

Circular Backsheets

Protecting PV panels AND the planet

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SundayNL Conference
17 April 2023

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Welcome to Endurans™ Solar

A global solar materials solution provider



Since June 2021



Since February 2023

We believe that the solar industry has a huge role to play in creating a better, more sustainable future for our planet.

And we are making this a reality by boosting the performance of PV modules and developing solutions that are circular by design.



Endurans™ Solar in a nut shell

Innovative PV material solutions for solar panel manufacturers

Experts
in polymer
science, co-
extrusion, solar
technology

**Local
production**
facilities across
Asia, Europe &
America

Market leader
in co-extruded
backsheets.
Endurans™ HP
*All-purpose
Sustainable*

Market leader
in conductive
backsheets.
Endurans™ CB
*For high-end
aesthetics &
output*

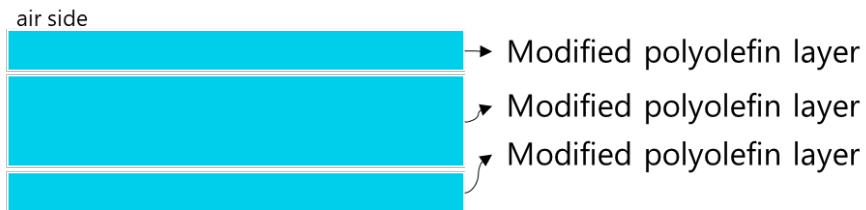
Pipeline of new
solar films:
Encapsulants
Flex frontsheets
Rear Perforated
Insulators



Endurans™ HP: future-proof

Excellent performance AND cost solution

- Co-extruded polyolefin based backsheets.
- >8yrs of flawless operation (~20 million modules).
- Intrinsic properties of polyolefins secure **safe and reliable** operation in the most harsh environments.
- The single-step manufacturing process and in-house formulation provide an **affordable** solution.
- A **sustainable** solution through elimination of fluoro-polymers and adhesives and mono-material design.



Endurans™ HP backsheet

It is time for change

... we should start thinking
in circular solutions!



The industry challenge

By 2050* there will be enough solar panels installed on earth to stack a stairway to the moon and back.



How to turn waste into value?

Basics of waste management



REDUCE

EXTEND

RECYCLE

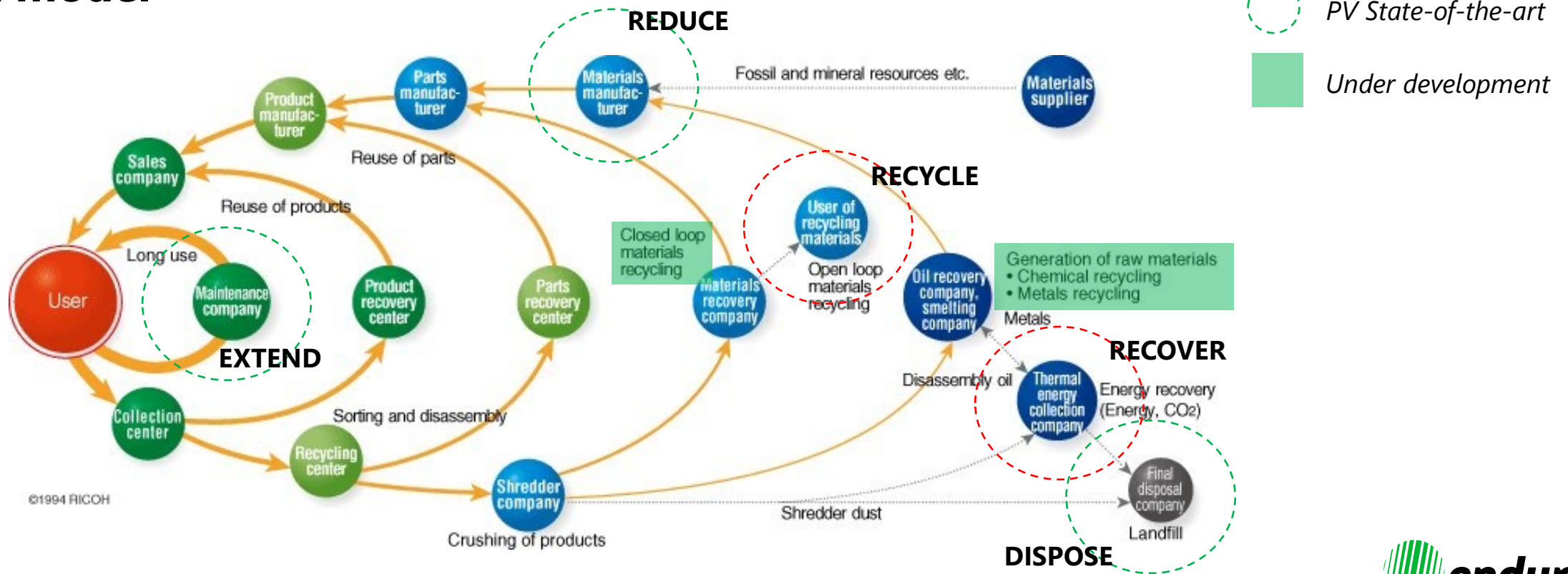
RECOVER

DISPOSE

The PV industry is still far from circular

It has a strong track record in material reduction (REDUCE) and long lifetime use (EXTEND), but there is enormous end-of-use value leakage (RECYCLE)

