Auspring company Low-Carbon Product Introduction

https://auspring.com.tw/wp/

報告人
德春股份有限公司
陳見忠博士
台北市104 中山區民族東路2號4樓之2
Tel: 02-25981121 ext 58
Fax: 02-25981151
Cell phone: 0978-655982
<johnsonchen621@auspring.com.tw>

德春股份有限公司
AUSPRING CO., LTD.

About Auspring

Auspring is a leading specialty chemical company, founded in 1992 and headquartered in Zhongshan District, Taipei City. **We apply advanced plastic dyeing and manufacturing technology** from Germany, dedicated to researching, developing, producing, and selling **color masterbatch and colored particles for spinning and injection molding, functional color masterbatch, and dyeing services for various special engineering plastics.**

Auspring has ISO14001 & 9001 certification and GRS (Global Recycled Standard) certification as a professional production and manufacturing factory that complies with international environmental regulations. We use raw materials that meet SGS certification standards and comply with regulations such as RoHS, REACH, and Oek-Tex, providing customers with various environmentally friendly materials for color matching and processing services.

Auspring has two production bases, located in Jiangxi, China, and Taoyuan, Taiwan, respectively, providing fast marketing services for both sides of the Taiwan Strait and overseas.

ISO14001 & 9001 certification and GRS (Global Recycled Standard) certification

Control Union Certifications B.V.
Meeuwenlaan 4-6,8011 BZ,Zwolle,Netherlands
+31 38 426 0100
www.controlunion.com

SCOPE CERTIFICATE

Scope Certificate Number: CU1021277GRS-2022-00004961

Jiangxi Tak Chun Plastic Fiber Technology Co.,Ltd.
License Number: 1021277
Houfa Industrial Park, Le'an County
Fuzhou
China

Global Recycled Standard (GRS)
- Version 4.0 -

Product categories:Processed materials

Concentrating, Extrusion, Trading

2023-01-07

2022-01-14,Zwolle

On behalf of the Managing Director
Ya Gao/Certifier

Global Recycled Standard

CONTROLUNION

QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certification No. : HXC18921Q20328R0S

Awarded to

Jiangxi Tak Chun Plastic Fiber Technology Co., Ltd.

Organization Code: 91361000336413044J
Registration Add.: Houfa Industrial Park,Le'an County,Fuzhou City,Jiangxi Province
Office Add.: Houfa Industrial Park,Le'an County,Fuzhou City,Jiangxi Province
Production/Service Add.: Houfa Industrial Park,Le'an County,Fuzhou City,Jiangxi Province
Zip Code: 344300

The Quality Management System of the above organization has been assessed and Found to be in accordance with the requirements of the standard:

GB/T 19001-2016 / ISO 9001:2015

Scope of this management Certification

Production of masterbatch for plastic fiber

First S.A. | Labelling | Second S.A. | Labelling | Third S.A. | Labelling

Date of Issue:27 Aug. 2021 Date of Supervision:27 Aug. 2021 Valid until:26 Aug. 2024

华信创认证

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

Certification No. : HXC18918E20449R1S

Awarded to

Jiangxi Tak Chun Plastic Fiber Technology Co., Ltd.

Organization Code: 91361000336413044J
Registration Add.:Houfa Industrial Park,Le'an County,Fuzhou City,Jiangxi Province
Office Add.:Houfa Industrial Park,Le'an County,Fuzhou City,Jiangxi Province
Production/Service Add.: Houfa Industrial Park,Le'an County,Fuzhou City,Jiangxi Province
Zip Code: 344300

The Environmental Management System of the above organization has been assessed and Found to be in accordance with the requirements of the standard:

GB/T 24001-2016 / ISO 14001:2015

Scope of this management Certification

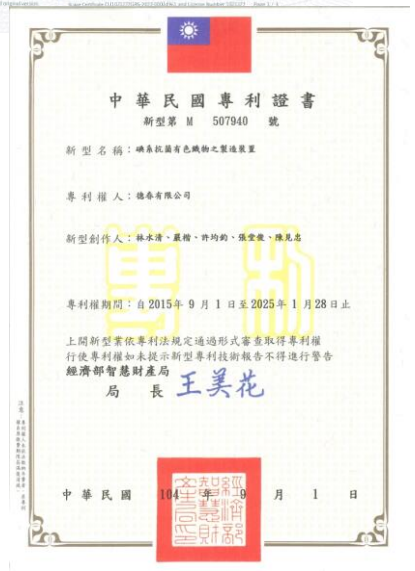
Production of masterbatch for plastic fiber involved in the environmental management activities

First S.A. | Labelling | Second S.A. | Labelling | Third S.A. | Labelling

Date of Issue:29 Oct. 2018 Date of Supervision:27 Aug. 2021 Valid until:28 Oct. 2024

华信创认证

No.0001873



中華民國專利證書

新型第 M 507940 號

新型名稱：噴灑抗菌有色纖物之製造裝置

專利權人：德春有限公司

新型創作人：林水清、蔡楷、許均鈞、張堂俊、陳見志

專利權期間：自2015年 9 月 1 日至2025年 1 月28日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告
經濟部智慧財產局
局 長 王美花

中 華 民 國 104 年 9 月 1 日

中華民國專利證書

新型第 M 498766 號

新型名稱：棚水纖物結構之製造裝置

專利權人：德春有限公司

新型創作人：林水清、蔡楷、許均鈞、張堂俊、陳見志

專利權期間：自2015年 4 月11日至2024年 1 月16日止

上開新型業依專利法規定通過形式審查取得專利權
行使專利權如未提示新型專利技術報告不得進行警告
經濟部智慧財產局
局 長 王美花

中 華 民 國 104 年 4 月 11 日

中華民國專利證書

新型第 M633920 號

專利權人：德春股份有限公司

專利權期間：自2022年11月11日至2032年 1 月26日止

洪淑敏

Factory Introduction

- 2024年01月底止，兩廠員工總人數78人
- As of the end of January 2024, the total number of employees in the two factories will be 78
- 合併資本額：新台幣7500萬元
- Consolidated capital: NT$75 million
- 銷售國家：台灣、中國、日本、馬來西亞、越南
- Sales countries: Taiwan, China, Japan, Malaysia, Vietnam

台灣廠

位於桃園新屋，設立有研發中心與配色中心，小型生產線

Taiwan Xinwu Factory

江西廠

位於江西撫州厚發工業區，占地33畝，有十條生產線

Jiangxi Dechun Plastic Fiber Technology Co., Ltd

昆山辦公室

位於昆山市，做為發貨倉庫也配置業務人員就近服務

Kunshan Office

德春有限公司
AUSPRING CO., LTD.

business organization

Shui Ching Lin

Chairman

- Auspring (Taiwan、China)
  - Color & Functional MB R&D, Manufacture
- YoungShing Textile
  - Dope dye & functional yarn, Textile products

❖ 公司簡介

Auspring's Profile

Company founded in November 1992.

