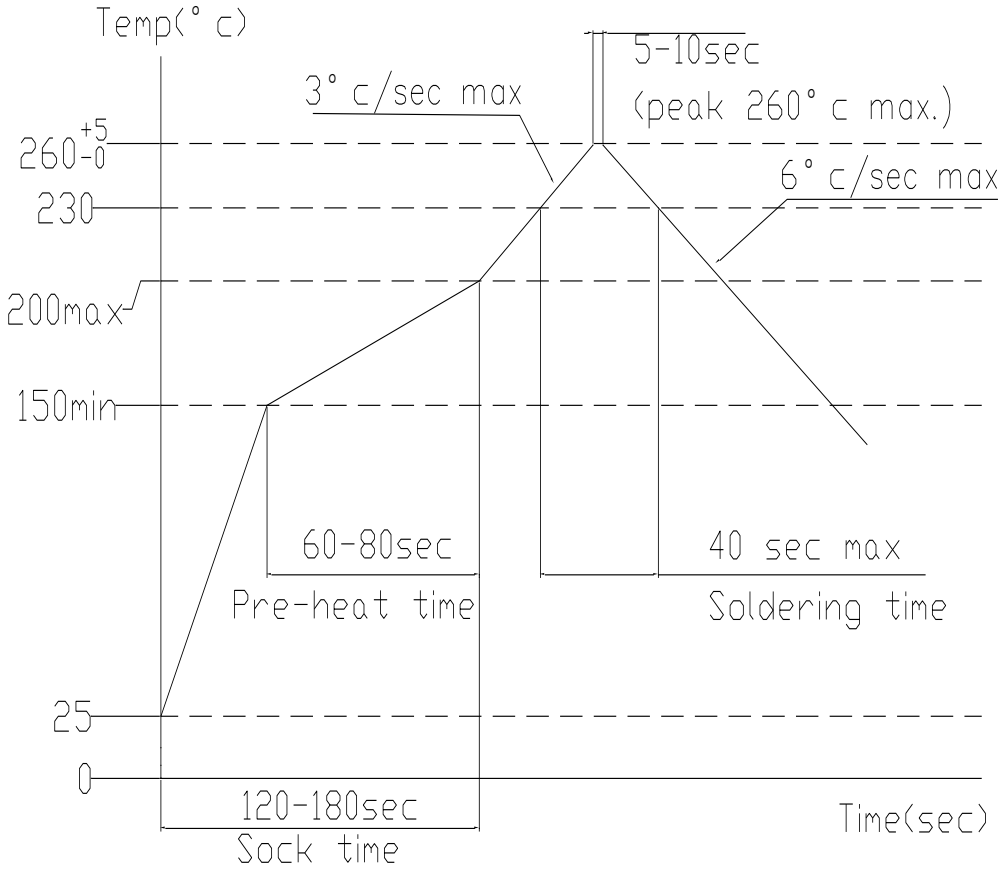


Figure 1

NOTE：Shall meet visual requirements, show no physical damages.

3.3. PRODUCT QUALIFICATION AND REQUALIFICATION TEST

SEQUENCE 测试群组与顺序

Test or Examination 测试或检查项目	Test Group 测试群组								
	A	B	C	D	E	F	G	H	I
	Test Sequence (a) 测试顺序								
Examination of Product 外观检测	1	1	1,5	1,6	1,5	1,7	1,5	1,5	1,3
Contact Resistance 接触阻抗			2,4	2,5	2,4		2,4	2,4	
Insulation Resistance 绝缘阻抗						2,6			
Dielectric Withstanding Resistance 耐电压						3,5			
Contact Retention Force 保持力	2								
Withdrawal Force 拔出力		3							
Durability 耐久性			3						
Vibration 振动测试				3					
Mechanical Shock 机械冲击				4					
Humidity 恒温恒湿					3				
Thermal Shock 冷热冲击						4			
Salt Spray 盐雾试验							3		
Temperature Life 老化试验								3	
Solder ability 沾锡性									2

Figure 2

NOTE：Numbers indicate sequence in which tests are performed

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click here to see additional information supplied by UL Prospector ®

The information presented on the UL Prospector datasheet was acquired by UL Prospector from the producer of the material. UL Prospector makes substantial efforts to assure the accuracy of this data. However, UL Prospector assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

