

# SPECIFICATION AND PERFORMANCE FOR APPROVAL

P/N: E421C-5000G1      2003/12/15 REV.0 16 of 37

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● **Mechanical Performance:**

- 1. Twist Life**(For Specification 3.1): STD: 500 cycles min.  
The housing after test shall be not functional damage.

	Initial	After Twist life
Sample 1	OK	OK
Sample 2	OK	OK
Sample 3	OK	OK
Sample 4	OK	OK
Sample 5	OK	OK

- 2. Tensile of Coaxial Cable**(For Specification 3.4): STD: load 1Kgf / 1 minute.  
No fall of Coaxial cable.

	Initial	After Twist life
Sample 1	OK	OK
Sample 2	OK	OK
Sample 3	OK	OK
Sample 4	OK	OK
Sample 5	OK	OK

- 3. Tensile-Housing** (For Specification 3.2): STD: 5 kgf . cm / 3 second  
No loosen of resin tube.

	Initial	After Twist life	OVER 10 kgf
Sample 1	OK	OK	OK
Sample 2	OK	OK	OK
Sample 3	OK	OK	OK
Sample 4	OK	OK	OK
Sample 5	OK	OK	OK

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## 4. Vibration (For Specification 3.3):

(Frequency:10-55-10HZ/min)

(Amplitude:1.52mm)

(Period:2 hours for each X , Y and Z axis directions ; in total:6 hours)

Test Result: (V.S.W.R: 2.0)

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Vibration Test	1.631	1.228	1.574
	After Vibration Test	1.662	1.216	1.582
2	Before Vibration Test	1.623	1.302	1.667
	After Vibration Test	1.611	1.344	1.647
3	Before Vibration Test	1.539	1.324	1.737
	After Vibration Test	1.511	1.394	1.762
4	Before Vibration Test	1.429	1.294	1.797
	After Vibration Test	1.465	1.368	1.728
5	Before Vibration Test	1.614	1.283	1.584
	After Vibration Test	1.645	1.386	1.600

Test Result: Return Loss: -10 dB

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Vibration Test	-12.47 dB	-20.36 dB	-13.06 dB
	After Vibration Test	-11.71 dB	-20.02 dB	-12.62 dB
2	Before Vibration Test	-12.52 dB	-17.81 dB	-12.08 dB
	After Vibration Test	-12.42 dB	-16.01 dB	-12.11 dB
3	Before Vibration Test	-13.31 dB	-17.02 dB	-11.29 dB
	After Vibration Test	-13.06 dB	-16.07 dB	-11.02 dB
4	Before Vibration Test	-12.49 dB	-17.96 dB	-12.82 dB
	After Vibration Test	-12.21 dB	-16.11 dB	-12.64 dB
5	Before Vibration Test	-11.67 dB	-17.38 dB	-12.53 dB
	After Vibration Test	-11.06 dB	-17.26 dB	-12.03 dB

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## Environmental Performance:

### 1. Temperature Life(For Specification 5.1): 96 hours at 60±2

Test Result: (V.S.W.R: 2.0)

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Temperature Life Test	1.632	1.225	1.576
	After Temperature Life Test	1.691	1.233	1.589
2	Before Temperature Life Test	1.625	1.300	1.661
	After Temperature Life Test	1.662	1.341	1.681
3	Before Temperature Life Test	1.538	1.324	1.732
	After Temperature Life Test	1.525	1.366	1.766
4	Before Temperature Life Test	1.426	1.298	1.796
	After Temperature Life Test	1.452	1.281	1.781
5	Before Temperature Life Test	1.613	1.287	1.581
	After Temperature Life Test	1.691	1.286	1.627

Test Result: Return Loss: -10 dB

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Temperature Life Test	-12.49 dB	-20.32 dB	-13.02 dB
	After Temperature Life Test	-11.76 dB	-20.29 dB	-13.29 dB
2	Before Temperature Life Test	-12.53 dB	-17.86 dB	-12.09 dB
	After Temperature Life Test	-11.61 dB	-17.51 dB	-11.24 dB
3	Before Temperature Life Test	-13.30 dB	-17.05 dB	-11.27 dB
	After Temperature Life Test	-13.09 dB	-16.75 dB	-11.31 dB
4	Before Temperature Life Test	-12.44 dB	-17.94 dB	-12.86 dB
	After Temperature Life Test	-12.40 dB	-17.20 dB	-12.60 dB
5	Before Temperature Life Test	-11.65 dB	-17.36 dB	-12.55 dB
	After Temperature Life Test	-11.16 dB	-17.11 dB	-12.16 dB

