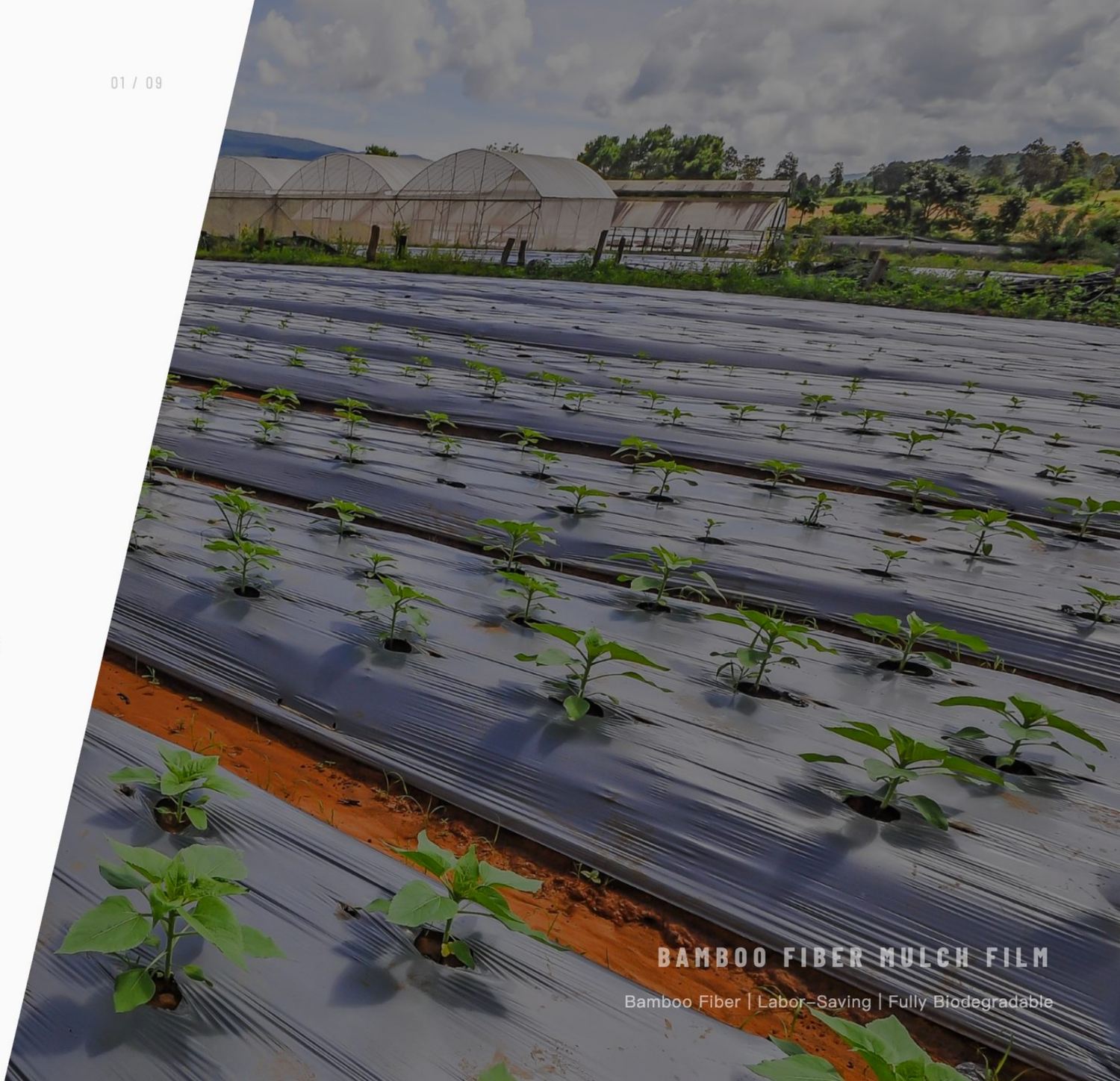
No pricier than PE — and fully biodegradable

BAMBOO FIBER MULCH FILM

– BAMBOO FIBER BIODEGRADABLE MULCH FILM –

- **Masterbatch Supply** — parameter support for existing blown-film lines
- **Finished-Film OEM** — stable stock, fast delivery
- **97% Bio-based Carbon** — fully degrades in soil, no residue



DIN CERTCO | Bio-based Carbon 97% | +886 983-685-452

christopher.louw@ronghao.co | www.ronghao.co

Ten Years in the Making, From R&D to Mass Production

Made from natural bamboo, our in-house-developed fully biodegradable mulch film is certified by DIN CERTCO, Beta Analytic and other international bodies. It saves labor and removes the need to collect film residue, **avoiding the hidden costs of conventional plastic mulch film**.