[guide info] Component - Plastics E106764

POLYPLASTICS CO LTD

18-1 KONAN 2 CHOME, MINATO TOKYO 1088280 JP

E471i(s)

Liquid Crystal Polymer (LCP) "VECTRA" or "LAPEROS", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
NC, BK	0.1	V-0	4	0	130	130	130
	0.75	V-0	4	0	130	130	130
ALL	1.5	V-0	4	0	130	130	130
	3.0	V-0	4	0	130	130	130

Comparative Tracking Index (CTI): 3

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): -

Volume Resistivity (10^X ohm-cm): -

High-Voltage Arc Tracking Rate (HVTR): -

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

Dimensional Stability (%): -

Virgin and regrind up to 50% by weight incl., have the same basic material characteristics for flammability in (s) - NC and BK with a minimum thickness of 0.75mm.

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

Report Date: 2000-01-31

Last Revised: 2015-10-08

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.1	V-0 (NC, BK)
			0.75	V-0 (NC, BK)
			1.5	V-0 (ALL)
			3.0	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-2	kJ/m^2	-	-

SAFETY DATA SHEET(SDS)

Issued: February 28 , 2014
Revised: February 28 , 2014

FileNo. 4052-1

1.Chemical Product & Company Identification

CHEMICALPRODUCT NAME:	LAPEROS® E471i VF2201
NAME OF COMPANY:	Polyplastics Co.,Ltd.
ADDRESS:	2-18-1 Konan, Minato-ku, Tokyo,108-8280 Japan
SECTION IN CHARGE:	Quality Assurance Dept.
TELEPHONE NUMBER:	03-6711-8605
FACSIMILE NUMBER	03-6711-8616

2. Hazards identification

[GHS CLASSIFICATION]

Physical and Chemical Hazards : ・Flammable solids : Classification not possible
・Self-reactive substances and mixtures : Not applicable
・Pyrophoric solids : Not classified
・Self-heating substances and mixtures : Not classified
・Substances and mixtures, which in contact with water, emit flammable gases : Not classified
・Oxidizing solids : Not classified
・Corrosive to metal : Not classified

Health Hazards : ・Carcinogeneses : No hazard
・Specific target organ/systemic toxicity (Repeated exposure) : No hazard

[GHS CLASSIFICATION]

Environmental Hazards : No hazard

[SYMBOL] : None

[SIGNAL WORD] : None

[HAZARD STATEMENT] : None

[PRECAUTIONARY STATEMENTS]

Prevention : ・Wash hands thoroughly after handling.
・Wear protective gloves.

Response : -

Storage : Avoid direct sunlight and store in a well-ventilated place.

Disposal : Dispose of contents/container in accordance with local & national regulations.

3. Composition/information on ingredients

SUBSTANCE/PREPARATION	: Preparation
COMMON CHEMICAL NAME	: Aromatic Liquid Crystal Polymer
SYNONYMS	: Aromatic Liquid Crystal Polymer(LCP)
INGREDIENTS AND COMPOSITION	: LCP ≧64%, Glass fiber and Inorganic filler 35%, Others ≦1%
CHEMICAL FORMURA	: not open
SERIAL No. IN OFFICIAL GAZETTE	: 7-2577(base resin) (Law Concerning Examination and Regulation of Manufacture, etc. , of Chemical Substances)
CAS №.	: 147310-94-9(base resin)
INGREDIENTS CONTRIBUTING TO THE HAZARD	: Cadmium, lead, hexavalent chromium and mercury are not used in this grade.

4. First-aid measures

INGESTION : When a gas generated from the molten polymer has been inhaled, move to area of 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.
SWALLOW	: Help to vomit as much as possible. If sick feeling continues, and ask a physician for advice.

5. Fire-fighting measures

EXTINGUISHING MEDIA	: Water, foam 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 phenol, in addition to carbonic acid gas and water.
SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS	: In case the fire gained force, use a gas mask or other protective equipment.

6. Accidental release measures

PERSONAL PRECAUTIONS	: When pellets were spilled on the road or floor, wipe them off with a besom or cleaner not to cause slipping.
ENVIRONMENTAL PRECAUTION	: Handle the spillage in accordance with provisions given in the "Resin pellet spillage preventive manual", in order to prevent intakes by marine animals and birds.