Unified Business No.: 86892402

Address: 4F.-2, No.2, Minzu E. Rd., Zhongshan Dist.,
Taipei City 104, Taiwan

德春股份有限公司
AUSPRING CO., LTD.

Color-Matching Service

Type：Filament fiber, staple fiber, injection

Resin Carrier：PET、PA、PP、LDPE、PBT、ABS、PC…

Masterbatch

Functional Masterbatch:

■ Bamboo Charcoal ■ Far-Infrared ■ Super-Cool ■ Anti-UV	■ Anti-Blocking ■ Flame Retardant ■ Anti-Bacterial ■ Anti-static

Distributor & Agents of:

Phillips Carbon Black Limited

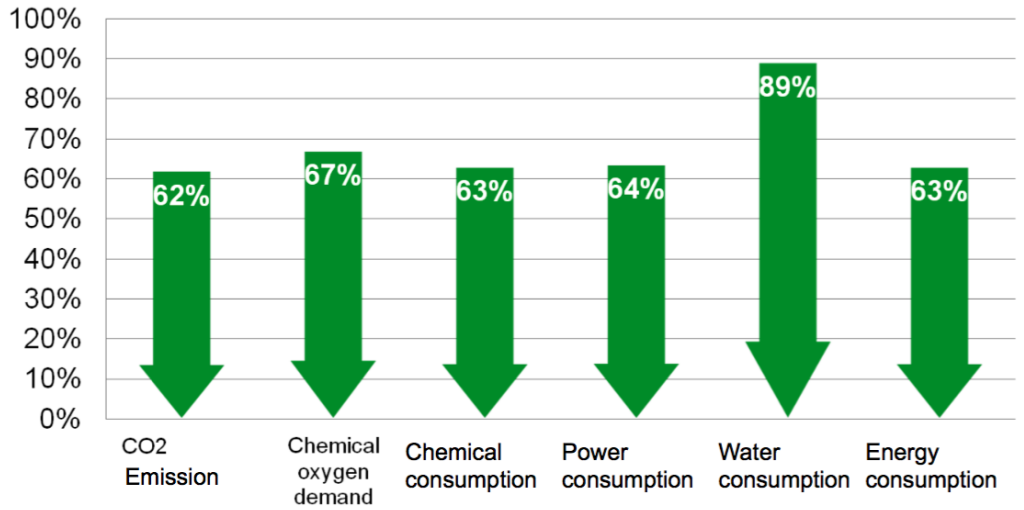
SITRAPLAS

LUVOCOM®
High-performance compounds

华曙高科

We provide tailor-made masterbatch for our customers in a variety of carriers with

- ❖Reasonable and Competitive Price
- ❖Complies with International Environmental Regulations and and European Standards
- ❖Great dispersibility
- ❖Stable tinting strength



Significantly reduce the pollution during production

Save our Earth by using Masterbatch

An energy saving & environmental friendly product

The use of dope dyeing per ton of dimension can reduce CO2 emission by about 1.2 tons, waste water discharge by 32 tons, save electricity by 230Wh, and save steam by 3.5m3.

(1)ESG Circular Economy Materials :Green-silica

- CMP, also known as Chemical-Mechanical Polishing, is a core technology in the semiconductor component manufacturing process. It uses chemical corrosion and mechanical force to flatten the silicon wafer or other substrate materials during processing. Use recycled CMP slurry for purification, separation and grinding to recycle resources.

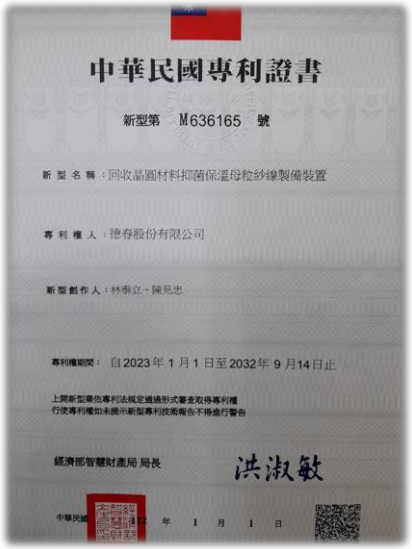
- Then, processes such as mixing, melt extrusion, granulation, and spinning are carried out to enhance the functional value of the fiber.
- Comply with international standards for ESG circular economy.

- Raw materials passed EU ROHS, REACH, AfPS (German Product Safety Council)

- The fiber has properties such as

✓far-infrared rays
✓antibacterial
✓UV resistance
✓wear resistance
✓antistatic
✓coolness

- Republic of China patent:M636165


中華民國專利證書

新型第 M636165 號

新型名稱：回收晶圓材料抑菌保濕母粒紗線製備裝置

專利權人：德春股份有限公司

新型創作人：林泰立、陳見忠

專利權期間：自2023年1月1日至2032年9月14日止

經濟部智慧財產局局長 洪淑敏

- **Yarn specifications**
- ReNylon–70/48
- RePET–75/72

Global Recycled Standard

Antibacterial >99.9%

SGS

Textile Laboratory

Test Report No: TX41338A /2023 /LI Date: Dec. 25, 2023 Page 1 of 2

Young Shing Textile Technology & Development Co., Ltd.
4F.-2, No. 2, Minzu E. Rd., Zhongshan Dist.,
Taipei City, Taiwan, R.O.C.

The following sample was submitted and identified by applicant as:

Sample Description	:	A piece of recycled nylon knitted fabric containing wafer sio2
Color	:	White
Applicant	:	Auspring Co., Ltd.
Sample Receiving Date	:	Apr. 18, 2023
Test Performance Period	:	Apr. 18, 2023 to Apr. 27, 2023
Test Performed	:	Selected test(s) as requested by applicant.
Test Results	:	For further details, please refer to the following page(s).

* Residual sample returned to applicant.