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2. Cold(For Specification 5.2):96 hours at  $-10 \pm 2$

Test Result: (V.S.W.R: 2.0)

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Cold Test	1.630	1.222	1.573
	After Cold Test	1.696	1.234	1.580
2	Before Cold Test	1.622	1.305	1.661
	After Cold Test	1.620	1.352	1.689
3	Before Cold Test	1.537	1.328	1.739
	After Cold Test	1.590	1.372	1.785
4	Before Cold Test	1.428	1.299	1.798
	After Cold Test	1.459	1.351	1.721
5	Before Cold Test	1.613	1.285	1.585
	After Cold Test	1.677	1.289	1.516

Test Result: Return Loss: -10 dB

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Cold Test	-12.48 dB	-20.35 dB	-13.05 dB
	After Cold Test	-12.70 dB	-20.36 dB	-16.02 dB
2	Before Cold Test	-12.53 dB	-17.82 dB	-12.07 dB
	After Cold Test	-11.61 dB	-17.94 dB	-12.18 dB
3	Before Cold Test	-13.30 dB	-17.03 dB	-11.27 dB
	After Cold Test	-13.01 dB	-17.66 dB	-11.28 dB
4	Before Cold Test	-12.48 dB	-17.97 dB	-12.84 dB
	After Cold Test	-11.92 dB	-16.01 dB	-11.57 dB
5	Before Cold Test	-16.72 dB	-18.08 dB	-15.32 dB
	After Cold Test	-15.67 dB	-17.38 dB	-15.53 dB

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### 3.Humidity(For Specification 5.3): 96 hours at $40 \pm 2$ , 90 ~ 95 % RH

Test Result: (V.S.W.R: 2.0)

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Humidity Test	1.661	1.238	1.564
	After Humidity Test	1.665	1.247	1.580
2	Before Humidity Test	1.633	1.322	1.657
	After Humidity Test	1.631	1.354	1.646
3	Before Humidity Test	1.549	1.314	1.757
	After Humidity Test	1.556	1.354	1.794
4	Before Humidity Test	1.419	1.284	1.787
	After Humidity Test	1.449	1.348	1.718
5	Before Humidity Test	1.604	1.263	1.574
	After Humidity Test	1.670	1.297	1.608

Test Result: Return Loss: -10 dB

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Humidity Test	-12.57 dB	-20.26 dB	-13.16 dB
	After Humidity Test	-11.71 dB	-20.39 dB	-13.25 dB
2	Before Humidity Test	-12.62 dB	-17.91 dB	-12.18 dB
	After Humidity Test	-11.61 dB	-17.56 dB	-12.20 dB
3	Before Humidity Test	-13.21 dB	-17.22 dB	-11.39 dB
	After Humidity Test	-13.03 dB	-16.62 dB	-11.05 dB
4	Before Humidity Test	-12.69 dB	-17.86 dB	-12.92 dB
	After Humidity Test	-11.82 dB	-17.08 dB	-12.51 dB
5	Before Humidity Test	-11.57 dB	-17.28 dB	-12.23 dB
	After Humidity Test	-11.23 dB	-17.11 dB	-12.17 dB

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**4. Thermal Shock**(For Specification 5.4): The following conditions for 10cycles.

A.  $-20 \pm 2$  ..... 1hours

B.  $+60 \pm 2$  ..... 1hours (Transit time shall be within 3minutes.)

Test Result: (V.S.W.R: 2.0)

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Thermal Shock Test	1.641	1.218	1.554
	After Thermal Shock Test	1.689	1.237	1.588
2	Before Thermal Shock Test	1.633	1.312	1.617
	After Thermal Shock Test	1.721	1.346	1.632
3	Before Thermal Shock Test	1.559	1.344	1.727
	After Thermal Shock Test	1.602	1.368	1.778
4	Before Thermal Shock Test	1.419	1.254	1.747
	After Thermal Shock Test	1.503	1.360	1.726
5	Before Thermal Shock Test	1.664	1.273	1.564
	After Thermal Shock Test	1.677	1.290	1.619