7. Handling and storage

HANDLING	: LCP polymer in a pellet form will neither ignite nor explode at room temperatures.
HANDLING 2	: This pellets spilled on the floor are likely to cause slipping. Remove such spillage at any times.
HANDLING 3	: For molding work, effective means for local exhaust are required to discharge gases generated by melt processing.
HANDLING 4	: Avoid inhaling of gases generated in molding work. Do not directly touch resin of high temperature.
HANDLING 5	: Avoid retaining hot resin in the processing machines for many hours.
HANDLING 6	: Glass fibers are not generally exposed in a single substance under normal processing and handling conditions as they are compounded in pellets. However, the following measures will be necessary to minimize the exposure to glass fibers or dusts containing glass fibers, when pellets or molded parts containing glass fibers are cut, ground or burnt, depending on environmental and operational conditions. ・Those who are sensitive in skin to glass fiber should wear suitable(protective) clothes to minimize the exposure of their skin. ・Wash working clothes apart from other laundry, so that the latter will not cause contamination with glass fibers. ・Provide the workshop with partitions to prevent diffusion of glass fiber dusts. ・Pay precautions not to rub face, neck or arms with hands. Wash hands and gargle after working without fall.

・Keep dust sources totally enclosed.
・Provide local air exhausters and implement periodical inspections and adjustments at least once a year.
・Reduce cutting and grinding processes to the possible minimum, and devise working procedures to minimize dust generation.
・Provide dust-preventive masks, protective glasses and gloves for personal hygiene.
・Determine the operational environment at indoor working places and confirm the effects of environmental improvement.
Note) Glass fibers are, like road dusts, told to be least hazardous to human bodies, but proper measures are required to avoid useless inhaling.

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

STORAGE 2 : Handle in accordance with municipal rules and regulations.

RECOMMENDED PACKAGING MATERIALS : No information.

8. Exposure controls/ personal protection

CONTROL CONCENTRATION : None at present

PERMISSIBLE CONCENTRATION : OSHA PEL/1985
Max. permissible concentration of inactive powder 15mg/m3
– ditto – (Aspiration) 5 mg/m3
ACGIH TLV/1992 1993
Exposure limit of the powder TWA 10 mg/m3

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

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION : Wear a dust-proof mask.

HAND PROTECTION : Wear heat-resisting gloves against burns, when handling molten polymer.

EYE PROTECTION : Wear protective glasses or goggles.

SKIN & BODY PROTECTION : Wear long sleeve clothes against burns, when handling molten polymer.

9. Physical and chemical properties

APPEARANCE etc.	: Pellet
BOILING POINT	: Not applicable
VAPOUR PRESSURE	: Not applicable
VOLATILITY	: Not applicable
INITIAL BOILING POINT	: Not applicable
SUBLIMATION	: None
MELTING POINT	: 335℃~345℃
DENSITY	: 1.67
SOLUBILITY	: Insoluble in water
FLASH POINT	: No finding
IGNITION POINT	: 540℃ or higher
EXPLOSION PROPERTY	: Not applicable
INFLAMMABILITY	: It is flammable, but shows self-fire extinguishing characteristics when kept away from flame.
REACTIVITY WITH WATER	: None
OXIDIZABILITY	: None
SELF-REACTIVITY	: None
DUST EXPLOSIVENESS	: No finding

10. Stability and reactivity

STABILITY AND REACTIVITY	: Stable for normal storage or handling.

11. Toxicological information

SKIN CORROSION/IRRITATION	: No finding.
SERIOUS EYE DAMAGE/IRRITATION	: Gas generated in drying or melting is irritating eyes and skins.
RESPIRATORY OR SKIN SENSITISATION	: No finding
ACUTE TOXICITY(INCLUDING LD50)	: No finding.
SUBACUTE TOXICITY	: No finding.
CHRONIC TOXICITY	: No finding.
CARCINOGENECITY	: No finding.
MUTAGENECITY(Micro organisms, chromosomal aberration)	: No finding.
REPRODUCTIVE TOXICITY	: No finding.
TERATOGENICITY	: No finding.
OTHERS(Including generation of hazardous gases by reaction with water, for example)	: No finding in this report means that there will be no hazard in general, but no proving data available at the time of reporting.
OTHER CAUTIONS	: With regard to dust, the maximum permissible concentration and limits are fixed by OSHA and ACGIH.
OTHER CAUTIONS 2	: Information on hazards of glass fibers as filler.