Remark: Test results have been taken from report number No: TX41338 /2023 /ER, Date: Apr. 27, 2023

Signed for and on behalf of
SGS Taiwan Ltd.
Ronnie Chang
Chang Chia Hao, Ronnie
Technical Manager

SGS TAIWAN LTD SGS TAIWAN

SGS

Textile Laboratory

Test Report No: TX41338A /2023 /LI Date: Dec. 25, 2023 Page 2 of 2

Test Results:

Antibacterial Finishes on Textile Materials (JIS L1902:2015)

As received

Test Bacteria : Staphylococcus aureus BCRC No. 10451		
Absorption Method	CFU	LOG
The test inoculum (CFU/mL)	1.8×10^5	5.3
Control specimen at 0hr (C_0)	3.1×10^4	4.5
Control specimen at 18hr (C_t)	1.6×10^7	7.2
Testing specimen at 0hr (T_0)	3.7×10^4	4.6
Testing specimen at 18hr (T_t)	<20	<1.3
Control specimen growth value (F) $F = \log C_t - \log C_0$	Testing specimen growth value (G) $G = \log T_t - \log T_0$	Antibacterial activity value (A) $A = (\log C_t - \log C_0) - (\log T_t - \log T_0) = F - G$
-2.7	-3.3	>6.0

Note:
1. The test report merely reflects the test results of the consigned matters of the client and is not a certification of the legitimacy of the related products.
2. The report is in vain if it is partly reproduced or used.
3. The test inoculum shall be at $1.0*10^5$ to $3.0*10^5$ CFU/ml
4. Control specimen growth value (F) shall be $\geq$ 1.0
5. Antibacterial activity value (A) calculation, in the case of log C_0 > log T_0, substitute log C_0 for log T_0.
6. Antibacterial activity value (A) shall be 2 $\leq$ A < 3 for Effect antibacterial property.
7. Antibacterial activity value (A) shall be 3 $\leq$ A for Full effect antibacterial property.

Tested by relevant SGS laboratory.

*** End of Report ***

wear resistance / far-infrared rays

Over 150,000 times

92%

Textile Laboratory NO: LT2306028 Date: July 17, 2023 Page: 1 OF 1

Test Report

The following sample was submitted and identified by applicant as:

Sample Description	:	One sample of woven fabric plain full-dull
Color	:	Khaki
Fiber Content	:	100% Recycle Nylon (43% SiO2 Recycle Nylon)
Construction	:	137T*102T/ RE-NFD70DTY*RE-NFD70/48DTY(SiO2)
Art. No.	:	LNP-23013
Applicant	:	Young Shing Textile Technology & Development Co., Ltd
Sample Receiving Date	:	July 07, 2013
Test Performance Period	:	July 07, 2013 to July 17, 2023
Test Performed	:	Selected test(s) as requested by applicant.
Test Results	:	For further details, please refer to the following.
		* Tested sample returned to applicant.

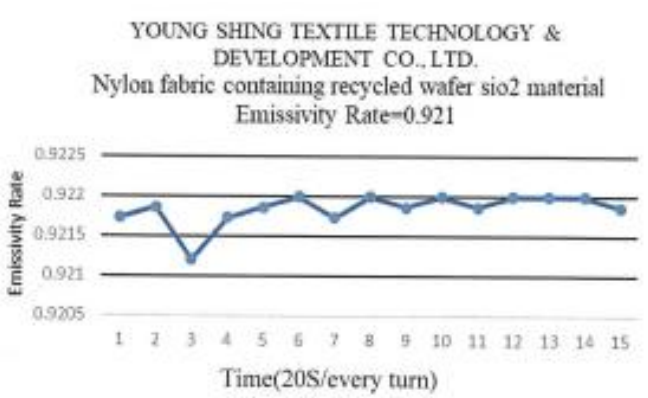
Test Results

1.Abrasion Resistance (9 kpa) (ISO 12947-2:1998/Cor 1:2002 - Martindale tester)

Number of rubs Over 150,000

End of Report

Manufacturer: YOUNG SHING TEXTILE TECHNOLOGY & DEVELOPMENT CO., LTD.
Address: 4F.-2,NO.2,Minzu E.Rd.,Zhongshan Dist., Taipai City 104,Taiwan
Telephone: 02-2598-1121#63 / 02-2598-1151
Sample Name: Nylon fabric containing recycled wafer sio2 material
Receivingn Date: 2023/04/18
Testing Date: 2023/04/18
Lab Location: Yinger Center / Chemical Lab

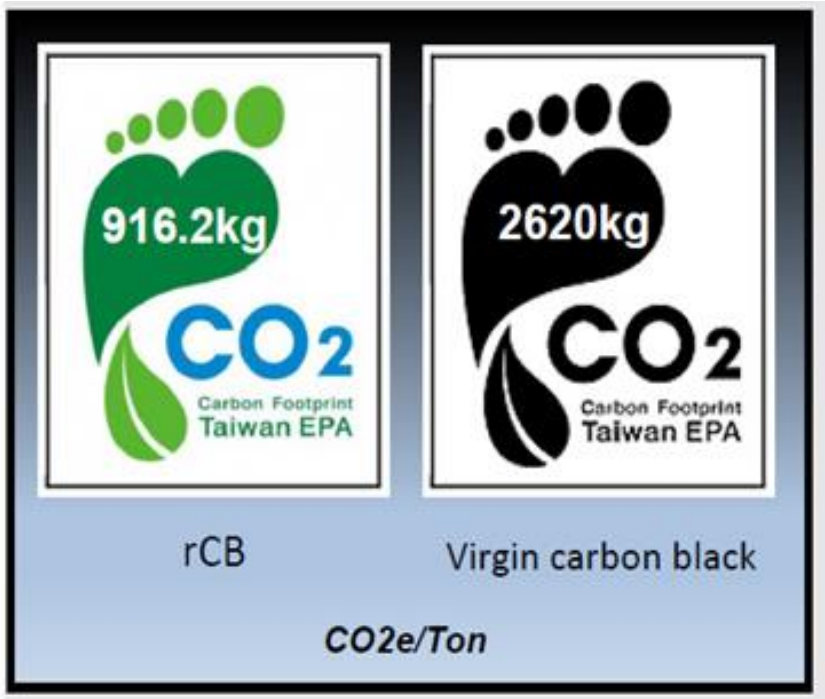
Items	Results
Rate of Far Infared Emissivity	 
Test Conditions	1.Test Condition:Temp:34℃ 2.Measurement Range:5~14μm 3.Test Eqipment:Model-EMS 4.Criterion: ASTM-E 1933

Remark 1. This report is for reference, not for advertisement or publication.
2. Sample and title of the report are provided by the client. Our lab is only responsible for testing and analyzing.
3. Test results are valid only for test samples.

Product application

(2)ESG Circular Economy Materials: NovoBlack (Carbon Recycled from Tires)

benefit



Reduces carbon emissions by 65% compared to virgin carbon black

Test Report

- 1. Pass PAHs test, the total amount of PAHs is less than 15ppm
- 通過PAHs(多環芳香烴碳氫化合物，致癌)檢驗, PAHs總量小於15ppm

- 2. Passed plasticizer, RoHS, Reach and other tests.
- 通過塑化劑, RoHS, Reach等檢驗標準

C to C certificate

CRADLE TO CRADLE
PRODUCTS
INNOVATION
INSTITUTE

LICENSED MARKS:

CERTIFIED
cradletocradle
BRONZE

Cradle to Cradle Certified™ Bronze

THE LICENSED MARKS IDENTIFIED ABOVE MAY BE LICENSED TO:

Enrestec INC.