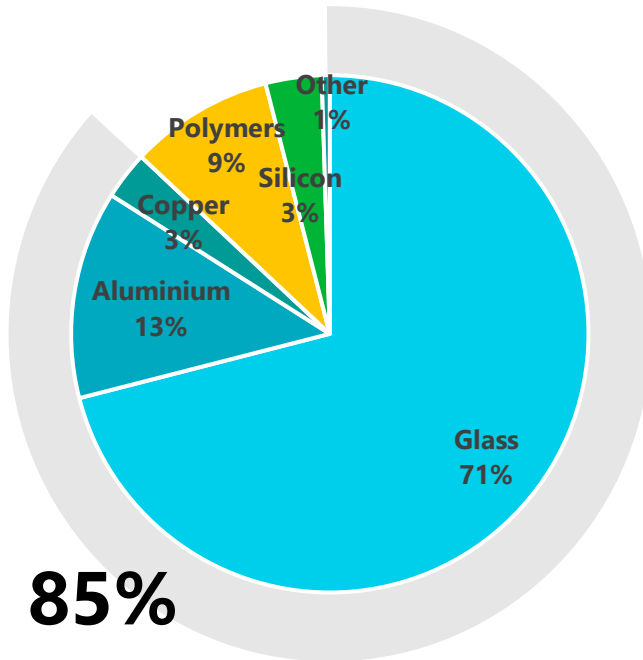
CE model



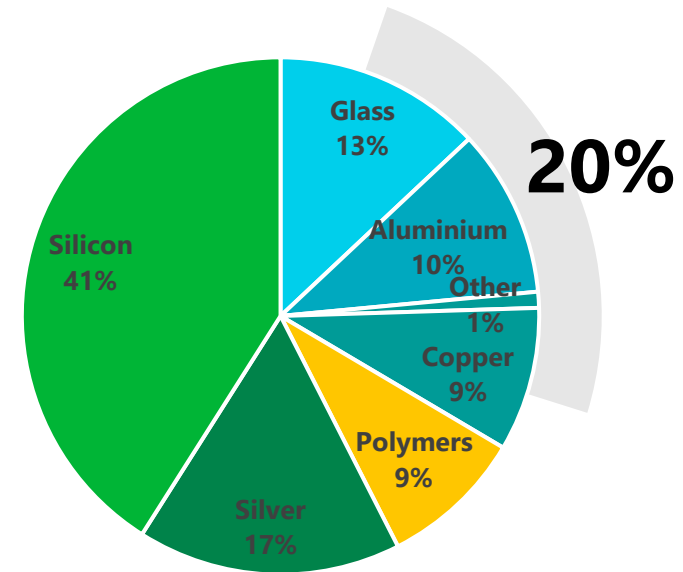
Downcycling and not recovering valuable materials

A shift from weight to value driven recovery technologies is needed

by weight



by value



Actual 2022, Source: 2022 IEA special report on Solar PV global supply chains

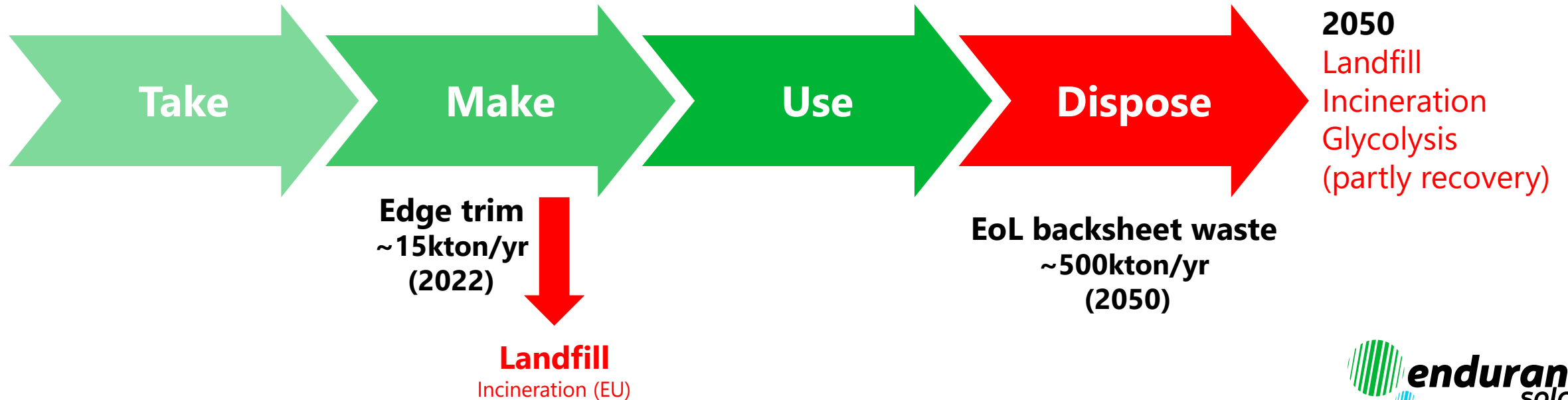
Traditional backsheets follow a linear model

