



FROM 'PLASTIC' to 'COMPOST'

CELYS™ COMPOSTABLE PERFORMANCE FIBER

by INTIMITI AUSTRALIA PTY.,LTD

February 2024 | HELEN WENG

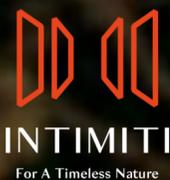




CELYS[™]

Compostable Polyester

Sheer Science
Living Earth



INTIMITI
For A Timeless Nature

01 / WHO IS INTIMITI & CELYS[™]

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COMPOSTABLE POLYESTER

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WHO IS INTIMITI WHAT IS CELYS™



INTIMITI AUSTRALIA PTY LTD, founded in 2014 by a team of scientists from Australia, Japan, U.K. and China, is a science-driven venture dedicated to the innovation of high performance materials that help reduce footprints of human beings for a more sustainable, circular economy.

CELYS™ is a brand-new compostable polyester fiber launched by INTIMITI in early 2021. It meets the industrial composting test standards with due certifications for EMEA and NA markets.

CELYS™ fiber has a great combination of attributes, and is versatile for all textile applications. It helps the textile industry, brands, and designers enhance product experiences and end the everlasting issue of end-of-life products once and for all.

*note: biodegradable in industrial composting conditions



CELYS™ FIBER: A CERTIFIED COMPOSTABLE POLYESTER

**STANDARD POLYESTER
TAKES OVER 200 YEARS
TO DEGRADE**

Leading to

MICRO PLASTIC CONCERNS

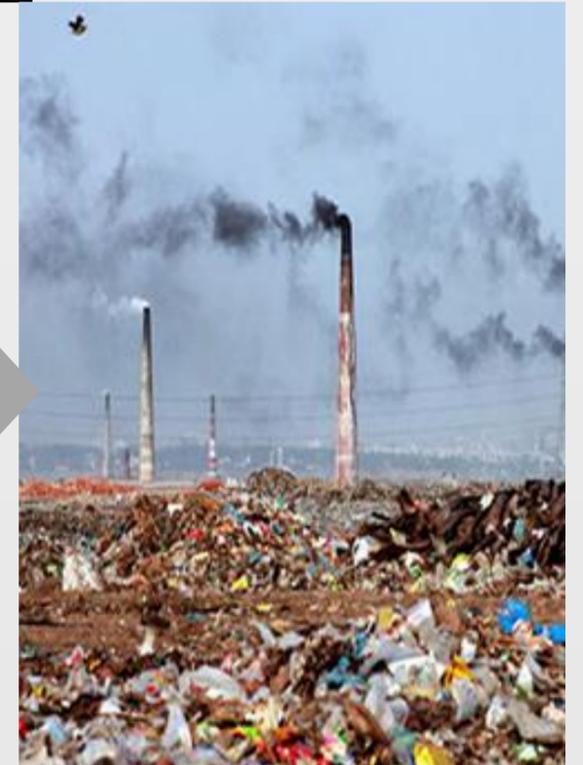
WE ARE BREATHING PLASTIC
MICROPLASTIC IS LINKED TO AIR POLLUTION



incineration



73% of waste garments
are sent for
INCINERATION
or **LAND-FILL**



Land-fill

WE ARE DRINKING PLASTIC
83% OF TAP WATER SAMPLES CONTAIN MICRO-PLASTICS



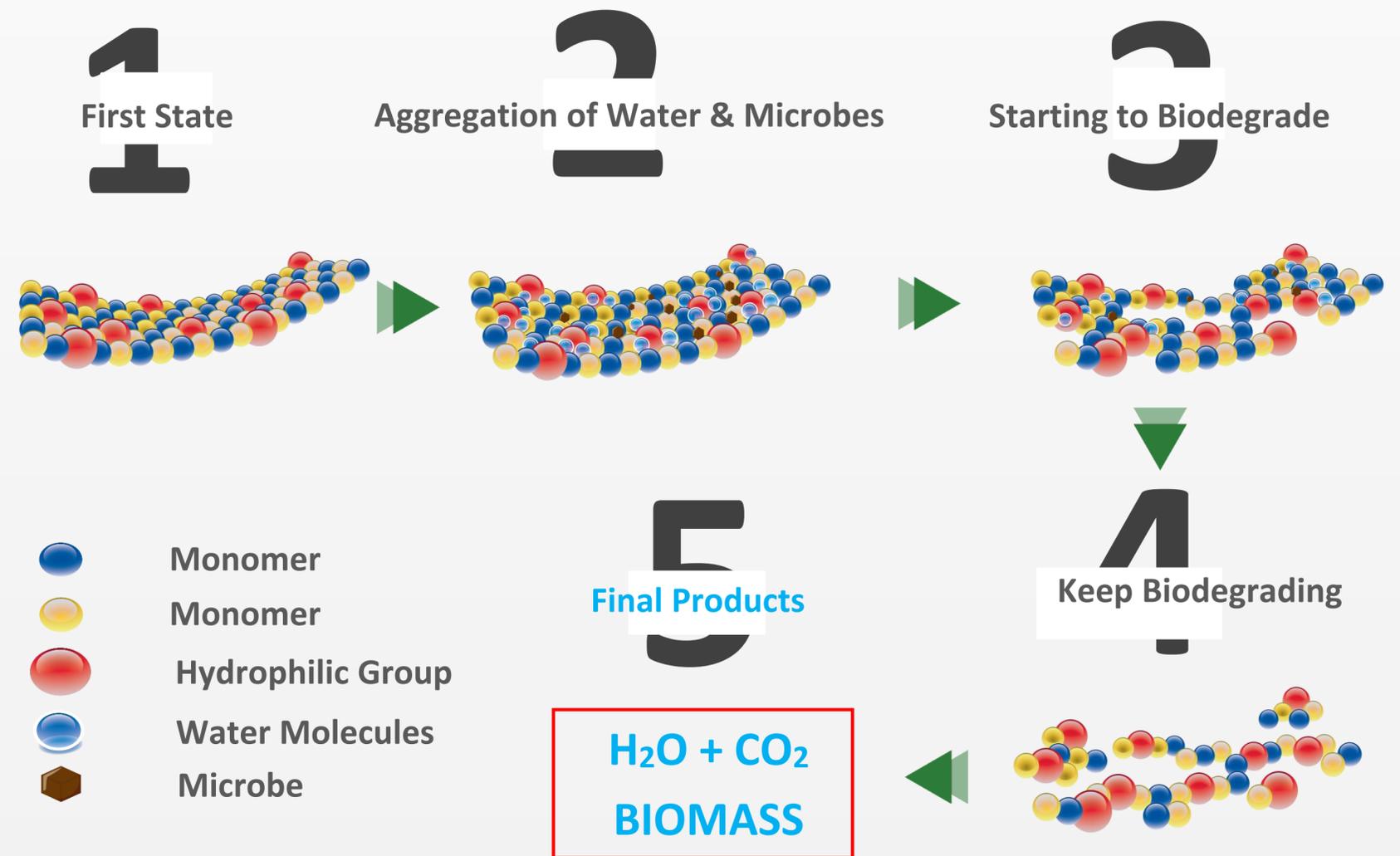
Source 1: wwf video

Source 2: circular fibers initiative