FOR THE BELOW LISTED CERTIFIED PRODUCTS ASSOCIATED WITH THE NAME:

Carbon Black

Only the following products are considered Certified Product(s) within the scope of this certification and the associated Trademark License Agreement:

Carbon Black PB-365

Cradle to Cradle Products Innovation Institute

START DATE
22 June 2020

CERTIFICATION #
4436

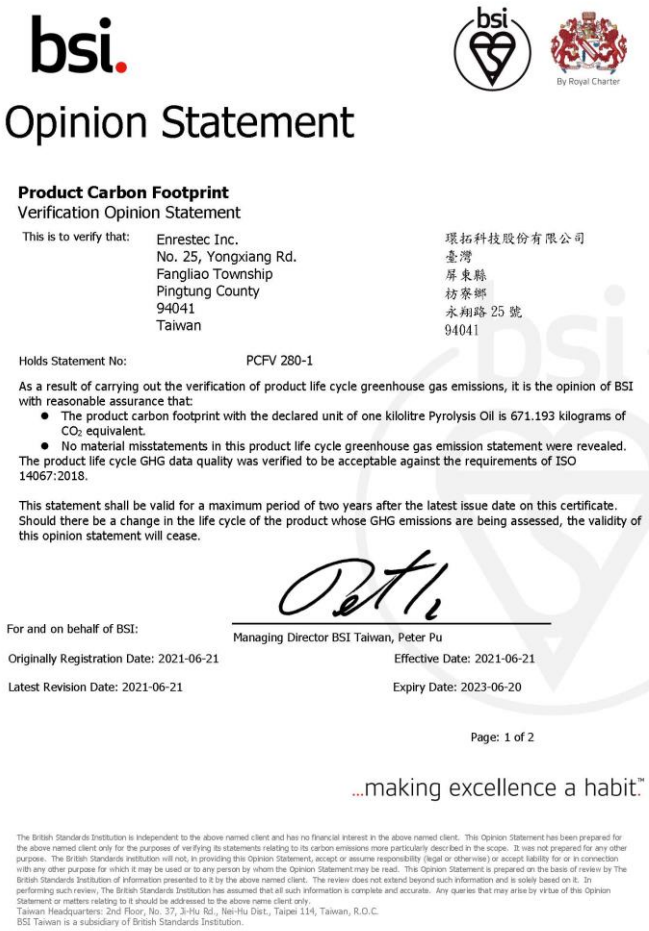
EXPIRATION DATE
21 June 2022

LEAD ASSESSMENT BODY:
EPEA GmbH - Part of Drees & Sommer

EPEA
PART OF DREES & SOMMER

Certified under Version 3.1 of the *Cradle to Cradle Certified™* Product Standard.
Use of Licensed Marks is subject to terms and conditions of the C2CPII Trademark License Agreement and Trademark Use Guidelines.
Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute.

BSI Carbon footprint certificate



bsi.

By Royal Charter

Opinion Statement

Product Carbon Footprint
Verification Opinion Statement

This is to verify that:
Enrestec Inc.
No. 25, Yongxiang Rd.
Fangliao Township
Pingtung County
94041
Taiwan

環拓科技股份有限公司
臺灣
屏東縣
枋寮鄉
永翔路 25 號
94041

Holds Statement No: PCFV 280-1

As a result of carrying out the verification of product life cycle greenhouse gas emissions, it is the opinion of BSI with reasonable assurance that:

- The product carbon footprint with the declared unit of one kilolitre Pyrolysis Oil is 671.193 kilograms of CO_2 equivalent.
- No material misstatements in this product life cycle greenhouse gas emission statement were revealed.

The product life cycle GHG data quality was verified to be acceptable against the requirements of ISO 14067:2018.

This statement shall be valid for a maximum period of two years after the latest issue date on this certificate. Should there be a change in the life cycle of the product whose GHG emissions are being assessed, the validity of this opinion statement will cease.

For and on behalf of BSI:
Managing Director BSI Taiwan, Peter Pu

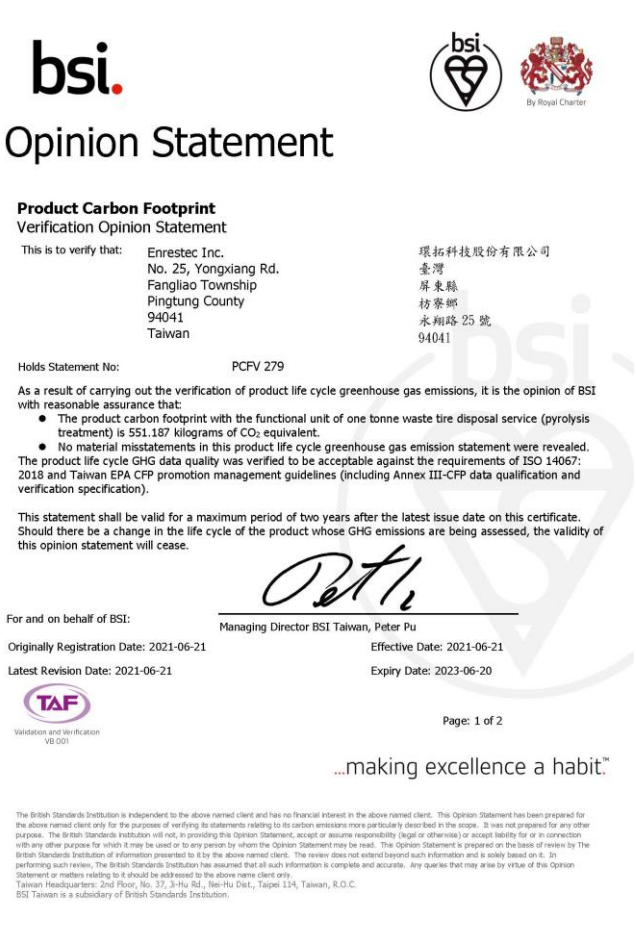
Originally Registration Date: 2021-06-21
Effective Date: 2021-06-21

Latest Revision Date: 2021-06-21
Expiry Date: 2023-06-20

Page: 1 of 2

...making excellence a habit.™

The British Standards Institution is independent to the above named client and has no financial interest in the above named client. This Opinion Statement has been prepared for the above named client only for the purposes of verifying its statements relating to its carbon emissions more particularly described in the scope. It was not prepared for any other purpose. The British Standards Institution will not, in providing this Opinion Statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used or to any person by whom the Opinion Statement may be read. This Opinion Statement is prepared on the basis of review by The British Standards Institution of information presented to it by the above named client. The review does not extend beyond such information and is solely based on it. In performing such review, The British Standards Institution has assumed that all such information is complete and accurate. Any queries that may arise by virtue of this Opinion Statement or matters relating to it should be addressed to the above name client only.
Taiwan Headquarters: 2nd Floor, No. 37, Ji-Hu Rd., Nei-Hu Dist., Taipei 114, Taiwan, R.O.C.
BSI Taiwan is a subsidiary of British Standards Institution.



bsi.