Test Result: Return Loss: -10 dB

Frequency		2.4 GHz	2.45 GHz	2.5 GHz
1	Before Thermal Shock Test	-12.27 dB	-20.66 dB	-13.16 dB
	After Thermal Shock Test	-11.72 dB	-20.32 dB	-12.26 dB
2	Before Thermal Shock Test	-12.42 dB	-17.51 dB	-12.18 dB
	After Thermal Shock Test	-12.69 dB	-17.56 dB	-12.29 dB
3	Before Thermal Shock Test	-12.39 dB	-17.66 dB	-12.62 dB
	After Thermal Shock Test	-12.10 dB	-16.58 dB	-12.29 dB
4	Before Thermal Shock Test	-12.69 dB	-17.26 dB	-12.72 dB
	After Thermal Shock Test	-11.85 dB	-16.10 dB	-12.66 dB
5	Before Thermal Shock Test	-11.57 dB	-17.28 dB	-12.33 dB
	After Thermal Shock Test	-11.19 dB	-17.06 dB	-12.15 dB

# SPECIFICATION FOR APPROVAL

DOCUMENT: A30178B001

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STYLE : 200 30V  
RG-178B/U

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SIZE: 7/0.102 SCCS

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RECOGNIZED:

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## WONDERFUL HI-TECH CO.,LTD

OFFICE : 72WU KONG 6TH ROAD,  
WU KU IND. DISTRICT  
TAIPEI HSIEN,TAIWAN

TEL : (02)22988033  
FAX : (02)22988031-2

FACTORY : 17 PEI YUAN ROAD,  
CHUNG-LI IND. PARK  
TAIWAN, R.O.C.

TEL : (03)4527777  
FAX : (03)4517214

# WONDERFUL HI-TECH CO., LTD

## SPECIFICATION

STYLE	200 30V COAXIAL	DOCUMENT NO : A30178B001	
SIZE	RG-178B/U	ESTABLISHED DATE: 2003/02/13	
STANDARD : MIL-C-17			
Conductor	Size	AWG	30
	Material	----	Silver-Coated Copper Clad Steel
	Conductors No.	----	7
	Conductors Size	mm	0.102
	O.D.	mm	0.30
Insulation	Average Thickness	mm	0.28
	Diameter	mm	0.86
	Material	----	FEP
	Color	----	Clear
Braid	Material	----	Silver-Coated Copper
	Construction	mm	16 / 3 / 0.10
	Coverage	%	95
Jacket	Average Thickness	mm	0.25
	Diameter	mm	1.80 ± 0.05
	Material	----	FEP
	Color	----	Brown
Marking			
Drawing			

AK001/210X297/1.0

PAGE : 1

EDITION : 1.1

REVISED DATE :

MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG



# WONDERFUL HI-TECH CO., LTD

## SPECIFICATION

Electrical & Physical Properties						
Item		RG-178B/U				
Rating Temp Voltage		200 30V				
Conductor Resistance		838 OHM/KM/20 MAX.				
Insulation Resistance		3000 MEGA OHM/KM MIN.				
Dielectric Strength		AC 1.0 KV/Minute				
Spark Test		2.0 KV				
Insulation	Unaged	Tensile Strength	2500 PSI MIN.( 1.76 Kg / mm <sup>2</sup> )			
		Elongation	200% MIN.			
	Aged	Tensile Strength	<b>UNAGED MIN 75%(168HRS×232 )</b>			
		Elongation	<b>UNAGED MIN 75%(168HRS×232 )</b>			
Jacket	Unaged	Tensile Strength	2500 PSI MIN.( 1.76 Kg / mm <sup>2</sup> )			
		Elongation	200% MIN.			
	Aged	Tensile Strength	<b>UNAGED MIN.75%(168HRS×232 )</b>			
		Elongation	<b>UNAGED MIN.75%(168HRS×232 )</b>			
Nom. Impedance		50 Ohms				
Nom. Capacitance		95.8 pF/m				
Nom. Vel. of Prop.		69.5%				
VSWR (0 – 6 GHZ)		UNDER 1.3				
Attenuation (dB/100m)	100MHz	1GHz	1.8GHz	2.4GHz	5.2GHz	6GHz
	46	155	295	340	505	550