〈Effects on Human Bodies〉

(1) Effects on skin

Stimulation to the skin with glass fibers may be caused when glass fibers diameter is larger than 4.5~5 μm. They give mechanical stimulation followed by itchiness to the skin, but further continuous exposure reportedly results in extinction of stimulation. It may sometimes leads to irritable dermatitis complicated with urticaria or eczema-like reaction. It is, however reported that such dermatitis is not so serious in general and does not last too long. Therefore, skin stimulation can be prevented by proper use of glass fibers.

(2) Effects on Tumor

Investigations made on glass fibers till today reveal that there is neither increase in mortality of glass fiber production workers due to lung cancer or mesothelioma nor such cases reported.

〈Animal Test Report〉

It is suggested that carcinogenecity of mineral fibers is dependent on their shapes rather than on their constituents. According to a report on experiments using 17 kinds of artificial mineral fibers in various sizes prepared by Dr.Stanton of National Cancer Institute, in USA, statistical studies on correlations between the diameter and length of fibers and the coincidence of mesothelioma have revealed that mineral fibers having a diameter smaller than 0.25 μm and a length larger than 8 μm are closely related to the coincidence of cancers. Since these experiments were performed by artificially dosing the subject animals with a large quantity of glass fibers and consequently they are quite different from the actual exposures to human bodies, it is told to be problematic to make a conclusion that mineral fibers are hazardous to human health, basing on the results obtained from these experiments. Up to the present time, there is no result obtainable to demonstrate a mechanism of glass fibers causing lung cancers in spite of experiment by long exposure to glass

	fibers with high concentration.
12. Ecological information	
BIODEGRADABILITY	: No finding.
BIOACCUMULATION	: No finding.
FISH TOXICITY	: No finding.
HAZARDS TO OZONE LAYER	: None
13. Disposal considerations	
WASTE FROM RESIDUES	: This is designated as waste plastics among industrial wastes by the Wastes Disposal Law. Disposal waste pellets through licensed wastes handlers or local autonomous bodies if they are handling wastes disposal.
WASTE FROM RESIDUES 2	: When disposed by incineration, use the well controlled incinerators in accordance with the Wastes Disposal Law, Air Pollution Control Law and Water Pollution Prevention Law.
14. Transport information	
UN CLASSIFICATION NUMBER	: Not applicable
OTHER CAUTIONS	: Handle with care so as not to give damages to containers or not to be subjected to wetting.
OTHER CAUTIONS 2	: Secure the containers firmly so as not to cause collapsing.
15. Regulatory information	
WASTE DISPOSAL LAW	: Waste plastics among industrial wastes.
16. Other information	
HANDLING OF THE DETAILS GIVEN ABOVE	: This SDS is the English version translated from the Japanese SDS which is prepared for domestic use. Details given above are based on references, information and data available at this moment, but no warranty can be made on exactness of these details. They are also prepared on the assumption that the product will be handled in a normal way. For special handling, adequate safety and environmental measures should be taken in respect to its applications. Our products are not specifically intended for implants for medical and dental applications, and therefore they are not recommended for such applications. ″No finding″ in this report means that there will be no hazard in general, but no proving data is available at the time of reporting.
WHERE TO CALL FOR FURTHER INFORMATION	: Polyplastics Co. , Ltd. Quality Assurance Dept. Tel. No 03-6711-8605

*LAPEROS® is a registered trademark of Polyplastics Co., Ltd. in Japan and other countries.

