

Ccilu International Inc.

(B2C) The Net-Zero Solution for
Footwear/Apparel Industry
&
(B2B) The Eco-Material Solution for
All Industries

Wilson Hsu



CCILU CORE TECHNOLOGIES

CCILU



Plastic Bottles



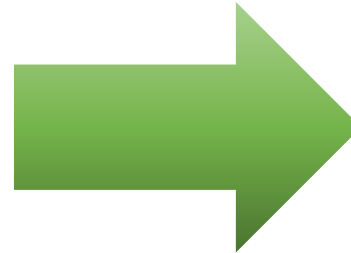
Semiconductor



Oyster Shells



Fish Scales



**Low Carbon
Composite
Granules for
Various
Industrial
Applications**



Spent Coffee Grounds Sugarcane Bagasse



Wheat/Rice Straws



Corn Wastes



That Much We Upcycled in 2023:

Solve Scope 3 Emission for 4 Major Industries (Problem 1)

XpreSole®
4.8 million cups of coffee grounds

HONDA
UCC



NESPRESSO
FamilyMart



GreenPlax®
3.2 million plastic bottles

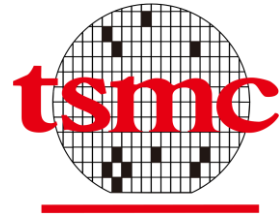
Coca-Cola



AJO



SiliComfy®
120 TONs of silicon wastes



UMC

SOLAR2

Semisils®

BackToMarket
25 TONs of agricultural/aquacultural wastes



Case Study: Upcycled the spent coffee grounds from HONDA dealer centers in Japan and used them to make coffee boots.



ccilu® + **HONDA**

liberate yourself



Best Brand Award by President Tsai (2023)



President Lai (2023)



National Sustainable Development Award by Primer Minister Chen (2023)



Ccilu Retail Concepts



Ccilu Retail Concepts

CCILU



Ccilu Retail Concepts



1. **A (Low-Carbon Material): Reduction of petroleum dependency**

RPET (recycled polyethylene terephthalate) or agricultural/aquacultural wastes (e.g. coffee/sugar cane/tea/ bamboo/spent brewing grains/oyster shells/fish scales...etc.) compounded with petro-based EVA/POE/PP/PE/ABS

2. **B (Bio-Mass Material): 100% degradable solutions**

Agricultural/aquacultural wastes compounded with degradable chemicals (e.g. bio-based EVA/PBS/PBAT)

3. **C (Renewable Material): 100% recycling solutions**

Physical Foaming technologies to enable 100% recyclable and 100% reusable products.

Product Applications of BU A

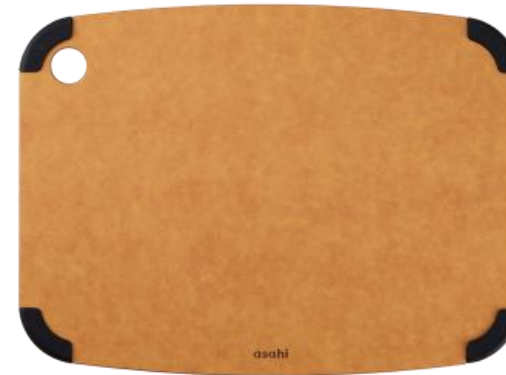
BU A (Low-Carbon Material): Reduction of Petroleum Dependency