**BIODEGRADABLE for
NO MORE MICRO PLASTICS**

**Aerobic Biodegradation into
H₂O, CO₂ and Biomass**

CELYS™ FIBER BIODEGRADATION* PROCESS



* NOTE: biodegrade in industrial composting conditions

THE MANY WAYS OF BIODEGRADATION

**INDUSTRIAL COMPOSTING
IS THE DOMINANT WAY**

5 MAJOR WAYS OF BIODEGRADATION & LEVELS OF DIFFICULTY



HOME
COMPOSTING



SOIL
BIODEGRADATION



MARINE WATER
BIODEGRADATION



LAND-FILL
BIODEGRADATION



INDUSTRIAL
COMPOSTING

- EXPOSURE TO COMPLICATED NATURAL ENVIRONMENTS WITH HIGHER BIODEGRADING DIFFICULTY
- LONGER TIME OF BIODEGRADATION (usually 12-24 MONTHS)
- SOME METHODS DON'T HAVE GLOBALLY ACCEPTED TEST STANDARDS, NOR AUTHORITIES FOR CERTIFICATIONS

- ✓ **THE EASIEST WAY FOR BIODEGRADATION IN CONTROLLED ENVIRONMENT CONDITIONS**
- ✓ **SHORT TIME OF BIODEGRADATION (I.E. MAX 6 MONTHS)**
- ✓ **GLOBAL TEST STANDARDS & CERTIFICATIONS AVAILABLE**



AEROBIC BIODEGRADATION TEST STANDARDS

| | INDUSTRIAL COMPOSTING | HOME-COMPOSTING | BIODEGRADATION in SOIL | BIODEGRADATION in MARINE WATER |
|---------------------------------|--|-----------------------|--------------------------|--------------------------------|
| TEST STANDARDS | ATSM D6400 / EN 13432 / AS 4736 | NF T51-800 AS 5810 | ASTM D5988/ ISO 17556 | ISO 22430: 2020 |
| MAX. LAB TEST DURATION | 6 months | 12 months | 24 months | 24 months |
| PASSING RATE | ≥ 90% | ≥ 90% | ≥ 90% | ≥ 90% |
| CELYS™ FIBER TEST RESULT | 95.4% by TUV Rheinland Lab | In process | In process | Pending |
| CELYS™ STATUS | PASS in 2021 DIN/SEEDLING/ BPI Certifications | N/A | N/A | N/A |



CELYS™ POLYESTER WITH CERTIFIED COMPOSTABILITY

Based on TUV Rheinland Test Report

Test Report No.: 244276635a 001



CELYS™ FIBER is **95.4%**
COMPOSTABLE in 179 Days
under industrial composting conditions