- **2016** The team enters the polymer materials industry, starting from abrasion-resistant compounds for shoe outsoles
- **2023** Fully biodegradable material goes into mass production
- **2024** RONGHAO Co., Ltd. (Taiwan) is founded and, with **Dongyisen Industrial**, begins R&D on bamboo fiber biodegradable mulch film
- **NOW** Technology breakthrough — successfully brought into mass production

100%
Full soil biodegradation
No residue — just till it under

97%
Bio-based carbon content
Beta Analytic third-party certified

In Stock
Stable quality
Shipping nationwide

The Longer You Use PE Film, the Higher the Hidden Cost

Conventional PE film doesn't degrade — farming faces four key problems

01 Residue Pollutes the Soil

PE doesn't degrade — residue builds up year after year, **damaging soil structure** and hurting root growth and yield.

02 High Labor Cost to Remove

Every season needs labor to collect film and till soil — **wages keep rising**, hitting labor-short regions hardest.

03 Plastic Bans Reach Agriculture

Global plastic restrictions are extending to farming — **demand for biodegradable film is growing year by year**. Early movers capture the opportunity.

04 Hard to Recycle, Often Burned

PE residue mixed with soil is costly to recycle and nearly unusable, so farmers often **burn it on-site** — releasing dioxins and other pollutants that harm air quality and local health.

→ Bamboo fiber biodegradable mulch film solves **all of this** at once

Bamboo Fiber Biodegradable Masterbatch

Fed into existing blown-film machines with **machine-parameter setup support**, it produces fully biodegradable mulch film directly. Made from bamboo blended with PBAT and a small amount of PLA — an eco mulch film that fully degrades with no residue.

- **Machine-Parameter Setup Support**
  Lowers the time and cost barrier to adoption
- **Natural Bamboo Fiber Formula • International Biodegradation Certification**
  Bamboo fiber + PBAT + a small amount of PLA, 97% bio-based carbon, dual-certified by DIN CERTCO and TÜV SÜD
- **No Pricier Than PE, Per Meter**
  Thinner and lighter — less material per area, more length per kg — bringing the per-meter cost close to PE

Per-Meter Cost Formula

Cost/meter = (masterbatch price + processing fee) × roll weight ÷ roll length

Compare by cost per meter — that's the fair benchmark

DIN CERTCO | TÜV SÜD Compost Test | Bio-based Carbon 97% | CTT Heavy Metals / Physical

Bamboo Fiber Biodegradable Mulch Film

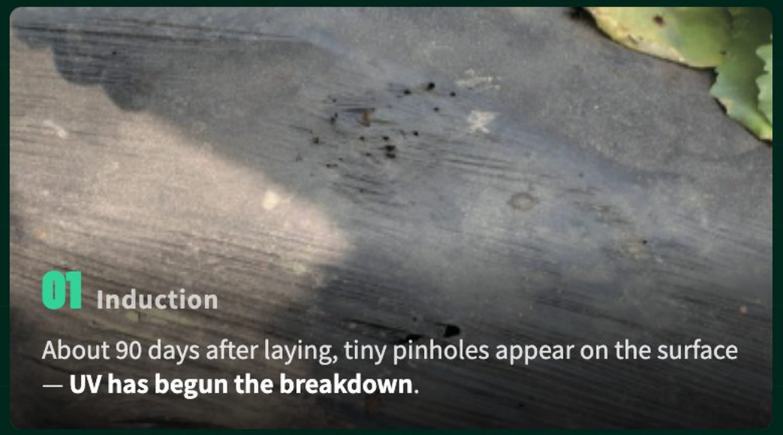
In stock, **shipping nationwide** — lay it straight in the field. Degrades naturally in soil, with no film collection or recycling needed, saving a large amount of labor cost.