By Royal Charter

Opinion Statement

Product Carbon Footprint
Verification Opinion Statement

This is to verify that:
Enrestec Inc.
No. 25, Yongxiang Rd.
Fangliao Township
Pingtung County
94041
Taiwan

環拓科技股份有限公司
臺灣
屏東縣
枋寮鄉
永翔路 25 號
94041

Holds Statement No: PCFV 279

As a result of carrying out the verification of product life cycle greenhouse gas emissions, it is the opinion of BSI with reasonable assurance that:

- The product carbon footprint with the functional unit of one tonne waste tire disposal service (pyrolysis treatment) is 551.187 kilograms of CO_2 equivalent.
- No material misstatements in this product life cycle greenhouse gas emission statement were revealed.

The product life cycle GHG data quality was verified to be acceptable against the requirements of ISO 14067:2018 and Taiwan EPA CFP promotion management guidelines (including Annex III-CFP data qualification and verification specification).

This statement shall be valid for a maximum period of two years after the latest issue date on this certificate. Should there be a change in the life cycle of the product whose GHG emissions are being assessed, the validity of this opinion statement will cease.

For and on behalf of BSI:
Managing Director BSI Taiwan, Peter Pu

Originally Registration Date: 2021-06-21
Effective Date: 2021-06-21

Latest Revision Date: 2021-06-21
Expiry Date: 2023-06-20

TAF
Validation and Verification
VB 001

Page: 1 of 2

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Taiwan Headquarters: 2nd Floor, No. 37, Ji-Hu Rd., Nei-Hu Dist., Taipei 114, Taiwan, R.O.C.
BSI Taiwan is a subsidiary of British Standards Institution.

ISCC-PLUS certificate

國際永續性與碳驗證ISCC(International Sustainability & Carbon Certification) 是一個全球適用的可持續性認證系統，涵蓋各種農業和林業生物質、生物質廢棄物和殘渣、非生物可再生材料以及基於碳的再生材料。

ISCC (International Sustainability & Carbon Certification) is a globally applicable sustainability certification system covering various agricultural and forestry biomass, biomass waste and residues, non-biological renewable materials and carbon-based of recycled materials.

Bureau Veritas Certification

ISCC PLUS Certificate

Certificate Number: ISCC-PLUS-Cert-PL214-15501221

Bureau Veritas Polska Sp. z o.o.
ul. Migdałowa 4, 02-796 Warszawa, Polska

certifies that

ENRESTEC INC.
Yongxiang Rd. No. 25, Fangliao Township, Pingtung County 940001,Taiwan (R.O.C.)

complies with the requirements of the certification system
ISCC PLUS
(International Sustainability and Carbon Certification)

This certificate is valid from 13.01.2022 to 12.01.2023.

The site of the system user is certified as:

Collecting Point
Pyrolysis Plant

The scope of the certificate includes the following chain of custody options: Mass Balance

Warszawa, 13.01.2022
Place and date of issue

Bureau Veritas Polska Sp. z o.o.
02-796 Warszawa, ul. Migdałowa 4
Stamp, Signature of issuing party

The issuing Certification Body is responsible for the accuracy of this document.
Version / Date: 1 (no adjustments) / 13.01.2022

Raw materials are free of eight heavy metals

SGS

紡織實驗室

Test Report 報告號碼: TXA2152 /2022 /SP 日期: 2022 年 10 月 28 日 頁數: 二 之 一 頁

德鑫紡織科技開發有限公司
臺北市中山區圓山里民族東路 2 號 4 樓之 2

我們依照客戶的要求,根據申請者送交的樣品進行測試如下:

樣品敘述	:	一塊 Auspring 輪胎回收碳黑尼龍針織紗 (PA BK 96A234 4%)
顏色	:	黑色
申請者	:	德鑫股份有限公司
收件日期	:	2022 年 10 月 24 日
測試週期	:	2022 年 10 月 24 日 至 2022 年 10 月 28 日
測試項目&測試方法	:	依申請者要求進行下列測試
測試結果	:	請參照下一頁結果

- 樣 品 送 還 給 申 請 者 -

台灣檢驗科技股份有限公司

張家豪
技術經理

SGS

紡織實驗室

Test Report 報告號碼: TXA2152 /2022 /SP 日期: 2022 年 10 月 28 日 頁數: 二 之 二 頁

測試結果:

溶出重金屬元素

測試方法：參考國際標準紡織方法 ISO 8124-3: 2010, 使用感應耦合電漿分析

元素	測試結果 (毫克/公斤)
鉛(溶出)	未偵測出
鎘(溶出)	未偵測出
砷(溶出)	未偵測出
鎳(溶出)	未偵測出
鎘(溶出)	未偵測出
鉻(溶出)	未偵測出
汞(溶出)	未偵測出
硒(溶出)	未偵測出

備註: 方法偵測極限值:
錫、汞、硒: 2 毫克/公斤
砷、鉛、鎘、鉻、銅: 1 毫克/公斤

此項測試由 SGS 相關實驗室執行

樣品照片

*** 結 束 ***

Republic of China patent:M628635

Yarn specifications:

RePET–75/72， 150/48

(3)ESG Circular Economy Materials:Biomass Inorganic Antibacterial Material (Ca^{+} Warm)

- Calcium carbonate (CaCO3), the main component of eggshells, is converted into calcium oxide (CaO) through heating and calcining at high temperature.
- Calcium oxide becomes alkaline calcium hydroxide (Ca(OH)2) in the presence of water，Reactive oxygen species formed are extremely reactive, creating antibacterial ability.

Taiwan's discarded eggshells are approximately 46,000 tons per yearIncinerated as waste

台灣廢棄蛋殼
約 46,000 噸/年

Waste reduction and reuse

Produce bottom slag and reduce the incineration efficiency of the incinerator

作為廢棄物焚燒處理
產生爐底渣及降低焚
化爐的焚燒效率

Production process

Eggshell wasteWashing, stripping and rough grindingHigh temperature 900℃ calcining