ABS LUGGAGE
ABS行李箱



PP BUS BACKREST
PP公車靠背



PP/PE CHOPPING BOARD
PP/PE砧板



PE WRAP
PE包裝膜



**PP STORAGE BOX
& TRASH BIN**
PP收納箱/垃圾桶



PVC FLOORING
PVC地板



Product Applications of BU A

BU A (Low-Carbon Material): Reduction of Petroleum Dependency



ABS HOSPITAL BED
ABS病床



PP TOILET LID
PP馬桶蓋



ABS RHYTHM PEDAL
ABS韻律踏板



FOOTWEAR



CLOTHING



BAG

Product Applications of BU B

BU B (Bio-Mass Material): 100% Degradable Solutions

Food Containers/Tableware



Bags



Product Applications of BU C

BU C (Renewable Material) Chemical Recycling Solutions



STYROFOAM BRICKS
保麗龍發泡磚



STYROFOAM INSULATED BOX
保麗龍保溫箱

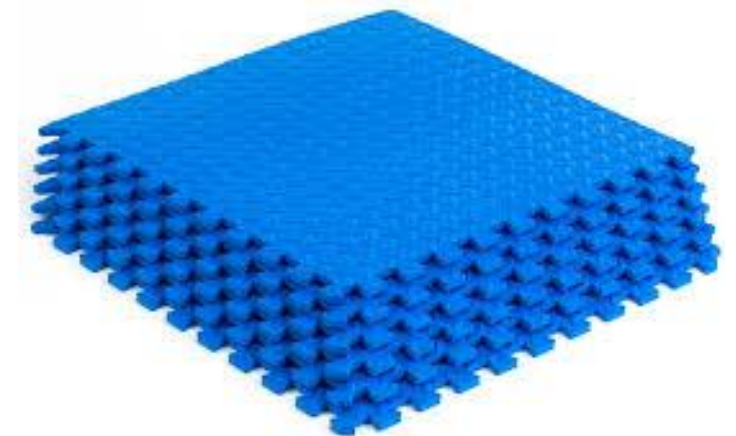


PVC/NBR/TPE/NR YOGA PAD
PVC/NBR/TPE/NR 瑜珈墊



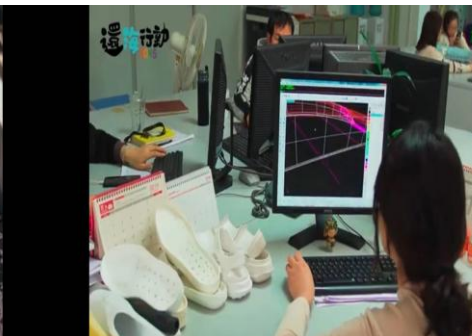
MATTRESS
床墊

PUZZLE FLOOT MAT
巧拼



Tech Process of BU A (Low-Carbon Material):

Example: Ocean Plastics to Low-Carbon Footwear (from the left to the right; from the top to the bottom)



Tech Process of BU B (Bio-Mass Material):

Example: Agricultural Wastes to Various Bio-Mass Product Applications (from the left to the right; from the top to the bottom)



XpreSole® GRS Certifications



Scope Certificate Number IDF-22-435482 (continued)
CCILU INTERNATIONAL INC.
GRS Version 4.0

TAIWAN IDFL LABORATORY AND INSTITUTE LIMITED
8F., No. 312, Sec. 2,
New Taipei Blvd.,
Xinzhung Dist.,
New Taipei City 242032
Taiwan

Under the scope of this certificate, the following products are covered.

Products Appendix

| Product Category | Product Details | Material Composition* | Standard (Label Grade) | Facility Number |
|--|--------------------------|--|-----------------------------|------------------------|
| Processed Post-Consumer Materials (PC0035) | Chips (pellets) (PD0085) | Recycled Post-Consumer Coffee Grounds (RM0267) + Ethylene Vinyl Acetate (EVA) (RM0168) * | GRS (GRS) GRS (No label) | 50580, 50950 |
| Processed Post-Consumer Materials (PC0035) | Flakes (PD0086) | Coffee Grounds (RM0262) + Ethylene Vinyl Acetate (EVA) (RM0168) * | GRS (GRS) GRS (No label) | 50580, 50950, 51043 |
| Processed Post-Consumer Materials (PC0035) | Chips (pellets) (PD0085) | Recycled Post-Consumer Polyethylene Terephthalate (PET) (RM0197) + Ethylene Vinyl Acetate (EVA) (RM0168) | GRS (GRS) GRS (No label) | 50580, 50950 |
| Processed Post-Consumer Materials (PC0035) | Flakes (PD0086) | Ethylene Vinyl Acetate (EVA) (RM0168) + Polyethylene Terephthalate (PET) (RM0194) | GRS (GRS) GRS (No label) | 50580, 50950 |

* This product requires subcontractor processes from GRS certified facilities.