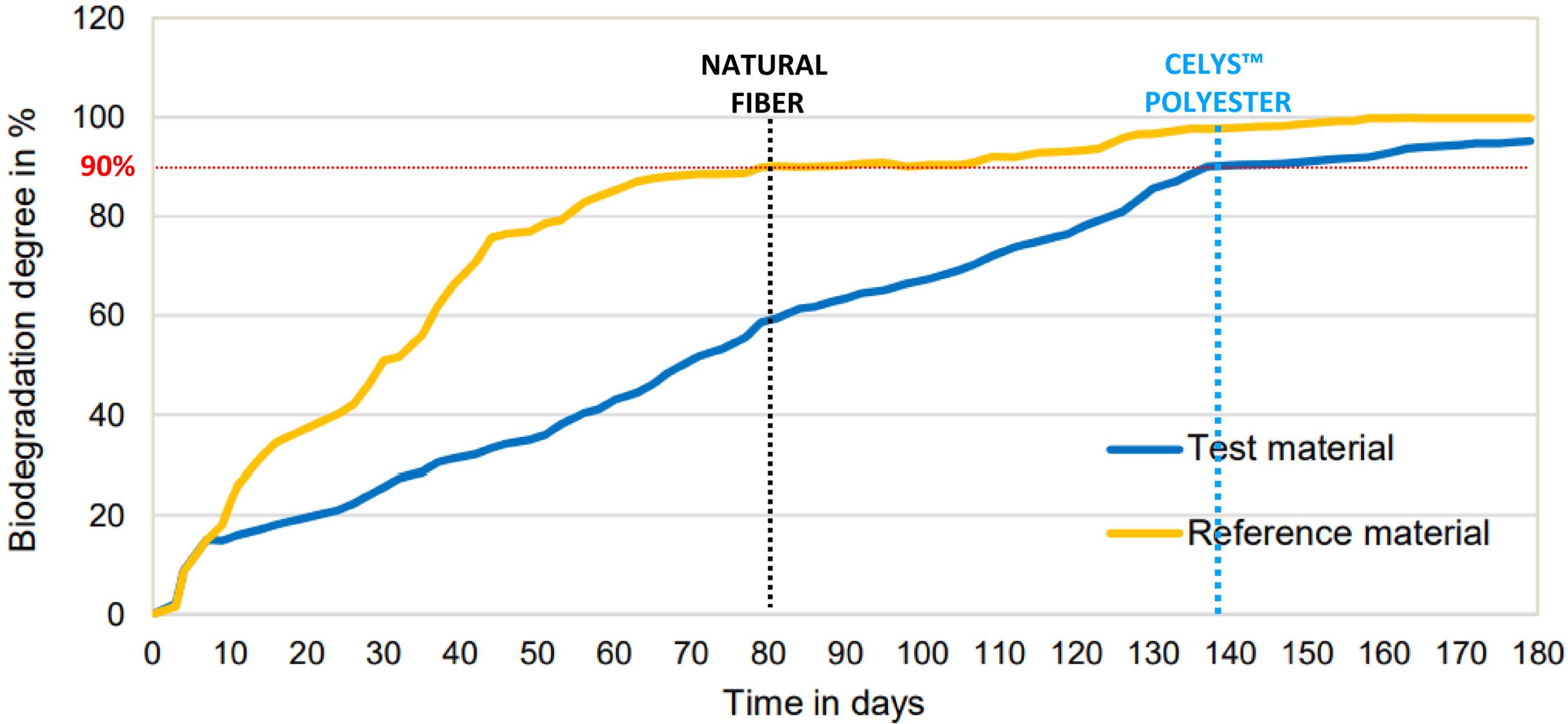
Other parameters tested

| | |
|---|------|
| Heavy Metals and Other Toxic Substances: | Pass |
| Volatile Solids Content: | Pass |
| Quantitative Aerobic Disintegration Test: | Pass |
| Plant Test: | Pass |
| Earthworm Toxicity Test: | Pass |

Conclusion: The sample fulfills the requirements according to DIN EN 13432:2000, ASTM D 6400:2019, AS 4736:2006 standards and the certification schemes “Products made of compostable materials” – Seedling (2020-01)/ DIN Geprüft (2017-10), “Compostable products, resins, and intermediates according to ASTM D6400 and ASTM D6868” – BPI (2019-02) and ABA.

CELYS™ POLYESTER vs NATURAL/CELLULOSE FIBER

Biodegradation degree over time



CELYS™ COMPOSTABLE CERTIFICATIONS

— first of it's kind for a polyester fiber

LOGO:



CERTIFICATE #:

10529267

9K0301

7W0801

IN PROCESS

REGION:

USA/CANADA

EMEA MARKETS

JAPAN

CERTIFIED BY:

U.S. Biodegradable Products Institute (BPI)

DIN CERTCO (Germany)

Japan Bioplastics Association (JBPA)

CELYS™ COMPOSTABLE CERTIFICATIONS FOR E.U. & N.A. MARKETS

DIN CERTCO
Gesellschaft für Konformitätsbewertung mbH

CERTIFICATE

Certificate holder INTIMITI AUSTRALIA PTY LTD
52/1C Kooringa Road
CHATSWOOD NSW 2067
AUSTRALIA

Product Compostable material for industrial composting

Type, Model CELYS polyester fiber

Testing basis DIN EN 13432:2000-12
Certification scheme Products made of compostable materials (DIN-Geprüft) (2017-10)

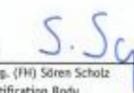
Mark of conformity 

Registration No. 9K0130

Valid until 2027-08-31

Right of use With this certificate the holder is granted the special entitlement for advertising purposes for the mark of conformity shown above in conjunction with the specified registration number.
See annex for further information.