E471i 的一般物性

表 1-1 一般物性（ISO）

项目	单位	测试方法	高耐热，高流动
			E471i
			低翘曲性
颜色			VF2201/BK210P
ISO(JIS)材质表示		ISO11469 (JIS K6999)	>LCP-(GF+MD)35<
密度	g/cm^3	ISO 1183	1.67
吸水率（23℃、水中 24 小时）	%	ISO 62	0.03
拉伸强度	MPa	ASTM D638	140
拉伸率	%	ASTM D638	2.3
弯曲强度	MPa	ISO 178	195
弯曲模量	MPa	ISO 178	13,500
弯曲应变	%	ISO 178	2.5
简支梁冲击强度（有缺口）	kJ/m^2	ISO 179/1eA	20
负荷变形温度（1.8MPa）	℃	ISO 75-1,2	265
负荷变形温度（0.45MPa）	℃	ISO 75-1,2	285
绝缘破坏强度（1mmt）	kV/mm	IEC 60243-1	47
绝缘破坏强度（3mmt）	kV/mm	IEC 60243-1	25
体积电阻率	Ω·cm	IEC 60093	2×10^{16}
体积电阻率（我公司规格）	Ω·cm	-	-
介电常数（1kHz）		IEC 60250	4.3
介电常数（1MHz）		IEC 60250	3.8
介电损耗角正切（1kHz）		IEC 60250	0.02
介电损耗角正切（1MHz）		IEC 60250	0.03
耐导电径迹	V	IEC 60112	150
耐电弧性	s		176
成型收缩率（80×80×1mmt、流动方向、注射压力 60MPa）	%	-	0.06
成型收缩率（80×80×1mmt、垂直方向、注射压力 60MPa）	%	-	0.43
成型收缩率（80×80×1mmt、流动方向、注射压力 79MPa）	%	-	-
成型收缩率（80×80×1mmt、垂直方向、注射压力 79MPa）	%	-	-
阻燃性		UL94	V-0
ＵＬ发行的黄卡			E106764
「出口贸易管理法令」的该当项目番号			附属表 1 第 16 项

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The information presented on the UL Prospector datasheet was acquired by UL Prospector from the producer of the material. UL Prospector makes substantial efforts to assure the accuracy of this data. However, UL Prospector assumes no responsibility for the data values and strongly encourages that upon final material selection, data points are validated with the material supplier.

[guide info] Component - Plastics E90350

KURARAY CO LTD

GENESTAR DIV, OTE CENTER BLDG 1-1-3, OTEMACHI, CHIYODA-KU TOKYO 100-8115 JP

GP2450NH(rr)

Polyamide 9T (PA9T) "Genestar", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.150	V-0	-	-	-	-	-
	0.40-0.44	V-0	3	3	140	90	130
	1.5	-	-	-	140	90	130
	3.0	-	-	-	140	100	140

Comparative Tracking Index (CTI): 0

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): -

Volume Resistivity (10^X ohm-cm): -

High-Voltage Arc Tracking Rate (HVTR): 0

High Volt, Low Current Arc Resis (D495): 4

Dimensional Stability (%): -

(rr) - Virgin and regrind up to 50% by weight have the same basic material characteristics.

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

Report Date: 2009-10-28

Last Revised: 2016-12-18

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.150	V-0 (ALL)
			0.40-0.44	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-2	kJ/m^2	-	-

SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Genestar GP2450 NH

Product code :

General Use : Material for molding

Company & Manufacture

Name : Kuraray Co., Ltd.
Section: Genestar Division, Chemicals and Medical Products Company
Address: 1-1-3, Otemachi, Chiyoda-ku, Tokyo, 100-8115, JAPAN
Telephone number: +81-3-6701-1677
Fax number: +81-3-6701-1580
E-mail address: msds_qm-ps@kuraray.co.jp

Emergency Telephone number: +81-3-6701-1677

2. HAZARDS IDENTIFICATION

Most important hazard

Human health effect: No relevant information found

Environmental effect: No relevant information found

Physical and chemical hazards : No relevant information found

Main Symptoms: No relevant information found

Classification: No relevant information found

Emergency overview:

Not dangerous substances （Regulation (EC) 1272/2008 ）

3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance / Preparation: Preparation

Chemical name or generic name; Concentration or concentration range; CAS number; TSCA; EINECS / ELINCS:

Chemical name or generic name,	Concentration range	CAS number	TSCA	EINECS / ELINCS
Polycondensate of 2-methyloctane-1,8-diamine, nonane-1,9- diamine and terephthalic acid (insoluble in water, acid and alkali also containing 1% or less of component having less than 1,000 of molecular weight)	45±3%	169284-22-4,	listed. (CBI)	listed (CBI)
Glass, oxide, chemicals	45±3%	65997-17-3	listed.	266-046-0
Additives	＜11%	listed	listed. (CBI)	listed (CBI)

Components contributing to hazard or **Impurities contributing to the hazard**

Not dangerous substances

Classification and hazard labeling:

Non-correspondence

4. FIRST-AID MEASURES

Information

Inhalation:

When a gas generated from the molten material has been inhaled, remove fresh air without delay and wait until the victim is recovered.