From = 守泰弘

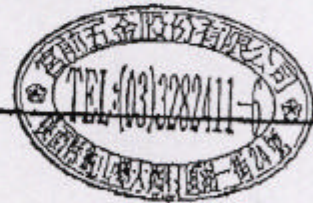
# 宮前五金股份有限公司

Fr. 125

## 檢驗報告表

編號: 891207

客 戶	<b>ELITE ELECTRONICS CO., LTD.</b>			
品 名	FREE CUTTING BRASS ROD			
規 格	JIS H3250 C3604 BD			
數 據	標 準 值	實 測 值	備 註	
項 目				
化 學 成 份 %	Cu	57.0 - 61.0	58.98	六角11.0m/m 六角8.0m/m 六角12.7m/m 四角11.0m/m 四角9.5m/m 丸 21.0m/m 丸 19.0m/m 丸 11.0m/m 丸 9.0m/m 丸 6.35m/m
	Pb	1.8 - 3.7	3.40	
	Fe	< 0.5	-----	
	Sn+Fe	< 1.2	0.74	
	Zn	REMAINDER	REMAINDER	
其 它				



桃園縣龜山鄉頂湖一街 24 號 TEL: (03) 3283068-70

Tef.

## APPENDIX (技術仕様)

LEO ME PTFE Rod is manufactured with virgin PTFE powder by ram extrusion or compression molding and is conformed to meet the requirement of ASTM

TABLE 1 Detail Specification for PTFE Rod

ITEM	PROPERTY	ASTM TEST METHOD	VALUE
1	Specific gravity	D792	2.15-2.2
2	Tensile strength	D638	280-350 kg/cm <sup>2</sup>
3	Elongation	D638	200-400%
4	Dielectric strength	D149	30KV/mm
5	Deformation under load. 6.9Mpa, 50C, %	D621	3.5 - 6
6	Dissipation factor 1 KHz	D150	Less than .0.0005
7	Dielectric constant 1 KHz	D150	2.0 - 2.1
8	Volume resistivity	D257	> 10 <sup>16</sup>
9	Surface resistivity	D257	10 <sup>17</sup>
10	Flexural modulus	D790	430-500Mpa
11	Compressibility	D1147	16-20%
12	Hardness, durometer	D2240	D53 - D60
13	Impact strength	D256	16kg-cm/cm
14	Coefficient of linear thermal expansion, per C. 30C to 80C, 10 <sup>-5</sup> C	D696	12.3 to 11.6

浩裕興業有限公司

台北縣新莊市復興路三段 87 號

TEL:(02)29907903

FAX:(02)29978644

數據組編號: 1

n =	1	AU =	5.47 μ"
n =	2	AU =	6.38 μ"
n =	3	AU =	4.56 μ"
n =	4	AU =	4.37 μ"
n =	5	AU =	4.12 μ"

XRAY XDL

數據組編號: 1

產品名稱: Au

數據組結果  
(Flash 3 μ")

校正標準片

		Au	
平均值	X:	4.982 μ"	
標準差	S:	0.9328 μ"	
讀值數量	n:	5	
最小值	:	4.122 μ"	
最大值	:	6.382 μ"	



電話 (86) 886 2 29898188

FUN JAN CO LTD

01年04月11日 14:00分 第01/01

BC 00017B 鋼 9.5 下 材 質

SHYANG RWEV. INDUSTRIAL CO. LTD. FAX NO. : 886282511746

APR. 11 2001 02:26PM P. 1

# BRUSHWELLMAN

ENGINEERED MATERIALS

Reading Plant  
Shoemakersville Road  
READING PA 19555  
USA  
Phone: (216) 486-4200  
Fax: \*

Brush Wellman Singapore (S) Pte.  
Ltd.  
110 Paya Lebar Road, #02-01  
409009 SINGAPORE  
SINGAPORE

SR0057 2.5

Page 1 of 2

Material				
Date	07/19/2000			
Purchase order Item/date	S80751 / 03/13/2000			
Delivery Item/date	60095259 000010 / 07/24/2000			
Order Item/date	53625 000030 / 03/14/2000			
Customer nbr	11817			
Customer part nbr				
Customer spec				
Rev	Type	Comp	Class	Grade

Our Material: K575850200 ROD CD M25 H .09840 X

Brush Wellman testing for chemical composition (by Optical Emission Spectrometry), is conducted at our Simons, OH Laboratories. Testing of mechanical or physical properties is conducted at Laboratories which are accredited by American Association for Laboratory Accreditation.

This material was inspected and tested for conformity as required in accordance with the noted part specification, and revision number. The quantitative test data obtained from these tests are available for review by the buyer.