Note. *Quantification (percentages) of material composition is optional. [] Square brackets refer to certified components of a product.



TAIWAN IDFL LABORATORY AND INSTITUTE LIMITED
8F., No. 312, Sec. 2, New Taipei Blvd., Xinzhung Dist., New Taipei City 242032 Taiwan

SCOPE CERTIFICATE

Scope Certificate Number: IDF-22-435482

IDFL
certifies that

CCILU INTERNATIONAL INC.
馳綠國際股份有限公司
LICENSE NUMBER 013425
8F.-2, No. 11, Ln. 238, Siping Rd.,
Beitun Dist.,
Taichung City, 406042
Taichung, Taiwan

has been audited and found to be in conformity with the

Global Recycled Standard (GRS) (Version 4.0)

Products categories mentioned below (and further specified in the product appendix) conform with the standard(s):
Processed Post-Consumer Materials (PC0035)

Process categories carried out under responsibility of the above mentioned organization for the certified products cover:
Extrusion * (PR0010); Trading (PR0030)
* The processes marked with an asterisk may be carried out by subcontractors.

This certificate is valid until: 2023-12-15
Audit criteria: Global Recycled Standard V4.0; Content Claim Standard V3.1; Textile Exchange Standards Claim Policy V1.1

| | | |
|--|-------------------------|----------|
| Place and Date of Issue (YYYY-MM-DD) | Certification Body | Standard |
| TAIWAN IDFL LABORATORY AND INSTITUTE LIMITED, 2022-12-16 Last Updated: 2022-12-16 | IDFL License No: CB-IDF | |


 Wilford Lieber, CEO





This scope certificate provides no proof that any goods delivered by its holder are Global Recycled Standard (GRS) certified. Proof of Global Recycled Standard (GRS) certification of goods delivered is provided by a valid transaction certificate (TC) or equivalent covering them. The issuing body may withdraw this certificate before it expires if the declared conformity is no longer guaranteed. To authenticate this certificate, please visit www.TextileExchange.org/Certificates

This electronically issued document is the valid original version. Scan QR Code to verify certificate.



GreenPlax® GRS Certifications



Scope Certificate Number IDF-22-435482 (continued)
CCILU INTERNATIONAL INC.
GRS Version 4.0

TAIWAN IDFL LABORATORY AND INSTITUTE LIMITED
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Audit criteria: Global Recycled Standard V4.0; Content Claim Standard V3.1; Textile Exchange Standards Claim Policy V1.1

| | | |
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 Wilford Lieber, CEO





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This electronically issued document is the valid original version.
Scan QR Code to verify certificate.



XpreSole® Patents

| SUBJECTS | PICTURE | COUNTRY | APPLICATION DATE | APPLICATION # | REGISTRATION # | EXPIRATION DATE |
|--------------------------------------|---------|---|------------------|----------------|----------------|-----------------|
| SHOE MATERIAL PART | | Taiwan-Utility Model-Application | 06-13-2018 | 107207910 | M571148 | 06-12-2028 |
| | | China-Utility Model-Application | 06-20-2018 | 201820947664.2 | 8820756 | 06-19-2028 |
| | | United States-Invention Application(including priority document+claim priority) | 06-29-2018 | 16/254,129 | 11058171 | 07-18-2039 |
| METHOD FOR MANUFACTURING A SHOE PART | | Taiwan-Patent-Application(including substantive examination) | 06-29-2018 | 107122456 | I698327 | 06-28-2038 |
| | | United States-Invention Application(including priority document+claim priority) | 01-22-2019 | 16/254,136 | 11083243 | 02-21-2040 |