Item	Width	Length	Weight
Black / Silver-Black Film	1.2m	400m	8.5kg/roll
Black / Silver-Black Film	1.2m	470m	9.9kg/roll
Black / Silver-Black Film	1.2m	560m	11.3kg/roll
Custom Size	On request	On request	Contact for quote

- **0.018mm Thick**
  Ultra-thin and efficient — covers far more area per kg than conventional PE film
- **Fully Biodegradable in Soil, No Residue**
  Till it under after use — no collection needed, saving labor and protecting soil
- **High Tear Strength, Won't Rip When Laid**
  Woven bamboo fiber structure improves tensile and tear resistance

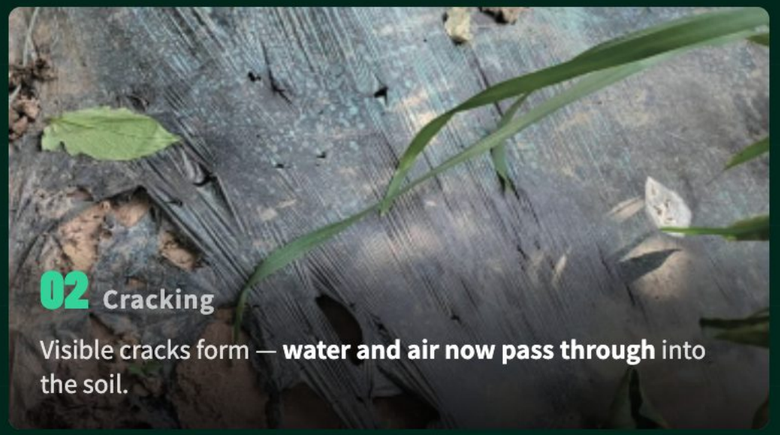
Five Stages of Degradation

Cracking begins around day 90, fully degraded within 360 days



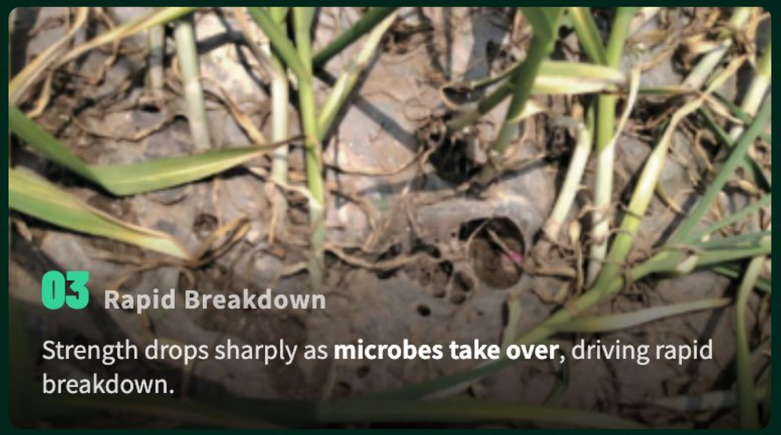
01 Induction

About 90 days after laying, tiny pinholes appear on the surface — **UV has begun the breakdown**.



02 Cracking

Visible cracks form — **water and air now pass through** into the soil.



03 Rapid Breakdown

Strength drops sharply as **microbes take over**, driving rapid breakdown.

04 Fragmentation

Breaks into small pieces — **no manual collection needed**, decomposition continues.

05 Fully Gone

Disappears within 360 days, breaking down into **water, CO_2 and organic matter**, returning to the soil.

ADVANTAGE

No collection, no recycling — saves labor every season

Till it under after breakdown, zero extra steps

Bamboo Fiber vs PE Mulch Film

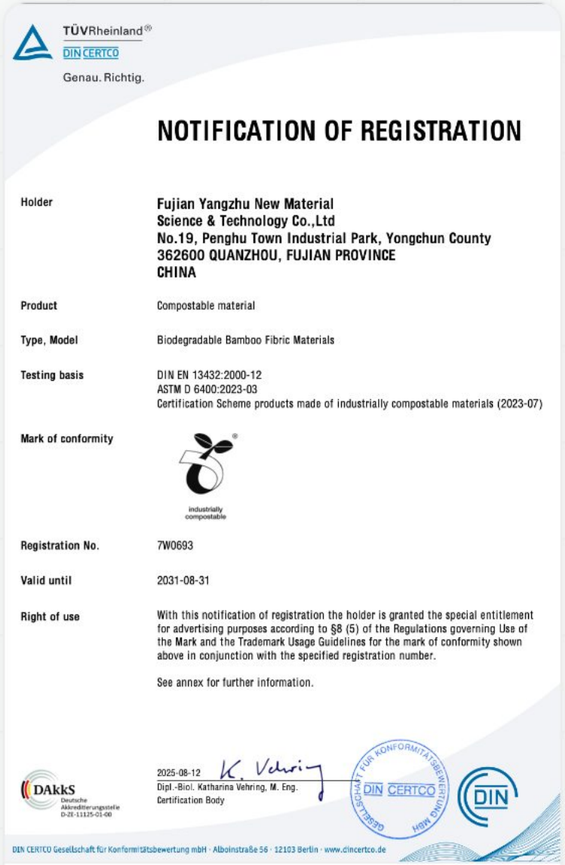
Same coverage, different outcome — compared on cost and sustainability