Batch 0000175447 / Quantity 1,195.000 LBS

Characteristic	Unit	Value	Specification Limits	
			Lower	Upper
CPA (UNG) Alloy	-	07300		
ASTM Temper	-	1004		
Brush Spec Nbr.	-	BWT-RH5.00-2		
<u>Dimensional Attributes</u>				
Diameter	-	0.09840		2.5
Diameter Plus	-	0.00197		
Diameter Minus	-	0.00197		
Length	-	59.42525		
Length Plus	-	0.25000		
Length Minus	-	0.00000		
<u>Mechanical/Physical Properties</u>				
Grain Size	mm	0.024 0.028		0.050
Tensile	kgf	75.0	63.0	88.0
Yield	kgf	61.0 63.0	52.0	74.0
Elongation	%	13.0 14.0	10.0	
Hardness Scale		HV	200.0	270.0
Hardness Value		254.0		

CERTIFIED TRUE COPY



The material supplied with this certification has not been heat treated. The properties were achieved in Brush Wellman's laboratory. They represent what can be achieved using the time and temperatures

P.02 TO 0286910397

08-AUG-2003 17:10 FROM

59-次  
93換  
C-2700  
鉛管零件  
82包  
5

辰吉電化廠股份有限公司  
Chen Chi Electro Chemical Co., Ltd  
分光分析檢驗報告表

Vacuum Emission Spectrometer Analysis Report

申請者: 辰吉電化廠股份有限公司  
Sample: 鋼  
Job Description: 材料分析  
檢驗日期: 92.1.11  
Sample Received: 92.6.12  
Date Issued: 92.1.11

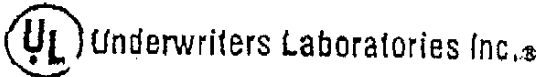
分析結果  
ANALYTIC RESULT:

NO	CONT	AO-NO	SI	SR-NO	PB	Zn2	Fe	MI	MN
N# 1	08.841		02881		01097	33.071	01027		00771
N# 2	86.730		02811		00671	33.199	01295		00738
AVE	86.785		02881		00884R	33.136	01411R		00755
N# 1		81	8b		As				
N# 2		00230	00633		00163				
AVE		00159	00603		00003				
AVE		00199R	00669R		00083R				

附註: 本報告僅對送檢樣品負責。  
Remarks: This report is responsible for designated samples only.  
檢驗員: 許水顯  
Inspector



部長  
Division Chief:



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 Melville, New York • (516) 271-6200  
 Santa Clara, California • (408) 985-2400  
 Research Triangle Park,  
 North Carolina • (919) 549-1400  
 Camas, Washington • (360) 617-5500

GREAT HOLDING INDUSTRIAL CO LTD  
 MR H WANG  
 516-13 CHUNG-CHENG RD  
 SHIN-CHUANG  
 TAIPEI HSIEN TAIWAN



Your most recent listing is shown below. Please review this information and report any inaccuracies to the UL Engineering staff member who handled your UL project.

YOPU2  
 Component - Extruded Tubing, Electrical

GREAT HOLDING INDUSTRIAL CO LTD  
 516-13 CHUNG-CHENG RD SHIN-CHUANG, TAIPEI HSIEN  
 TAIWAN

E156256 (S)  
 (A card)

Cat. No.	Max Voltage	Max Temp, C	Col Recognized	Max Temp Rated Oil Resistance*, °C	VW-1 Rated #
Polytetrafluoroethylene (PTFE).					
TFL	150	200	BL,NAT	—	Yes
TFT	300	200	BL,NAT	—	Yes
TFS	600	200	BL,NAT	—	Yes

\*- Tubing is considered to comply with the optional or/resistant requirements only if so marked.  
 #- Tubing is considered to comply with the optional VW-1 flammability requirements only if so marked.

Report: January 25, 1994.

915930001

H3085

Underwriters Laboratories Inc.®

(Cont. on B card)  
 011/0247451  
 213

For information on placing an order for UL Listing Cards in a 3 x 5 inch card format, please refer to the enclosed ordering information.

UNDERWRITERS LABORATORIES INC.