GreenPlax® Patents

| SUBJECTS | PICTURE | COUNTRY | APPLICATION DATE | APPLICATION # | REGISTRATION # | EXPIRATION DATE |
|--|---------|---|------------------|-------------------|----------------|-----------------|
| COMPOSITE MASTERBATCH FOR MANUFACTURING PET BY RECYCLING BEVERAGE CANS AND ITS PREPARATION METHOD AND APPLICATION OF FOAMING SHOE MATERIAL | | Taiwan-Patent-Application | 06-17-2020 | 109120420 | I755759 | 06-16-2040 |
| | | China-Patent-Application | 07-08-2020 | 202010649330.9 | 6989579 | 07-07-2040 |
| | | Japan-Patent-Application | 12-21-2022 | 2022-579059 | | |
| | | Korea-Patent-Application | 01-16-2023 | 10-2023-7001734 | | |
| | | United States-Invention Application | 08-06-2020 | 16987219 | | |
| | | PCT-Patent-Application | 07-14-2020 | PCT/CN2020/101833 | | |
| ENVIRONMENTALLY FRIENDLY SHOE PARTS AND SHOES THEREOF | | Taiwan-Utility Model-Application includes claiming priority | 02-05-2021 | 110201446 | M616245 | 02-04-2031 |
| ENVIRONMENTALLY FRIENDLY SHOE MATERIAL AND METHOD OF MANUFACTURING THE SAME | | China-Patent-Application(including substantive examination) | 08-19-2020 | 202010835744 | | |
| | | United States-Invention Application | 09-11-2020 | 17/018,444 | 11,738,529 | 07-01-2041 |
| | | Japan-Invention Application | 12-21-2022 | 2022-579060 | | |
| | | PCT-Patent-Application | 08-25-2020 | PCT/CN2020/111074 | | |

XpreSole®/GreenPlax® Formula & Performance (Partial)



| Property | Parameter | Test Method | A | B | C | D | E | F | G | H | I | J | K | L |
|--------------------|--|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Coding | NA | NA | CL-3D-150A | CL-MS-150A | CL-OS-143A | CL-IS-170A | CL-WH-137A | CL-OS-150A | CL-OS-150B | CL-OS-150C | CL-OS-150D | CL-OS-150E | CL-IS-150A | CL-MS-165A |
| Basics | Specific Gravity (SG) | ASTM D3574-05 | 0.20±0.03 | 0.20±0.03 | 0.22±0.03 | 0.15±0.03 | 0.26±0.03 | 0.20±0.03 | 0.20±0.03 | 0.20±0.03 | 0.20±0.03 | 0.20±0.03 | 0.18±0.03 | 0.17±0.02 |
| | Tensile Strength | ASTM D412 | 25.0 min | 25.0 min | 25.0 min | 20.0 min | 25.0 min | 25.0 min | 25.0 min | 25.0 min | 25.0 min | 25.0 min | 25.0 min | 25.0 min |
| | Elongation | | 350 min | 400 min | 300 min | 300 min | 200 min | 300 min | 300 min | 400 min | 400 min | 400 min | 400 min | 300 min |
| | Die-C Tear | ASTM D624 | 15.0 min | 15.0 min | 15 min | 10.0 min | 10.0 min | 15.0 min | 15.0 min | 15.0 min | 15.0 min | 15.0 min | 15.0 min | 15.0 min |
| | Split Tear | ASTM D3574-05 | 3.0 | 2.5 | 3.0 | 2.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 2.7 |
| | Smell | | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP | BIBP |
| Process Capability | Expansion Rate (ER) | Std plaque 174°C/250" (10mm test plaque) | 150±2 | 150±2 | 143±2 | 170±2 | 137±2 | 150±2 | 150±2 | 150±2 | 150±2 | 150±2 | 150±2 | 165±2 |
| | Melt Flow Index (MFI) | (ASTM D1238 120°C/5kg) | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD | TBD |
| Comfortness | Durometer Hardness | ASTM 2240 | 50±3 | 45±3 | 55±3 | 40±3 | 75±3 | 55±3 | 50±3 | 45±3 | 50±3 | 55±3 | 40±3 | 48±2 |
| | Resilience Rebound | ASTM 2632 | 55 min | 60 min | 50 min | 55 min | 40 min | 50 min | 50 min | 60 min | 60 min | 55 min | 55 min | 60 min |
| Durability | DIN Abrasion | SATRA TM174 | 250 max | TBD | 150 max | TBD | 150 max | 150 max | 150 max | 150 max | 150 max | 150 max | 200 max | N/A |
| | Compression Set | ASTM D395B | 55 max | 55 max | 60 max | 65 max | 60 max | 60 max | 60 max | 55 max | 55 max | 55 max | 65 max | 55 max |
| | Shrinkage | Oven 70°C/60 min | 1.5 max | 2.0 max | 1.5 max | 2.0 max | 1.0 max | 1.5 max | 1.5 max | 1.5 max | 1.5 max | 1.5 max | 1.0 max | 1.5 max |
| | Ross Flexibility | ASTM D1052 | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k | 125 k |
| | UV-Light | ASTM D1148 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Antimicrobial | Staphylococcus Aureus / Escherichia Coli | JIS Z 2801:2000 | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max | 2 max |
| Safety | CCILU RS Standard (TBD) | REACH / SVHC / VOC / ODOR | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed | Need All Passed |