2021-08-16
Dipl.-W.-Ing. (FH) Sören Scholz
Head of Certification Body

DIN CERTCO Gesellschaft für Konformitätsbewertung mbH · Albinstraße 56 · D-12103 Berlin · www.din-certco.de

DIN CERTCO
Gesellschaft für Konformitätsbewertung mbH

NOTIFICATION OF REGISTRATION

Holder INTIMITI AUSTRALIA PTY LTD
52/1C Kooringa Road
CHATSWOOD NSW 2067
AUSTRALIA

Product Compostable material

Type, Model CELYS polyester fiber

Testing basis DIN EN 13432:2000-12
ASTM D 6400:2019-01
Certification scheme products made of compostable materials (2020-01)

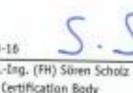
Mark of conformity 

Registration No. 7W0801

Valid until 2027-08-31

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.

2021-08-16
Dipl.-W.-Ing. (FH) Sören Scholz
Head of Certification Body

DIN CERTCO Gesellschaft für Konformitätsbewertung mbH · Albinstraße 56 · D-12103 Berlin · www.din-certco.de

CERTIFICATE for Component/Ingredient

THIS IS TO CERTIFY that the following items have been found to comply with the specifications established in the American Society for Testing and Materials standard ASTM D6400 in accordance with the terms and conditions of the "International Biodegradable Products Institute, Inc. Licensing & Certification Program for Compostable Products":

- Celys polyester fibre, as a component, used for making non-woven fabric for packaging, [20210908-01]

as further described in the application and related information submitted to the Biodegradable Products Institute by INTIMITI AUSTRALIA PTY LTD, (the "Licensee") a corporation of Australia.

Specific items associated with these certifications can be found on the BPI Product Catalog: <https://products.bpiworld.org/companies/intimiti-australia-pty-ltd>

This approval is for a Component/Ingredient only, and cannot be used for claims in a finished product. Manufacturers and converters using these items to manufacture other products must seek a separate International Biodegradable Products Institute, Inc. certification in order to use the International Biodegradable Products Institute, Inc. Certification Marks or claim such certification.

This Certificate authorizes the Licensee to use the Certification Program Logo depicted below in relation to such items, subject to all conditions and terms of the Program Rules and the License Agreement between the Biodegradable Products Institute and the Licensee.



By: *Rhodes Yepsen*
BPI Executive Director
Valid until: December 31, 2024
Certificate #: 10529267-1



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CELYS™
Compostable Polyester



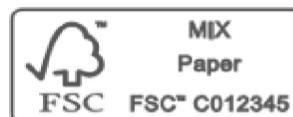
THIS PRODUCT CONTAINS
CELYS™ COMPOSTABLE FIBER



COMPOSTABLE*

- See label for complete content.
- COMPOSTABLE refers to CELYS™ fiber only.
- CELYS™ fiber meets EN13432, ASTM D6400 & AS 4736 standards for commercial compostability.
- CELYS™ is a trademark of INTIMITI AUSTRALIA PTY LTD.