Biomass antibacterial materialsFine grinding and dispersion

Surface modification

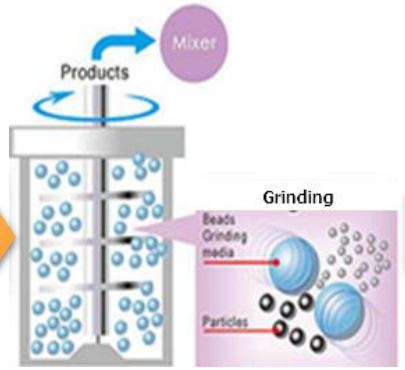
Mixed melt granulation spinning

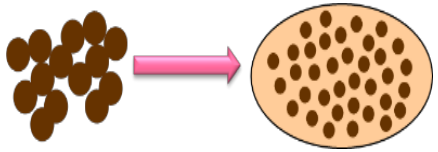
蛋殼廢棄物

洗淨、脫膜、粗磨
高溫900℃鍛燒

顆粒細度 5 um
生質抗菌材料

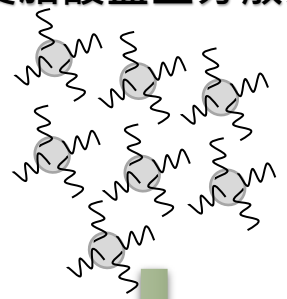
生質抗菌材料
微細化研磨分散



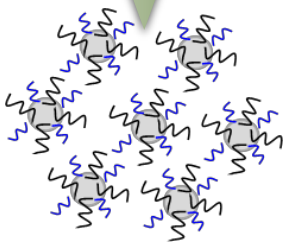


顆粒細度 ≦ 200 nm

濕式研磨加入
硬脂酸鹽型分散劑

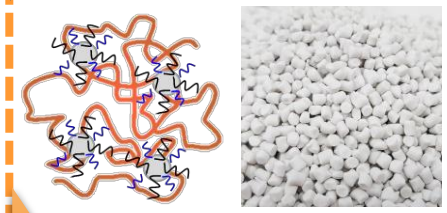


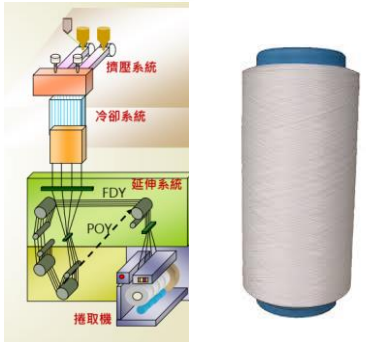
進行表面改質



增加粉體穩定性
防止團聚

提升尼龍相容性
混練製備母粒





紡製細丹尼纖維

properties

- ✓ **Low thermal conductivity(低熱傳導)**
  - ✓ Textiles can keep wearer cool in the summer and warm in the winter(冬暖夏涼)
- ✓ **Antibacterial**
- ✓ **Far infrared**
- ✓ **UV resistant**

Republic of China patent:M628582

Yarn specifications:

ReNylon—70/48

Global Recycled Standard

✓UV resistant

紡織品中的奈米蛋殼材料將紫外線進行全波段的反射、散射
Nano-eggshell materials in textiles reflect and scatter UV rays across the entire spectrum

紡織實驗室

Test Report 報告號碼: TX92124 /2023 /PL 日期: 2023 年 09 月 25 日頁數:

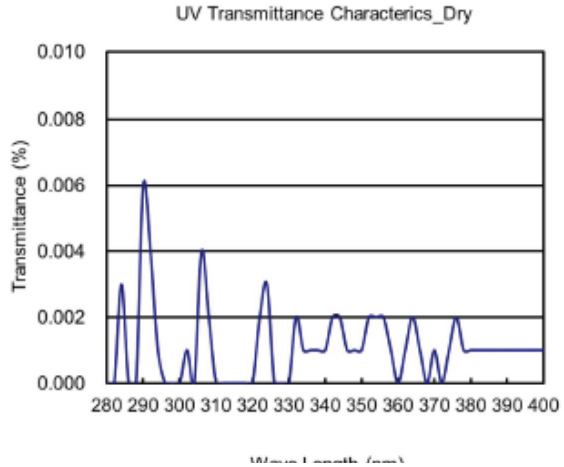
測試結果:

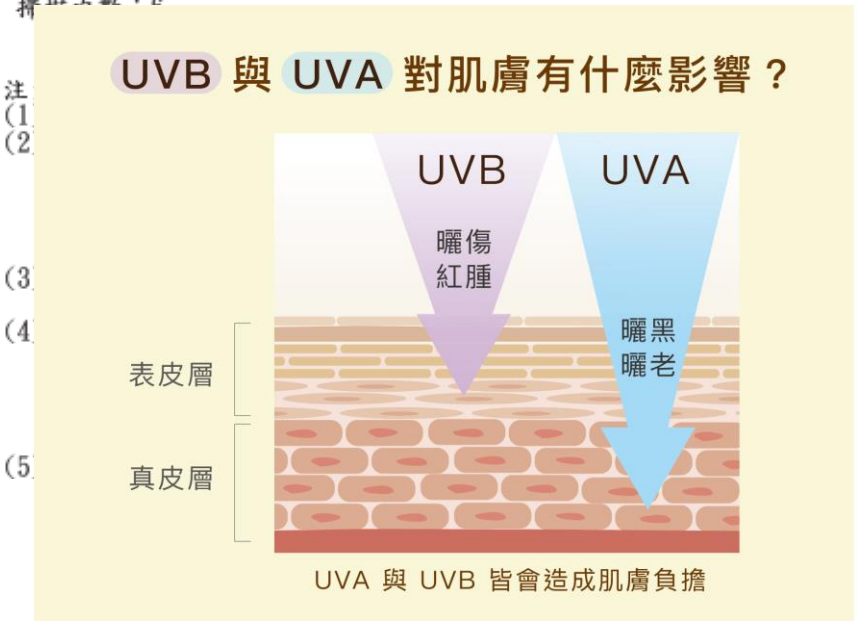
蛋殼紗
88%+OP12%/160g/m2

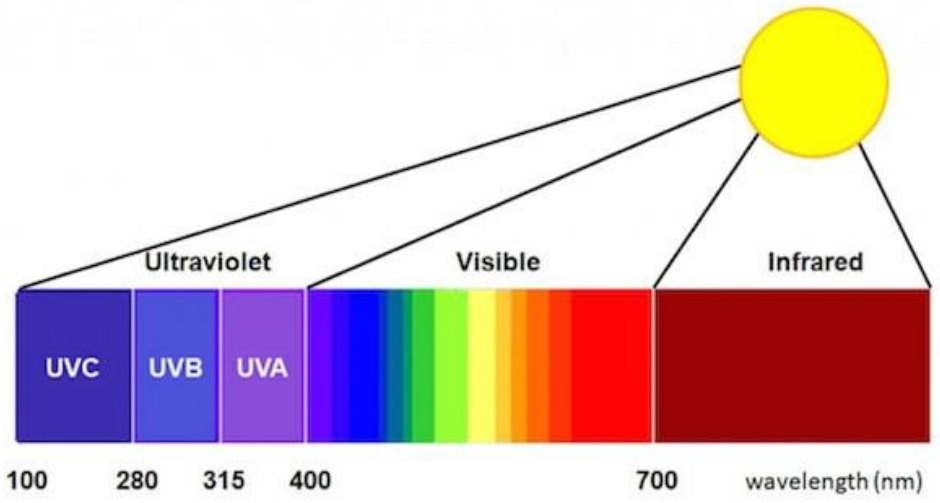
紫外線穿透率（參照美國紡織化學協會 AATCC 183-2020e）

原樣	乾式
UPF 平均值:	105155
標準差:	3295.31
UPF 係數：	50+
保護類別:	優良的
UV-A 穿透率:	0.00
UV-B 穿透率:	0.00
UV-A 遮蔽率:	100.00
UV-B 遮蔽率:	100.00