A not-for-profit organization  
 dedicated to public safety and  
 committed to quality service

## Material Safety Data Sheet

### . Identification of the Substance / Preparation And Company :

Product Information : Thermoplastic Elastomer (Thermoplastic Olefins)
Product Number : T-BLEND® 9094N-DV
Information on Product / Supplier Name、 Address、 Phone : TSRC Corporation / 2,Hsing Kung Road ,Ta-She, Kaohsiung ,Taiwan 815, R.O.C.
Emergency Phone / Fax : 886-7-3520073 / 886-7-3520060

### . Composition / Information on Ingredients :

Single :

English Name : Thermoplastic Olefins ( Thermoplastic Vulcanization Rubber)
Synonyms : T-BLEND® 9094N-DV
Chemical Abstracts Number ( CAS No. ) : 9003-55-8
( Percentage for Chemical Ingredient ) : Non

Mixing :

Chemical Character : Stable		
Hazardous Components Name	Concentration / Percentage	Hazard Symbols
None	None	None
None	None	None

### . Hazard Identification :

Major Hazard Effect	Hazard Warnings for Health : Non hazardous
	Hazard Warnings for Environment : Avoiding spreading of the material. If spread, surface of water shall be cleaned by skimming, wasting according to the natural and local waste regulations.
	Physical And Chemical Dangerous : Flammable
	Special Harm : None
Major State : None	
Hazard Category : None	

### . First Aid Measures :

Emergency And First Aid Procedures :
Inhalation : None
Skin Contact : None
Eye Contact : None.
Ingestion : Swallowing of small quantity is harmless. Swallowing of larger quantities will cause stomachache and diarrhoea.
Major Disease And Harm Effect : None
First-Aid Personal Protection : None
Prompt to Doctor : None

### . Fire Fighting Measure :

Suitable Extinguishing Media : Water, CO <sub>2</sub> , or Powder.
Special Exposure Hazards : None
Special Extinguishing Procedure : Take away flammable material out of dangerous zone.
Special Protection Equipment : The fire brigade should be equipped with suitable overalls and self-contained breathing apparatus.



. Accidental Release Measures :

Personal Protection : Spilled pellets can cause accident by slipping. Pick up spilled pellets and waste it properly.
Environmental Protection : Avoiding spreading of the material. If spread, surface of water shall be cleaned by skimming, wasting according to the natural and local waste regulations.
Methods For Cleaning Up : None

. Handling And Storage :

Handling : It shall not be stored near to flammable materials and high temperature area for prolonged period.
Storage : Electrostatic charge should be avoided. Material shall be stored in dry and well-ventilated air.

. Exposure Control / Personal Protection :

Engineering Control : None
Control Factor : • TWA / STEL / CEILING : None • Biotic Index : None
Personal Protection Equipment : • Respiratory Protection : None • Hand Protection : In case of contact with hot material, heat resistant gloves, safety glasses or face shield is required. • Eye Protection : In case of danger of contacting of material, safety glasses is required. • Skin & Body Protection : Non skidding safety shoes are required at those places, where materials possibly leak.
Hygiene Procedures : Wash thoroughly after handling.

. Physical And Chemical Properties / Characteristic :

Appearance : Solid	Form : Pellet
Color : Natural	Odor : Almost odorless
pH value : --	Boiling Point / Boiling Range : --
Decomposition Temperature : --	Flash Point : -- °C Test Method : <input type="checkbox"/> Open Cup <input type="checkbox"/> Close Cup
Spontaneous Temperature : --	Exposure Limits : Non
Vapor Pressure : --	Vapor Density : --
Specific Gravity : 0.93 (g/cm <sup>3</sup> )	Solubility in Water : Not soluble

. Stability And Reactivity :

Stability : Stable under normal conditions.
Special Conditions of Hazardous Reaction : Non
Condition to Avoid : Avoid naked flame and other ignition source.
Incompatibility : None
Hazardous Decomposition Products : CO <sub>2</sub> , H <sub>2</sub> O, CO, carbon, hydrocarbon.

XI. Toxicological Information :

Acute Toxicity : Not information available
Local Effects : None
Sensitive : None

Chronic : None

Exceptional Effect : None

**XII. Ecological Information :**

Possibility of Environmental Impact / Move : Never dump or discharge this substance into ocean or any other places to protect marine life or birds.

**XIII. Disposal Information :**

Disposal Information : According to local authorities' regulations .This product can be burned in permissible equipment.

**XIV. Transport Information :**

International Transport Regulation : It is not subject to the regulations of dangerous goods for street transportation.