INTIMITI



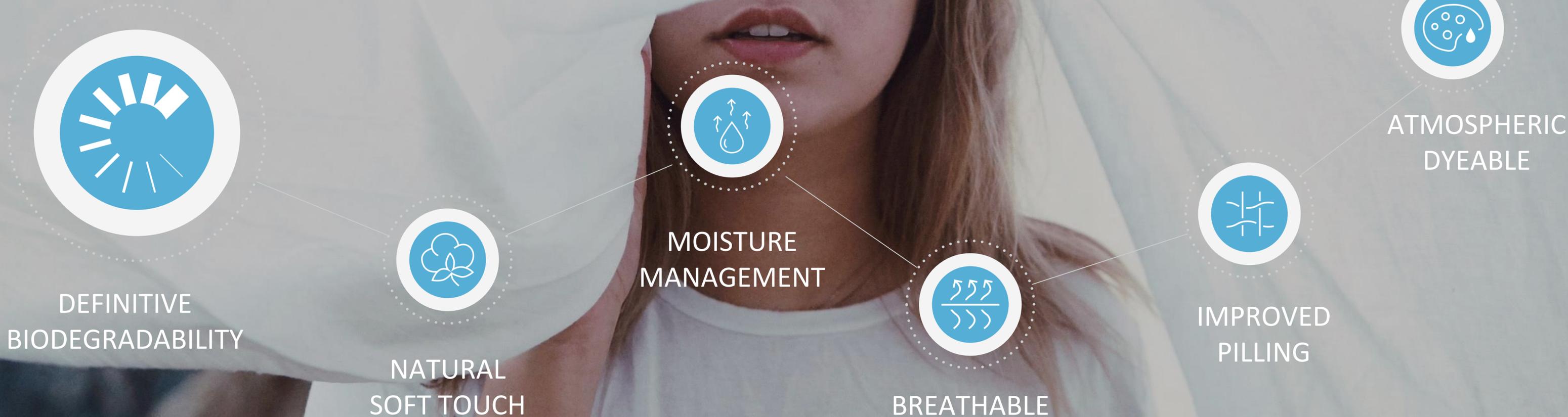
CELYS™ HANGTAG

- COMPOSTABLE refers to CELYS™ fiber only.
- CELYS™ fiber meets EN13432, ASTM D6400 & AS 4736 standards for commercial compostability.



CELYS™ FIBER: UNIQUE PERFORMANCES & APPLICATIONS

CELYS™ FIBER: UNIQUE PERFORMANCES



| ITEMS | CELYS™ fiber | VS | Regular PET |
|-----------------------------|--------------|----|-------------|
| Moisture Regain: | 1.6-1.8% | | 0.4% |
| Breaking Strength(CN/dtex): | 3-3.5 | | ~5 |

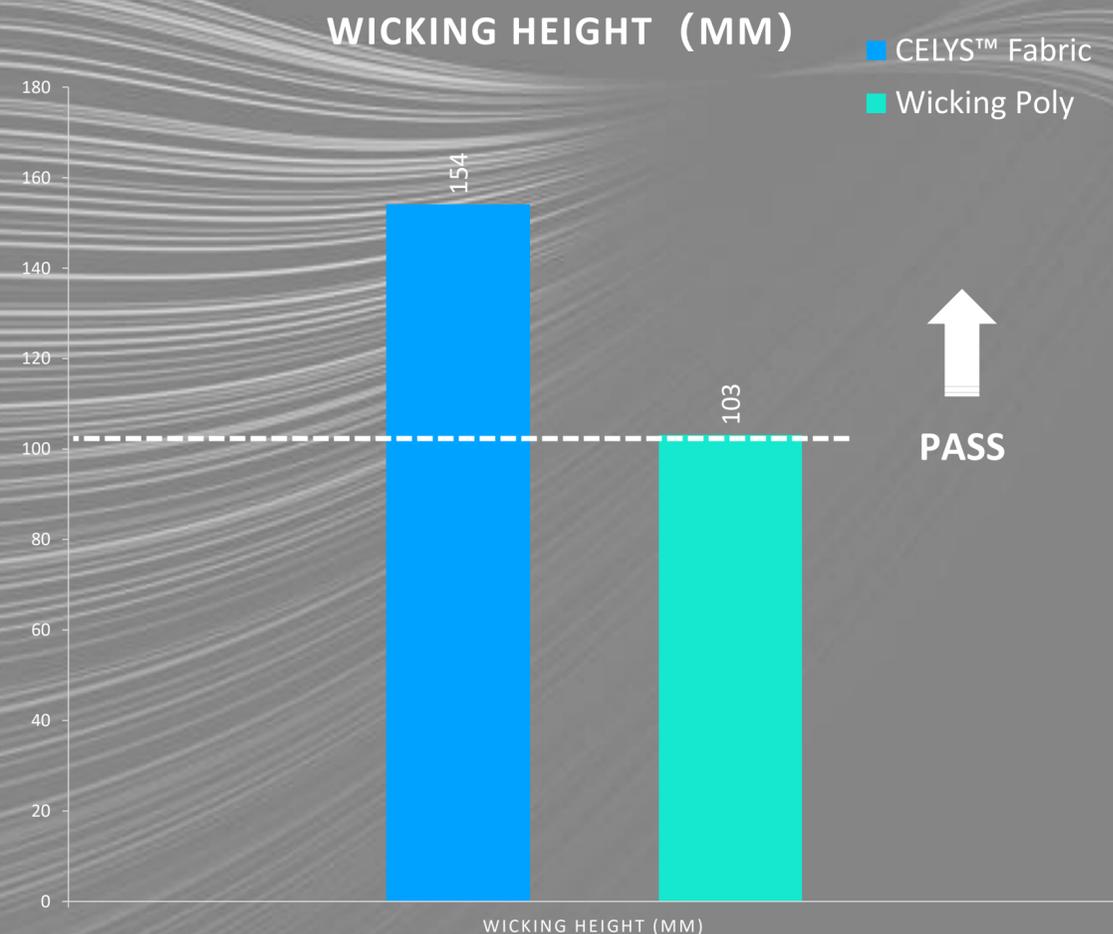
CELYS™ vs NORMAL POLYESTER

| Fiber Type | Sustainability | Hand-Feel | Anti-Pilling | Moisture Management | Atmospheric Dyeability |
|--------------------------------------|---|-------------------------------|--|---|------------------------------------|
| CELYS™ Staple Fiber | Certified for Industrial Compostability | Cottony Soft Touch | Anti-Pilling (in blends with any cellulose fiber) | Natural Wicking & Quick Dry (moisture regain 4 times that of normal polyester) | Lower temp. dyeing (95°C~105°C) |
| Normal Polyester Staple Fiber | Cannot Biodegrade | Synthetic Feel, Rigid & Harsh | Pilling Issue | Water repellent, quick dry | High temp dyeing (>130°C) |