If symptoms persist, call a physician.

Skin contact:

Cool the contacted skin with clean water without delay, when the skin has been contacted with the material in a molten form.

Don't peel off the polymer from the skin forcibly.

Get medical attention when the unpleasantness remains.

Eye contact:

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

Ingestion:

Vomit as much as possible, and get medical attention when the unpleasantness remains.

5. FIRE-FIGHTING MEASURES

Extinguish media:

In case of fire, use water spray, foam, dry chemical powder, carbon dioxide or dry sand.

Extinguish media not suitable:

None

Specific hazards:

Toxic gases (carbon monoxide, nitrogen oxides, etc) will form upon combustion.

Specific methods:

Wear the fire fighting protective clothing (includes fire fighting helmet, coat, boots, and gloves) and do the extinction work from the windward.

Prohibit staying the fire occurrence place except the relating person.

Water and cool off neighboring facilities not to be sprinkled on the machine.

Appropriate measures are done so that the material that influences the environment should not flow out.

Evacuate to the safety area except the relating person.

Protections of fire-fighters:

Firefighters should wear proper protective equipment (gloves, glasses, and mask).

Wear self-contained breathing apparatus (SCBA) when toxic gases (carbon monoxide etc) will form upon combustion.

Do the extinction work from the windward to avoid inhaling toxic gases.

Wear self-contained breathing apparatus (SCBA), if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Don't touch molten.

Collect the scraps not to slip on the floor and roll.

Environmental precautions:

Don't dispose materials in environment.

Methods for cleaning up

Recovery:

As the small quantity, collect with unsparking tools (a vacuum cleaner or a broom).

Pick or collect materials with ordinary cleaning tools and put into a suitable container for disposal as a nonhazardous waste.

Use an industrial vacuum cleaner to clean up dust.

The collection thing is incinerated in a safe condition.

Disposal:

Consult an expert on the disposal of recovered material.

7. HANDLING AND STORAGE

Handling

Technical measures : Not available

Safe handling advice: Neither ignites nor explodes at room temperature.

Don't use of fire nearby because the material is combustion.

Collect the scraps not to slip on the floor and roll.

Don't touch molten form directly.
Don't allow hot materials to stay for a long time in the processing machines.
Don't adhere the materials to the skin, eyes, and clothes.
Wear proper protective equipment (gloves, glasses, and mask), if necessary.
Use exhaust device to avoid inhaling of gases generated from the molten materials.

Storage

Technical measures: Not available

Storage conditions: Keep away from heat, steam, pipe or sunlight.
Keep indoors.
Collapse of cargo piles prevention
Fall prevention.
Keep dampproof.

Incompatible products: Not available

Packaging materials: Use the paper bag lined by aluminum etc because this material is hygroscopicity.

Specific use(s): Material for molding

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures: Not established

Control parameters: Not established

Personal protective equipment

Respiratory protection: Use appropriate certified respirators (a dust protective mask, a simple dust protective mask), as appropriate.
Use exhaust device to handle molten materials.

Hand protection : Use appropriate certified protective equipments (gloves), as appropriate.
Use heatproof gloves to handle molten materials.

Eye protection: Wear safety glasses (normal type, side-shields' type) or goggles with/without a face protector, as appropriate.
Use safety glasses to handle molten materials.

Skin and body protection: Wear protection clothes, a protection apron, safety-shoes, and/or electric resistant shoes, as appropriate.
Use protection clothes to handle molten materials.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state

Form: Solid (pellet)

Colour: white, Various specified colors

Odour : None

pH : Not available

Boling point / Boiling range : 306±5 ℃ [1)]
(as polycondensate of 2-methyloctane-1,8-diamine, nonane-1,9- diamine and terephthalic acid)

Decomposition temperature: Not available

Flashpoint : >200℃ [1)]

Auto-ignition temperature: Not available

Explosion properties: Not available

Vapour pressures: Not available

Vapour density: Not available

Density : 1.53±0.03

Solubility (as polycondensate of 2-methyloctane-1,8-diamine, nonane-1,9-diamine and terephthalic acid)

—**water solubility:** Insoluble [1)]

—**fat solubitlity:** 1,1,1,3,3,3-hexafluoro-2-propanol: soluble [1)]

Octanol/water partition coefficient : Not available

Other data:

Flammability (solid, gas): Not available

Oxidizing properties: Not available

Relative density : Not available

Viscosity: Not available

Evaporation rate: Not available

10. STABILITY AND REACTIVITY

Stability:

This product is considered a stable material under normal and anticipated storage and handling conditions.