The United National Number ( Un-No ) : None

Internal Transport Regulation : None

Special Transport Way And Note : None

**XV. Regulation Information :**

Apply Regulation : None

**XVI. Other Information :**

Reference :	None	
Make Unit :	Name : TSRC Corporation / 2,Hsing Kung Road ,Ta-She, Kaohsiung ,Taiwan 815, R.O.C.	
	Addresses / Phone : 886-7-3520073 / 886-7-3520060	
Make People :	Professional Post : Admiuistrator	Name ( Sign ) : Darcy Lee
Make Date :	2003/8/25	

## T-BLEND<sup>®</sup>9094N-DV Thermoplastic Elastomer Technical Document

T-BLEND<sup>®</sup>9094N-DV is a pre-formulated and palletized general-purpose thermoplastic elastomer compound based on TPV Raw material.

It is designed for the over-molding of soft-touch elastomer components onto hard olefin thermoplastics such as PP resins. This material exhibits excellent flow properties and offers molded articles with fine texture, dry surface and excellent rubbery feeling. And it gets the matt surface similar to the TPV product.

Being a thermoplastic elastomer, T-BLEND<sup>®</sup>9094N-DV can be easily processed with general processing equipment and tools designed for thermoplastics and yet possess elastomeric properties at ambient temperatures.

### Properties

Characteristics	Methods	Typical values
Product Form	NA	Pellets
Colour	NA	Natural
Specific Gravity	ASTM D 792	0.9
Hardness (Injection Test Piece)	ASTM D 2240	90 ± 3
Tensile Strength at Break (kg/cm <sup>2</sup> )	ASTM D 412	97.4
Elongation at Break (%)	ASTM D 412	397
300% Modulus (kg/cm <sup>2</sup> )	ASTM D 412	91.2
Melt Flow Index 5 kg @ 180	ASTM D 1238	52
Tear strength (kg/cm)	ASTM D 624	70
Rebound (%)	ASTM D1054	40.4
Akron (c.c)	B.S 903	0.09
Compression set ( %) 70 *22hrs		42

### Processing Guide

T-BLEND<sup>®</sup>9094N-DV rubber is a versatile material and can be processed by using high shear rate injection molding methods.

Stability of T-BLEND<sup>®</sup>9094N-DV is excellent at normal processing temperature. However should inadvertent loss of temperature control lead to decomposition the degradation products are non-corrosive. Generally, it reacts the same as other easy molding thermoplastics, such as polystyrenes. The finished parts have sharp and well-defined details.

Typical starting conditions for a reciprocating screw injection-molding machine are listed in the accompanying chart. These values are intended only as guidelines, and the optimum conditions will vary from machine to machine.

All products purchased from or supplied by TSRC CORPORATION are subject to terms and conditions set out in the sales contract, order confirmation and/or bill of lading. TSRC CORPORATION warrants only that its product will meet those specifications designated as such herein or in other publications. All other information supplied by TSRC CORPORATION is considered accurate but is furnished upon the expressed condition that the customer shall make its own assessment to determine the application. TSRC CORPORATION makes no other warranty either expressed or implied. Including the product's suitability for a particular purpose or those regarding such other information, the data upon which the same is based, or the results to be obtained from the use thereof; that any product shall be merchantable or fit for any particular purpose; or that the use of such other information or product will not infringe any patent.

TSRC CORPORATION  
2 Hsing Kung Road, Ta-She,  
Kaohsiung, Taiwan 815, R.O.C.  
Tel : 886-7-352-0073  
Fax : 886-7-352-0024  
E-mail : [darcy@tsrc.com.tw](mailto:darcy@tsrc.com.tw)



## T-BLEND<sup>®</sup>9094N-DV Thermoplastic Elastomer Technical Document

Typical mold shrinkage for T-BLEND<sup>®</sup>9094N-DV is between 0.010-0.020 inch/inch. Short cycle time can be achieved and the scrap is 20% recyclable without loss in properties.

LDPE or EVA colour concentrates can be used to colour T-BLEND<sup>®</sup>9094N-DV.

Suggested Processing Conditions	
Barrel temperature	
Feed	80° C
Rear	170° C
Front	180° C
Nozzle	190° C
Mold temperature	30 - 40° C
Back pressure	50 - 100 psi
Injection rate	Moderate
Cycle time	25 - 50 sec

### Precaution in handling and storing

T-BLEND<sup>®</sup>9094N-DV rubber pellets present no unusual handling problems, thus normal procedures for handling solids that might form a dust should be followed.