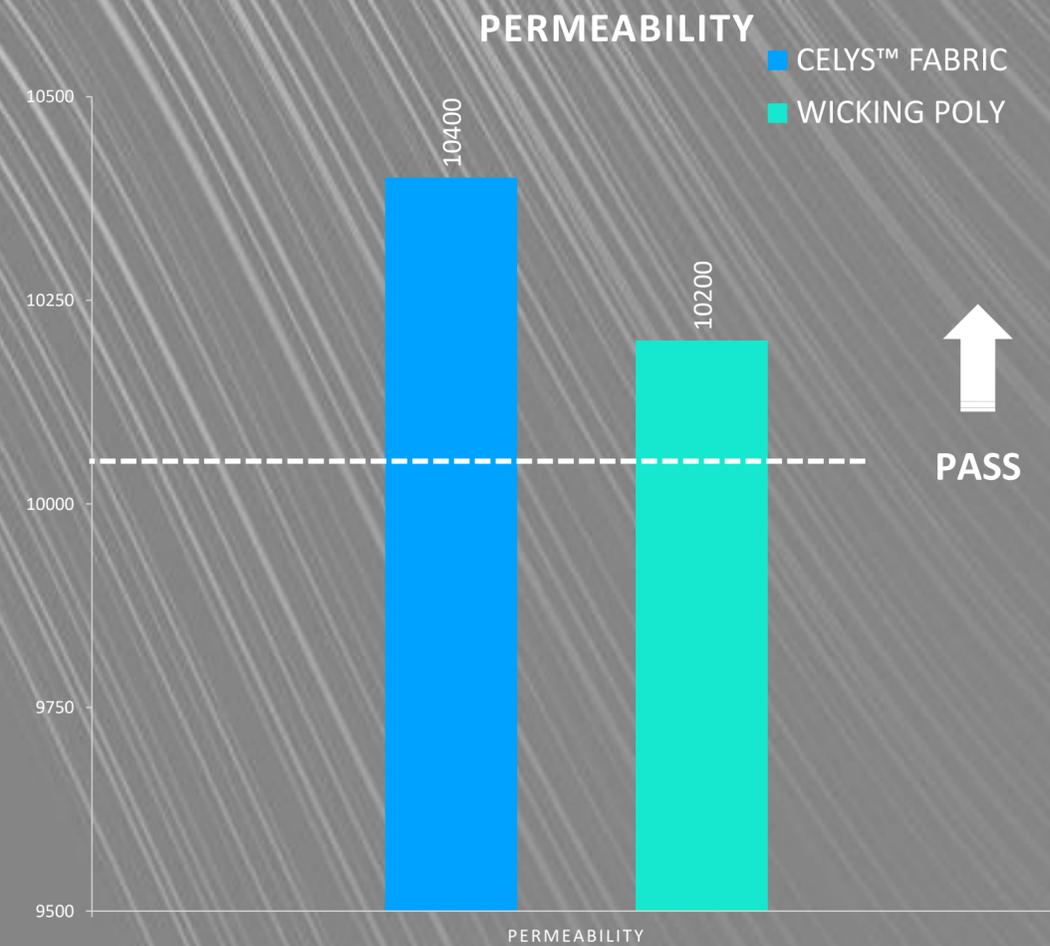
CELYS™ FIBER: GREAT MOISTURE MANAGEMENT PERFORMANCE

Samples:

- 1) 100% CELYS knit, single jersey
- 2) 100% branded wicking poly knit, single jersey