Possible hazardous reactions: none

Conditions to avoid: Avoid the moisture uptake because it becomes the obstacle of molding.

Materials to avoid: Not available

Hazardous decomposition products: Not available

11. TOXICOLOGICAL INFORMATION

Acute toxicity: No relevant information found.

Local effects: Not available

Eye Irritation: No relevant information found.

Skin Irritation: No relevant information found.

Sensitization: No relevant information found.

Chronic toxicity or Long **term toxicity**: No relevant information found.

Specific effect (Carcinogenicity, Mutagenicity, and Reproduction toxicity)

Carcinogenicity: No relevant information found.

Mutagenicity: No relevant information found.

Reproduction toxicity: No relevant information found.

12. ECOLOGICAL INFORMATION

Mobility: No relevant information found.

Persistence / degradability: No relevant information found.

Bioaccumulation: No relevant information found.

Eco-toxicity: No relevant information found.

13. DISPOSAL CONSIDERATIONS

Waste from residues:

This material may be burned in a chemical incinerator under national and local regulations.

Comply with all EU, with national and local regulations.

Do not dump this product into sewers, on the ground or into any body of water.

Contaminated packaging:

May be burned in a chemical incinerator under national and local regulations.

An empty container is abandoned after contents are completely removed.

14. TRANSPORT INFORMATION

International regulations : No allocated

The UN classification number : No allocated

Specific precautionary transport measures and conditions :

Collapse of cargo piles prevention.

Don't wet the package.

Avoid handling the package violently.

Keep away from flames and hot surfaces.

Keep dampproof.

15. REGULATORY INFORMATION

Hazards and safety information as written on the label : No allocated

16. OTHER INFORMATION

To the best of our knowledge, the information contained here in is accurate. However, neither Kuraray Co., Ltd. nor any subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used in caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.

References

1) in house date, Kuraray Co., Ltd.

	Unit	Test method	Genestar			Other products for reference (Non-halogen grade)				
Grade		(ASTM)	GW1458HF	GW2458HF	GP2450NH	PA6T	PA6T	PA4T	PA10T	PA10T
			Non-halo (HB)	Halogen (V-0)	Non-halo (V-0)	Zytel HTN-FR52G30 NH	Arlen RA230N	NC1101A	Vicnyl-R630	Grivory-XE4027
						Dupont	Mitsui	DSM	Kingfa	EMS
Glass fiber content	%	–	45	45	45	30	30	30	30	30
Physical properties										
Specific gravity	g/cm3	–	1.50	1.73	1.53	1.44	1.60	1.45	1.61	1.41
Water absorption (105F.40c/95%RH/168hrs)	%	–	1.1	0.8	1.0	3.5	—	—	1.6	1.5
Flammability	–	UL94	HB	V-0	V-0	V-0	V-0	V-0	V-0	V-0
Mechanical properties										
Tensile strength	MPa	D638	150	165	151	145	165	170	155	115
Tensile elongation	%	D638	3.1	3.5	3.0	2.0	4.0	2.1	2.5	2.0
Flexural strength	MPa	D790	207	225	203	238	240	—	230	—
Flexural modulus	GPa	D790	13	15	12.5	—	11.4	12	10.5	10
Izod impact strength (notched)	J/m	D256	130	125	90	—	88	—	95	—
Charpy Impact Strength (notched)	kJ/m2	ISO178/1eA	—	—	—	8	—	11	—	6
Thermal properties										
Melting point	F/C	–	583/306	583/306	583/306	590/310	608/320	608/320	563/295	563/295
Glass transition	F/C	–	257/125	257/125	257/125	—	203/95	—	—	—
DTUL (1.82MPa)	F/C	D648	554/290	545/285	545/285	545/285	581/305	—	527/275	509/265
Dimensional properties	* not registered									
Molding shrinkage : MD/TD	%	–	0.05/0.5	0.03/0.4	0.04/0.5	0.3/1.0	0.3/0.7	—	0.3/0.9	0.3/1.0
(Thickness)		–	(1mmt)	(1mmt)	(1mmt)	(2mmt)	(2mmt)	—	(2mmt)	(2mmt)