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TSRC CORPORATION  
2 Hsing Kung Road, Ta-She,  
Kaohsiung, Taiwan 815, R.O.C.  
Tel : 886-7-352-0073  
Fax : 886-7-352-0024  
E-mail : [darcy@tsrc.com.tw](mailto:darcy@tsrc.com.tw)

208, Chung Hwa 2nd Road, San  
Min District Kaohsiung, Taiwan.  
Tel : (07)3230920  
Fax: (07)3157484

REPORT NO . KE/2003/20813  
PAGE NO . 1 OF 2  
DATE . 2003/02/27

**Test Report**

THE FOLLOWING MERCHANDISE WAS (WERE) SUBMITTED AND IDENTIFIED BY THE CLIENT AS :

**CLIENT** TSRC CORPORATION.  
**CARGO** TPR-9094N(B)-DV. (AS ATTACHED SAMPLE CARD).  
**COLOR** WHITE.  
**STYLE/ITEM NO.** TPR-9094N(B)-DV.  
**MATERIAL COMPONENT** TPR.  
**TESTING DATE** 2003/02/20~2003/02/26.  
**SAMPLE RECEIVED** 2003/02/20.  
**SAMPLE SUBMITTED BY** TSRC CORPORATION.


WE HAVE TESTED THE SAMPLE(S) SUBMITTED AS REQUESTED AND THE FOLLOWING RESULTS WERE OBTAINED.

**TEST RESULT:**

TEST ITEM(S)	UNIT	METHOD	DETECT. LIMIT	SPEC.	RESULT	CONCLUSION
CADMIUM	ppm	ASTM F963	0.015	<75.0	n.d.	PASS
LEAD	ppm	ASTM F963	0.020	<90.0	n.d.	PASS
MERCURY	ppm	ASTM F963	0.020	<60.0	n.d.	PASS
ARSENIC	ppm	ASTM F963	0.050	<25.0	n.d.	PASS
CHROMIUM	ppm	ASTM F963	0.025	<60.0	n.d.	PASS
BARIUM	ppm	ASTM F963	0.020	<1000	n.d.	PASS
ANTIMONY	ppm	ASTM F963	0.015	<60.0	n.d.	PASS
SELENIUM	ppm	ASTM F963	0.020	<500	n.d.	PASS
TOTAL LEAD	ppm	ASTM F963	0.020	<600	n.d.	PASS

NOTE: n.d. = not detected.

--- 1 ---

  
George Huang/Supervisor  
Sign for and on behalf of  
**SGS Taiwan Ltd.**

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# Certificate of Approval

*Awarded to*

**FULL RISE ELECTRONIC CO., LTD.**

**1. NO. 19-4, KAO SHAN, KAO SHUANG VILLAGE, PING CHEN CITY, TAOYUAN,**

**2. NO. 26, KAO CHING ROAD, KAO SHAN LI, YANG MEI, TAOYUAN,**

**TAIWAN, R.O.C.**

*Bureau Veritas Quality International certify that the  
Quality Management System of the above supplier  
has been assessed and found to be in accordance  
with the requirements of the quality  
standards detailed below*

QUALITY STANDARDS

**BS EN ISO 9001:2000**

SCOPE OF SUPPLY

**DESIGN, MANUFACTURE AND SUPPLY THE FOLLOWING:**

- 1. PCB MODULAR JACK AND PLUGS**
- 2. TELECOM ACCESSORIES C3, C4, C5, C5E, C6**
- 3. PC CONNECTORS, IEEE 1394, USB**
- 4. SMART CARD CONNECTORS**
- 5. Mobile phone connectors**

*Original approval date:* **03 March, 1998**

*Subject to the continued satisfactory operation of the supplier's  
Quality Management System, this Certificate is valid for a period of three years from:*

**26 July, 2001**

Date: **01 August, 2001**

Managing Office:  
Bureau Veritas Quality International  
Taiwan District  
6<sup>th</sup> Fl., No. 3, Tun Hua S. Rd., Sec. 1  
Taipei 105, Taiwan, R.O.C.



008

*[Signature]*  
For Bureau Veritas Quality  
International (Holding) S.A.,  
2<sup>nd</sup> Floor, Tower Bridge Court  
224-226 Tower Bridge Road  
London SE1 2TX

Certificate No: **86005**