試驗的波長範圍 280-400nm







✓Far infrared

91%

Test Report

Report No. A2240159991115 Page 3 of 4

Tests Conducted (As Requested by the Client)

1 **Odour (GB 18401-2010)**

Tested Item(s)	Test Result	Standard Requirement
	001	
Odour	No odour	No odour

2 **Far infrared Radiation properties*(GB/T 30127-2013)**

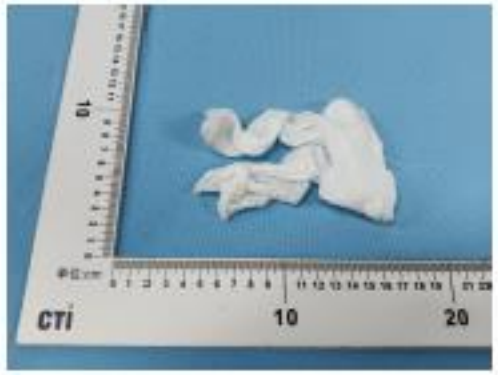
Tested Item(s)	Test Result	Standard Requirement
	001 before wash	
Far Infrared Emissivity	0.91	≥0.88
Far Infrared Radiation Temperature Rise	1.7℃	≥1.4℃
Effect Evaluation	Have Far Infrared Radiation Properties	–

Tested Sample/Part Description

No.	CTI Sample ID	Description
1	001	White knitted fabric

Note: "*" Indicates the item(s)/method(s) is (are) fulfilled by TianFangBiao Standardization Certification & Testing Co.,Ltd.

Photo(s) of the sample(s)



✓Antibacterial

>99.9%

SGS

Textile Laboratory

Test Report **No: TX41338A /2023 /LI** **Date: Dec. 25, 2023** **Page 2 of 2**

Test Results:

Antibacterial Finishes on Textile Materials (JIS L1902:2015)

As received

Test Bacteria : Staphylococcus aureus BCRC No. 10451		
Absorption Method	CFU	LOG
The test inoculum (CFU/mL)	1.8×10^5	5.3
Control specimen at 0hr (C_0)	3.1×10^4	4.5
Control specimen at 18hr (C_t)	1.6×10^7	7.2
Testing specimen at 0hr (T_0)	3.7×10^4	4.6
Testing specimen at 18hr (T_t)	<20	<1.3
Control specimen growth value (F) $F = \log C_t - \log C_0$	Testing specimen growth value (G) $G = \log T_t - \log T_0$	Antibacterial activity value (A) $A = (\log C_t - \log C_0) - (\log T_t - \log T_0) = F - G$
-2.7	-3.3	>6.0

Note:

1. The test report merely reflects the test results of the consigned matters of the client and is not a certification of the legitimacy of the related products.
2. The report is in vain if it is partly reproduced or used.
3. The test inoculum shall be at $1.0*10^5$ to $3.0*10^5$ CFU/ml
4. Control specimen growth value (F) shall be ≥ 1.0
5. Antibacterial activity value (A) calculation, in the case of log C_0 > log T_0, substitute log C_0 for log T_0.
6. Antibacterial activity value (A) shall be 2 ≤ A <3 for Effect antibacterial property.
7. Antibacterial activity value (A) shall be 3 ≤ A for Full effect antibacterial property

Tested by relevant SGS laboratory.

*** End of Report ***

Product application

(4)ESG Circular Economy Materials:Biomass Inorganic Antibacterial Material (Sea Wool)

●Calcium carbonate (CaCO3), the main component of **Oystershells** , is converted into calcium oxide (CaO) through heating and calcining at high temperature.
●Calcium oxide becomes alkaline calcium hydroxide (Ca(OH)2) in the presence of water，Reactive oxygen species formed are extremely reactive, creating antibacterial ability.

Taiwan's discarded Oystershells are approximately 160,000 tons per year Incerated as waste

Fishermen's Association processing plant

Waste reduction and reuse

Mixed melt granulation spinning

Oystershell wasteWashing, stripping and rough grindingHigh temperature 900℃ calcining

Biomass antibacterial materialsFine grinding and dispersion

Surface modification

✓ Dongshi Fishermen's Association Certificate of origin of discarded oyster shells

嘉義東石漁業協會

產銷履歷牡蠣殼廢棄物證明

茲證明

經本協會證明，廢棄牡蠣殼來自有限責任嘉義縣東港漁業運銷合作社無誤。

嘉義縣東石鄉塭仔村塭子 115 號

認證日期：2021.04.01

有效期限：2021.04.01~2022.04.30

協會:　　日期:2021.04.28

✓ No toxicity report none detected

intertek
Total Quality. Assured.

Number : TWNC00978888

Test Conducted :

Test Result Summary:

Test Item	Unit	Test Method	Result White powder	RL
Heavy Metal				
Cadmium (Cd) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Lead (Pb) Content	ppm	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.	ND	2
Mercury (Hg) Content	ppm	With reference to IEC 62321-4: 2013+AMD1: 2017, by microwave or acid digestion and determined by ICP-OES.	ND	2
Chromium VI (Cr^{6+}) Content	ppm	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer.	ND	8
Polybrominated Biphenyls (PBBs)				
Monobrominated Biphenyls (MonoBB)	ppm	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.	ND	5
Dibrominated Biphenyls (DiBB)	ppm		ND	5
Tribrominated Biphenyls (TriBB)	ppm		ND	5
Tetrabrominated Biphenyls (TetraBB)	ppm		ND	5
Pentabrominated Biphenyls (PentaBB)	ppm		ND	5
Hexabrominated Biphenyls (HexaBB)	ppm		ND	5
Heptabrominated Biphenyls (HeptaBB)	ppm		ND	5
Octabrominated Biphenyls (OctaBB)	ppm		ND	5
Nonabrominated Biphenyls (NonaBB)	ppm		ND	5
Decabrominated Biphenyl (DecaBB)	ppm		ND	5

✓Antibacterial

✓99%

检测报告
Test Report

Report No.: A2240172176101003 Page 2 of 3

Test Method:
GB/T 20944.3-2008 Textiles-Evaluation for antibacterial activity-Part 3: Shake flask method.
Sterilization method: High pressure steam sterilization
Working Solution: 0.03mol/L PBS
Contact time: 18 hours
Test sample: 0.75g
Test Organisms:
Staphylococcus aureus ATCC 6538

Test Result(s):

Test Organisms	Control sample		Test sample	Growth value of the control ,F	Antibacterial activity rate ,Y (%)
	Concentration of bacteria at 0 contact time W0,CFU/mL	Concentration of bacteria after 18h incubation Wt,CFU/mL	Concentration of bacteria after 18h incubation Qt,CFU/mL		
Staphylococcus aureus ATCC 6538	2.6×10^4	5.8×10^6	3.3×10^4	2.4	99

Evaluation for antibacterial activity :
When antibacterial rate to *Staphylococcus aureus* and *Escherichia coli* not less than 7
antibacterial rate to *Candida albicans* is not less than 60%, the submitted sample ha
antibacterial effect.