TEST METHOD: FZ/T 01071-2008

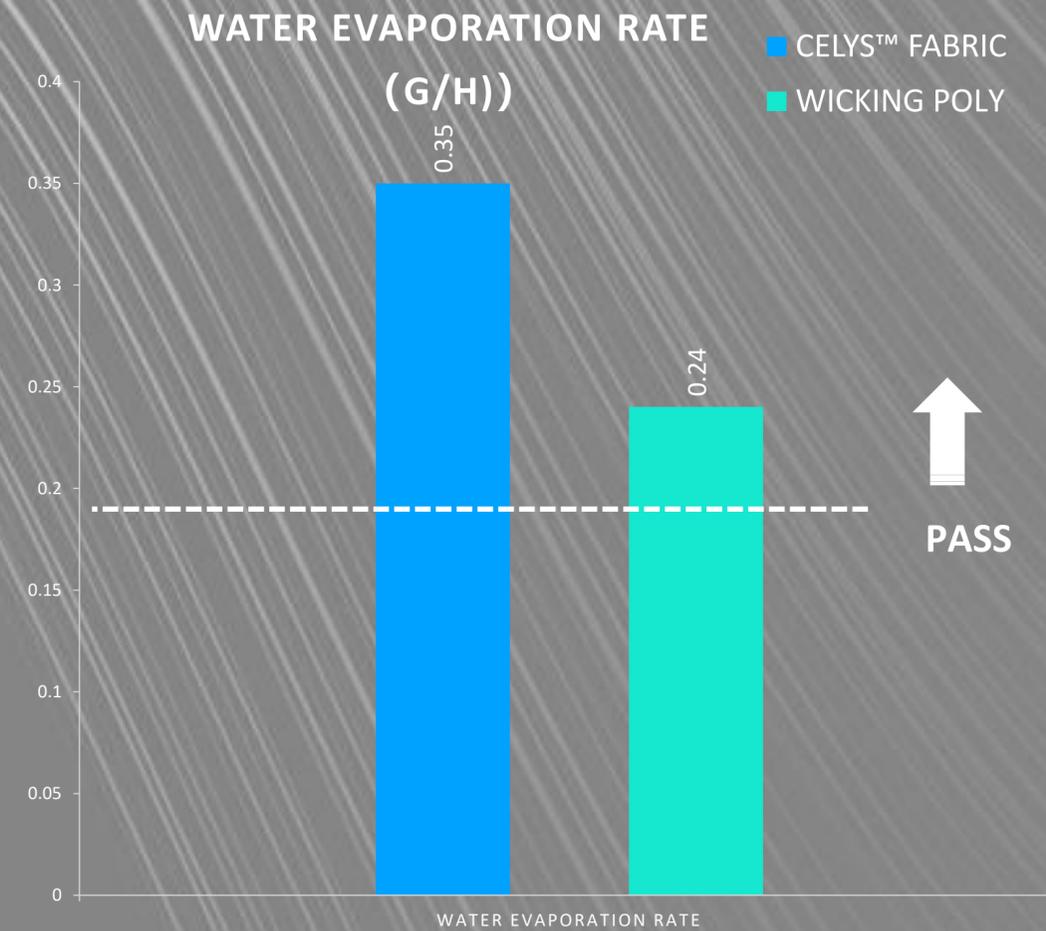
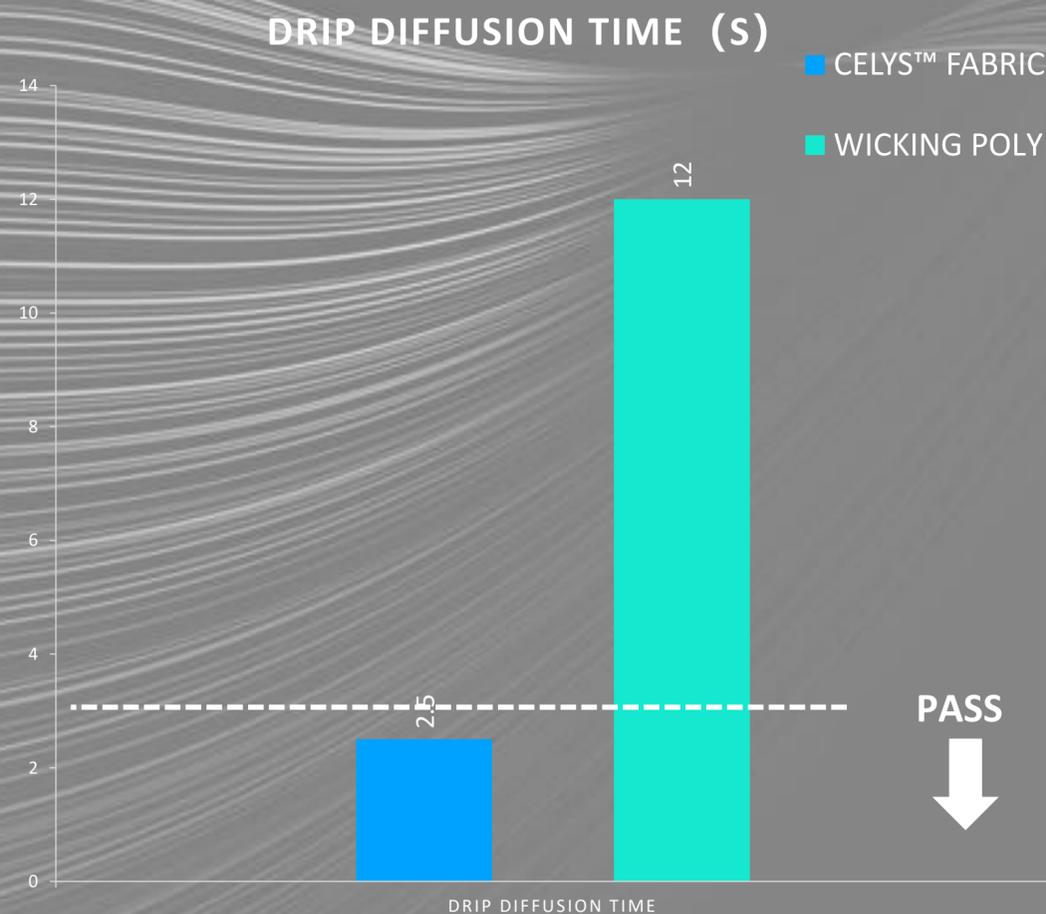