	Bamboo Fiber Film	PE Film
Material	**Bamboo fiber + PBAT + a small amount of PLA**	Petrochemical plastic (PE)
Typical Thickness	**0.018 mm**(thinner & lighter)	0.02–0.04 mm
Degradability	**Fully degrades within 360 days**, returns to soil	**Doesn't degrade**— residue stays in soil permanently
Removal Process	**No collection, no recycling**— till it under directly	**Manual collection every season**— costly and time-consuming
Total Cost	Per-meter cost**no pricier than PE**, plus labor savings	Cheaper unit price, but**hidden recycling and labor costs add up**
Sustainability	**Aligned with global plastic restrictions**— early movers win	Facing plastic bans —**high future policy risk**

→ **Switch materials, save on labor, gain a selling point**

From degradation to safety — all third-party certified

A selection of our certifications — additional documents available on request



TÜVRheinland®
DIN CERTCO
Genau. Richtig.

NOTIFICATION OF REGISTRATION

Holder	Fujian Yangzhu New Material Science & Technology Co.,Ltd No.19, Penghu Town Industrial Park, Yongchun County 362600 QUANZHOU, FUJIAN PROVINCE CHINA
Product	Compostable material
Type, Model	Biodegradable Bamboo Fibric Materials
Testing basis	DIN EN 13432:2000-12 ASTM D 6400:2023-03 Certification Scheme products made of industrially compostable materials (2023-07)
Mark of conformity	industrially compostable
Registration No.	7W0693
Valid until	2031-08-31
Right of use	With this notification of registration the holder is granted the special entitlement for advertising purposes according to §8 (5) of the Regulations governing Use of the Mark and the Trademark Usage Guidelines for the mark of conformity shown above in conjunction with the specified registration number. See annex for further information.

DAkkS Deutsche Akkreditierungsstelle D-ZE-11115-01-00

2025-08-12
Dipl.-Biol. Katharina Vehring, M. Eng.
Certification Body

DIN CERTCO Gesellschaft für Konformitätsbewertung mbH · Alboinstraße 56 · 12103 Berlin · www.dincertco.de

DIN CERTCO

Industrial composting certification

EN 13432 • Industrial Composting

SGS BETA
ISO/IEC 17025:2017-Accredited Testing Laboratory

Beta Analytic, LLC
4985 SW 74th Court
Miami, FL 33155 USA
Tel: (305) 667-5167
info@betalabservices.com

ne 5, 2025

i XiaoRong
ijian Yangzhu New Material Science & Technology Co., Ltd
.19, Penghu Industrial Park,Yongchun County
uanzhou, Fujian 362000
hina

ear Lai XiaoRong,

ease find enclosed your radiocarbon (C14) report for the material recently submitted. The result is reported as "% obased Carbon". This indicates the percentage carbon from "natural" (plant or animal by-product) sources versus ynthetic" (petrochemical) sources . For reference, 100 % Biobased Carbon indicates that a material is entirely urced from plants or animal by-products and 0 % Biobased Carbon indicates that a material did not contain any rbon from plants or animal by-products. A value in between represents a mixture of natural and fossil sources.

he analytical measurement is cited as "percent modern carbon (pMC)". This is the percentage of C14 measured in e sample relative to a modern reference standard (NIST 4990C). The % Biobased Carbon content is calculated fror MC by applying a small adjustment factor for C14 in carbon dioxide in air today. It is important to note is that all ternationally recognized standards using C14 assume that the plant or biomass feedstocks were obtained from tural environments.

eported results are accredited to ISO/IEC 17025:2017 PJLA #59423 standards and all chemistry was performed re in our laboratory and counted in our own accelerators in Miami, Florida.

he international standard method utilized for this analysis is cited under Summary of Results. The standard version ed is the latest available as of the date reported (unless otherwise noted). The report also indicates if the result is lative to total carbon (TC) or only total organic carbon (TOC). When interpreting the results, please consider any mmunications you may have had with us regarding the analysis. If you have any questions, please contact us. We elcome your inquiries.