SGS

紡織實驗室

Test Report 報告號碼: TX41516 /2023 /ER日期: 2023 年 05 月 02 日頁數: 二 之 二 頁

測試結果:

抗菌測試（依日本工業規格協會 JIS L1902:2015）

原樣

試驗菌種: 金黃色葡萄球菌 Staphylococcus aureus BCRC No. 10451		
吸收法	CFU	LOG
植菌數（CFU/mL）	2.2×10^5	5.3
對照組 0 小時菌數 （C_0）	5.8×10^4	4.8
對照組 18 小時菌數（C_t）	3.9×10^7	7.6
樣品組 0 小時菌數（T_0）	5.6×10^4	4.7
樣品組 18 小時菌數（T_t）	1.2×10^2	2.1
對照組增殖率（F） $F=\log C_t-\log C_0$	樣品組增殖率（G） $G=\log T_t-\log T_0$	抗菌活性值（A） $A=(\log C_t-\log C_0)-(\log T_t-\log T_0)$
2.8	-2.6	5.5

備註:
1. 測試報告僅就委託者之委託事項提供測試結果，不對產品合法性做判斷。
2. 本報告不得分離或擷錄使用。
3. 植菌數應介於 $1.0*10^5$-$3.0*10^5$ CFU/mL。
4. 對照組增殖率(F)≧1.0表示試驗成立。
5. 抗菌活性值（A）的計算，當 $\log C_0 > \log T_0$，則以 $\log C_0$ 替代 $\log T_0$。
6. 抗菌活性值(A)若 2 ≦ A <3，表示有抑菌效果。
7. 抗菌活性值(A)若 3 ≦ A，表示有顯著抑菌效果。

此項測試由 SGS 相關實驗室執行

✓Far infrared

✓92%

Test Report

Report No. A2240159991116 Page 3 of 4

Tests Conducted (As Requested by the Client)

1 **Odour (GB 18401-2010)**

Tested Item(s)	Test Result	Standard Requirement
	001	
Odour	No odour	No odour

2 **Far infrared Radiation properties*(GB/T 30127-2013)**

Tested Item(s)	Test Result	Standard Requirement
	001 before wash	
Far Infrared Emissivity	0.92	≥0.88
Far Infrared Radiation Temperature Rise	1.6℃	≥1.4℃
Effect Evaluation	Have Far Infrared Radiation Properties	--

Tested Sample/Part Description

No.	CTI Sample ID	Description
1	001	White garters

Note: "*" Indicates the item(s)/method(s) is (are) fulfilled by TianFangBiao Standardization Certification & Testing Co.,Ltd.

Photo(s) of the sample(s)

properties

- ✓**Low thermal conductivity(低熱傳導)**
  - ✓Textiles can keep wearer cool in the summer and warm in the winter(冬暖夏涼)
- ✓**Antibacterial**
- ✓**Far infrared**
- ✓**UV resistant**

Yarn specifications:

Nylon—40/34

Antibacterial textile application development

Seawool
海毛紗線

(5)SILEX COOL

SILEX is the second most abundant element in the earth's crust and the source of life. It constitutes 26.4% of the total quality of the earth's crust, second only to oxygen (49.4%), which is the first. Through the combination of refinement, modification and nylon, the value of cooling and low-carbon textiles is created.

- ✓傳導涼Conductive cooling
- ✓蒸發涼Evaporate cool
- ✓接觸涼Cool on contact

接觸凉
Q-max

Test Report

Report No. A2240159991118 Page 3 of 4

GB/T 35263-2017

Tests Conducted (As Requested by the Client)

1 Contact Transient Cool Feeling Test(GB/T 35263-2017)

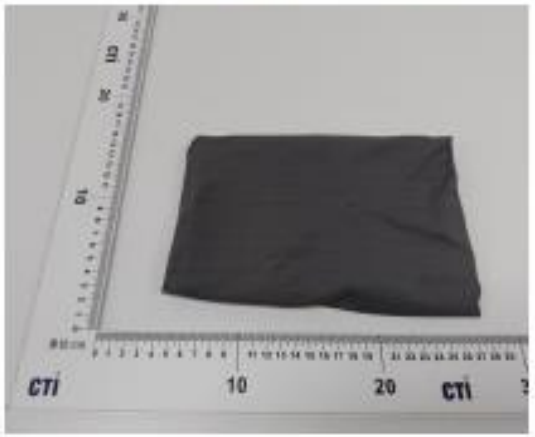
Tested Item(s)	Test Result	Standard Requirement
	001	
Contact Cool Feeling Coefficient	0.31J/(cm²*s)	≥0.15J/(cm²*s)
Conclusion	Can be claimed as have contact transient cool feeling	--

Q-max 0.31 J/(cm².s)

Tested Sample/Part Description

No.	CTI Sample ID	Description
1	001	Grey knitted fabric

Photo(s) of the sample(s)



回潮率
Moisture regain

检测报告

报告编号 A2240263002136C 第 3 页 共 3 页

5.87%

检测内容（根据客户要求）

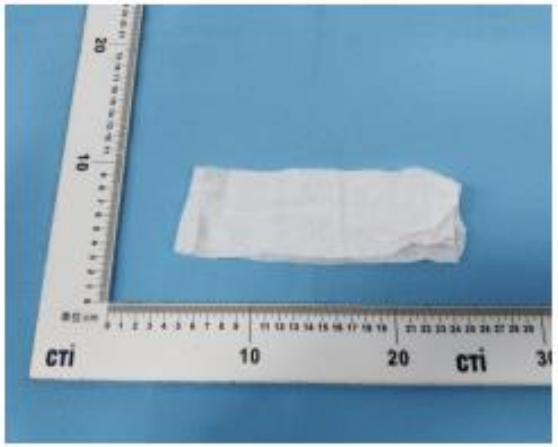
1 回潮率(GB/T 6503-2017)

测试项目	检测结果	客户要求
	001	
回潮率	5.87%	--

测试样品/部位描述

序号	CTI 样品 ID	描述
1	001	白色针织袜带

样品图片



声明:

1.检测报告无批准人签字及"专用章"无效;

2.报告抬头公司名称及地址、样品及样品信息由申请者提供，申请者应对其真实性负责，CTI 未核实其真

In Textile, We Care More Than You Thought…
Let Auspring Innovating Your product