3 Major Industrial Focus

Building/Construction

Semiconductor

Footwear/Apparel

CCILU Solution: The Gen. 4 ESG Building/Furniture Material



Coffee Husk/Parchment/
Spent Grounds



Tea Stalks/Brewed Leaves



Sugarcane Bagasse



Bamboo Leftover



Rice/Wheat Straws



Semi-conductor/Silicon Slurry

Granules /
Compounds



- Strength and Rigidity
- Durability
- Dimensional Stability
- Carbon Sequestration



Comparison: Gen. 1~Gen. 4 Building/Furniture Material



| | Gen. 1: Wood | Gen. 2: Plastic | Gen. 3: WPC | Gen. 4. |
|-----------------------------|---|---|--|---|
| Material | Wood | PVC 、 PE 、 PP | Wood Powder Blended with PVC 、 PE 、 PS | SCGs/tea stalks/bagasse/bamboo wastes/wheat straws/rice straws/silicon wastes...compounded with PVC/PE/PS |
| Weight (g/cm ³) | 1.50~2.00 | 0.8~1.2 <i>win</i> | 1.1~1.3 | 1.0~1.2 <i>win</i> |
| Decarbonization Effect | Limited resources and transportation issues | Petroleum based products | Can not be tracked | Carbon sequestration <i>win</i> |
| Function | Natural; durable <i>win</i> | Waster proof; insect proof; low cost | Good rigidity; stable dimension <i>win</i> | Durable; good rigidity; stable dimension <i>win</i> |
| Weakness | Rotting; worming; pricey; difficult to maintain | Plasticizer; bad rigidity; unstable dimension | Formaldehyde; moisture absorbing; worming | Stable resources? <i>win</i> |
| Cost | USD 150~400/m ² | USD 10~50/m ² | USD 60~100/m ² | USD 30~100/m ² <i>win</i> |

Goal for Commercialization: 1.7 USD/KG (now WPC = 1.2 USD/KG)



Material Cost:

Main Material (Agricultural/Plastic Wastes; 40%): 0.05 USD/KG

Supporting Material (PVC/PE...etc., 60%): 1.2 USD/KG

Total Material Cost (considering process defect rate):

0.8 USD/KG

Manufacturing Cost (direct labor/energy/amortization/rent...etc.):

Pre-treatment process (dry/grind/degrease/de-sugar...etc): 0.2 USD/KG

Compounding process: 0.4 USD/KG

Backend/Sales & Marketing/R&D:

0.2 USD/KG

Profit:

0.1 USD/KG



P&L Structure:

Gross Margin 17.65%;
Net Profit 6%

1.7 USD/KG

Key Driver:

Main Material Cost
(Agricultural/Plastic Wastes) < 0.05 USD/KG

Now In Vietnam:

1 Raw Rice Straw Bale = 20 KG = 0.6 USD

1 KG of Raw Rice Straw = 0.03 USD

After drying/grinding/degreasing...process,
50% of the raw rice straw is lost

1 KG of qualified Rice Straw Powder = 0.06 USD

Our goal is **0.05 USD or below**

Thank You

Email: wilson.hsu@ccilu.com

Mobile: +886.936.333.403

What's App: +86.189.2250.1234

Line: wilsonhsu0504