ncerely,
Zeneida Cernada

eneida Cernada
aboratory Management Group / IRMS / CRDS Instrument Manager

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Beta Analytic

Bio-based carbon content testing

Bio-based Carbon 97%

ANNRAY 安瑞检测

MA 202119014315 | ilac-MRA | CNAS 中国认可 国际互认 检测 TESTING CNAS L5

测试报告　　报告编号：A112406060168B　日期: 2024年09月24日　第1页,共11页

委托单位：	福建克里斯丁生物科技有限公司 福建省晋江市陈埭镇庵上村烟浦北路27号联发鞋业车间3
产品名称：	全生物降解（竹纤维）农用地面覆盖薄膜
型号规格：	900*0.022MM
检测类别：	委托检测

样品名称：	全生物降解（竹纤维）农用地面覆盖薄膜		
商标：	克里斯丁	规格型号等级：	900*0.022MM
生产日期：	2024.5.28	样品数量：	/
生产单位：	/		
样品接收日期：	2024年06月06日	报告发放日期：	2024年09月24日
测试周期：	2024年06月14日至2024年09月11 日	样品参考信息：	/
检测依据：	GB/T 19277.1-2011 受控堆肥条件下材料最终需氧生物分解能力的测定 采用测定释放的二氧化碳的方法 第1部分：通用方法		
判定依据：	/		
检测结论：	详见本报告检测结果		
备注：	/		

编制：　审核：　批准：

检验检测专用章

ANNRAY

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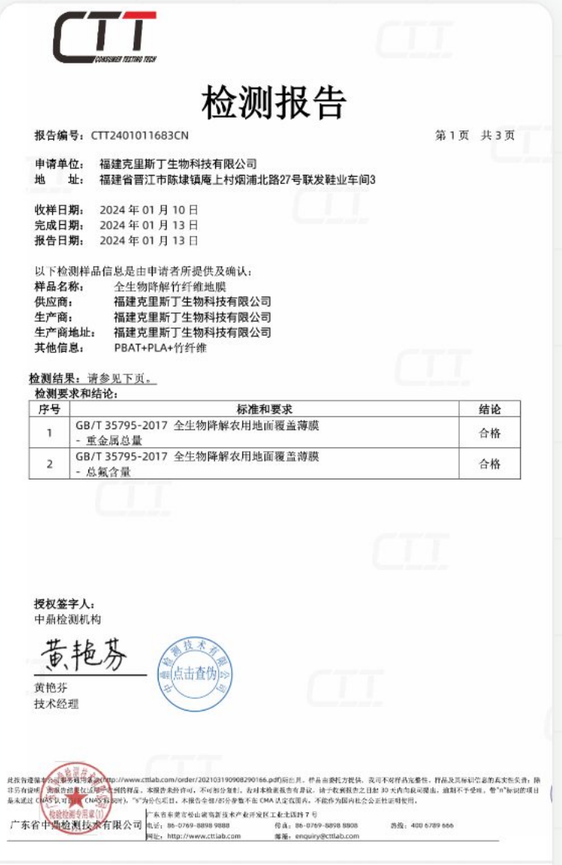
TÜV SÜD

Compost disintegration test report

Compost Disintegration Test



CTT

检测报告

报告编号：CTT2401011683CN　　第 1 页　共 3 页

申请单位：　福建克里斯丁生物科技有限公司
地　　址：　福建省晋江市陈埭镇庵上村烟浦北路27号联发鞋业车间3

收样日期：　2024 年 01 月 10 日
完成日期：　2024 年 01 月 13 日
报告日期：　2024 年 01 月 13 日

以下检测样品信息是由申请者所提供及确认：
样品名称：　全生物降解竹纤维地膜
供应商：　福建克里斯丁生物科技有限公司
生产商：　福建克里斯丁生物科技有限公司
生产商地址：　福建克里斯丁生物科技有限公司
其他信息：　PBAT+PLA+竹纤维

检测结果：请参见下页。

检测要求和结论：

序号	标准和要求	结论
1	GB/T 35795-2017 全生物降解农用地面覆盖薄膜 - 重金属总量	合格
2	GB/T 35795-2017 全生物降解农用地面覆盖薄膜 - 总氟含量	合格

授权签字人：
中鼎检测机构

黄艳芬
技术经理

点击查伪

广东省中鼎检测技术有限公司　电话：86-0769-8898 9888　传真：86-0769-8898 8808　客服：400 6789 666
网址：http://www.cttlab.com　邮箱：enquiry@cttlab.com

CTT Heavy Metals

Heavy metals & physical properties test

Heavy Metals / Physical

GET IN TOUCH

Start with the material — make the better choice for the land

PHONE
+886 983-685-452

WEBSITE
www.ronghao.co

EMAIL
christopher.louw@ronghao.co

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