<Reference : Catalog data>

昆山永基精密电子材料有限公司(保税)
Kunshan Yongji Precise Electronic Material Co.,Ltd.
江苏省昆山开发区高科技工业园富士康路1139
Fushikang Road No.1139 Kunshan City Jiangsu
TEL:0512-57779028　　FAX:0512-57784778

产 品 质 量 证 明 书

编号:IC100318021-1

料号	名称	品名/状态	规格	批号	数量（公斤）
Part No	Product Name	Hardness	Size（mm）	Lot No	Quantity(kg)
	磷铜	C5191H	0.20*12	1-1-157	4

Chemical Composition(%):

分析元素 Chemical Element	Cu	Sn	Zn	Ni	Pb	Sb	Bi	Si	Al	Fe	Co+Ni	Ni+Co+Fe
分析数据 Analysis Data	REM	6.10	0.005	0.015	0.001	-	-	-	<0.0005	0.001	-	-
分析元素 Chemical Element	C	P	Mn	S	Cr	Mg	In	Cd	Cu+Ag	Be	Cu+Be+Co+Ni+Fe	
分析数据 Analysis Data	-	0.092	-	-	-	-	-	0.00014	-	-	-	

物理性能 Physics Properties:

抗拉强度 N/mm2	延伸率（%）	屈服强度 N/mm2	硬度值 HV
Tensile intensity	Elongation(%)	Ericsen Value	Hardness Value
615	27.5	565	195

尺寸偏差 Size Deviation:

厚度（mm）(0/-0.01)	宽度（mm）(0/-0.10)	侧弯（mm/m）	翘曲(mm/m)
Thickness(mm)	Width(mm)	Bend Test(mm/m)	Warp Test(mm/m)
0.346	19.48	0.3	30

品保（章）　　品管：何寿山　　日期:2010-03-18　　包装编号:100318-4B323-08

备注： 0.50mm铜片厚度公差范围为（+0.005/-0.01）。其它铜片厚度公差范围为（0/-0.01）mm，宽度公差范围为（0/-0.10）mm

2009永基非保税
Kunshan Yongji Precise Electronic Material Co.,Ltd.
江苏省昆山市开发区高科技工业园富士康路1139号
Fushikang Road No.1139 Kunshan City Jiangsu
TEL:0512-57779028　　FAX:0512-57784778

产 品 质 量 证 明 书

编号: IC1001059-2

料号	名称	品名/状态	规格	批号	数量（公斤）
Part No	Product Name	Hardness	Size（mm）	Lot No	Quantity(kg)
	黄铜	C2680H	0.20*13	07-22-201	5

Chemical Composition(%):

分析元素 Chemical Element	Cu	Sn	Zn	Ni	Pb	Sb	Bi	Si	Al	Fe	Co+Ni	Ni+Co+Fe
分析数据 Analysis Data	64.62	-	REM	-	0.002	-	-	-	-	0.005	-	-

分析元素 Chemical Element	C	P	Mn	S	Cr	Mg	In	Cd	Cu+Ag	Be	Cu+Be+Co+Ni+Fe
分析数据 Analysis Data	-	-	-	-	-	-	-	-	-	-	-

物理性能 Physics Properties:

抗拉强度 N/mm2	延伸率（%）	屈服强度 N/mm2	硬度值 HV
Tensile intensity	Elongation(%)	Ericsen Value	Hardness Value
403	19	-	150

尺寸偏差 Size Deviation:

厚度（mm）(+0.05/-0.05)	宽度（mm）(0/-0.10)	侧弯（mm/m）	翘曲(mm/m)
Thickness(mm)	Width(mm)	Bend Test(mm/m)	Warp Test(mm/m)
0.8	16.47	0.7	

品保（章）　　品管：李芳　　日期：2020-7-22　　包装编号：CE001-4812-04

备注： 0.80mm铜片厚度公差范围为（+0.05/-0.05）。其它铜片厚度公差范围为（0/-0.01）mm，宽度公差范围为（0/-0.10）mm