TEST METHOD: GB/T 12704.1-2009

CELYS™ FIBER: GREAT MOISTURE MANAGEMENT PERFORMANCE

Samples:

- 1) 100% CELYS knit, single jersey
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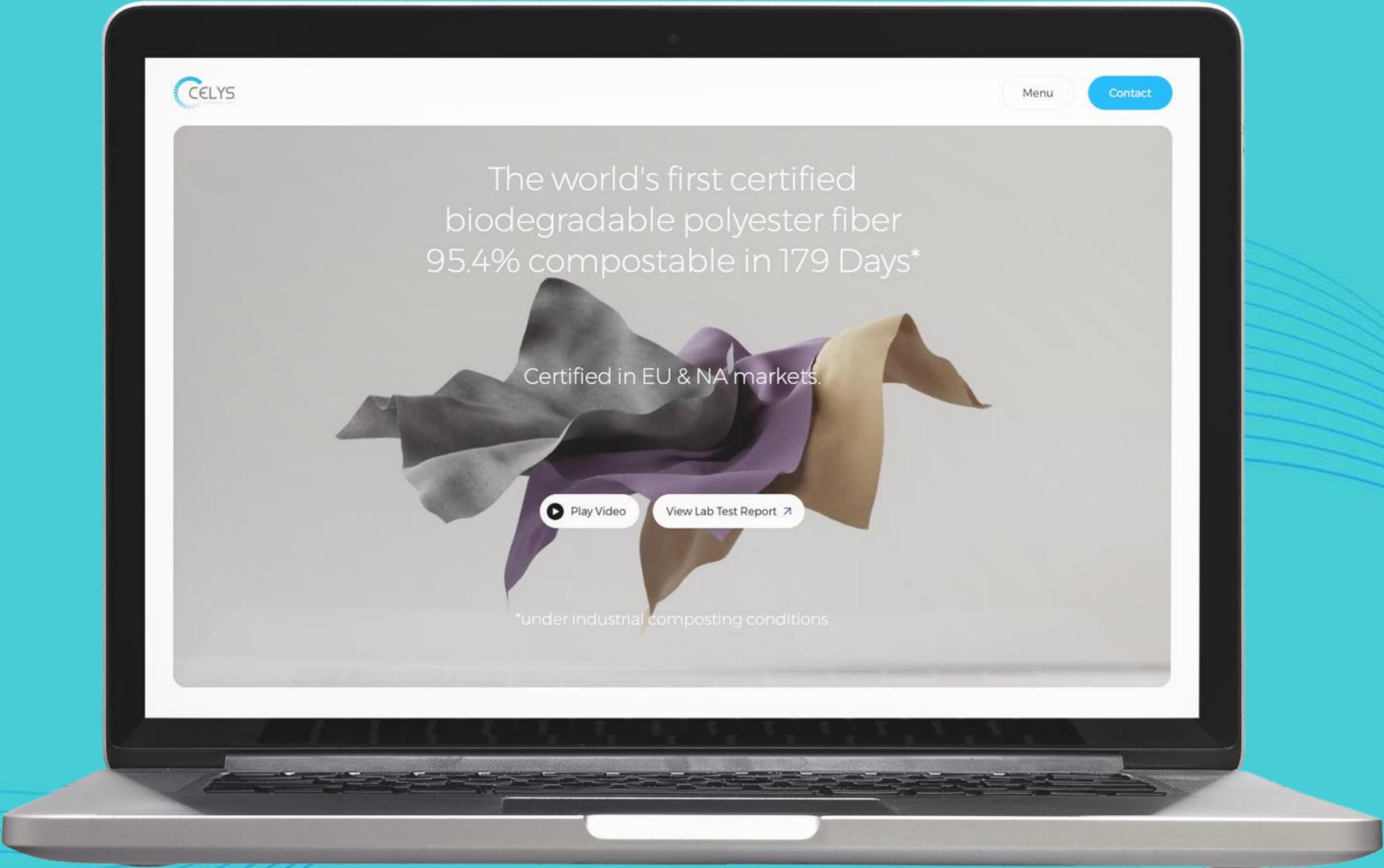
CELYS™ FIBER FOR DIVERSIFIED APPLICATIONS

- T shirt, Polo Shirt
- Underwear
- Denim, bottoms
- Shirting, blouse, dress
- Suiting & sweater
- Insulation jacket
- Faux Fur
- Shoes, socks, towers
- Home textiles

CELYS™ Website

For more information,
please visit:
www.celys.com.au

[GO TO SITE >](#)





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THANK YOU!

Email – helen.weng@celys.com.au

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