Backsheet material choices made today will have big impact in 30 years



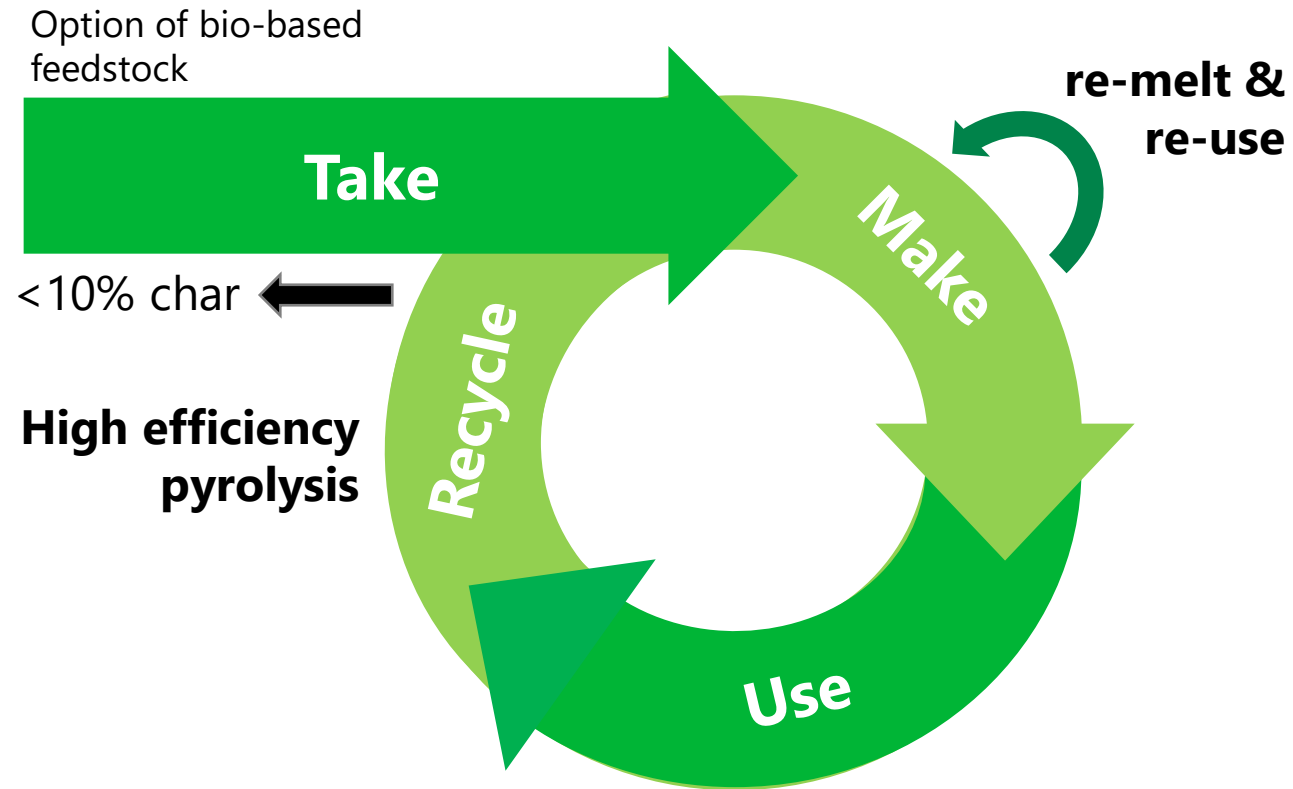
Traditional PET backsheet

- No option of low-cost mechanical recycling (re-melting)
- Tripling of incineration cost (fluorinated waste)
- Complex chemical recycling (multi-material film)

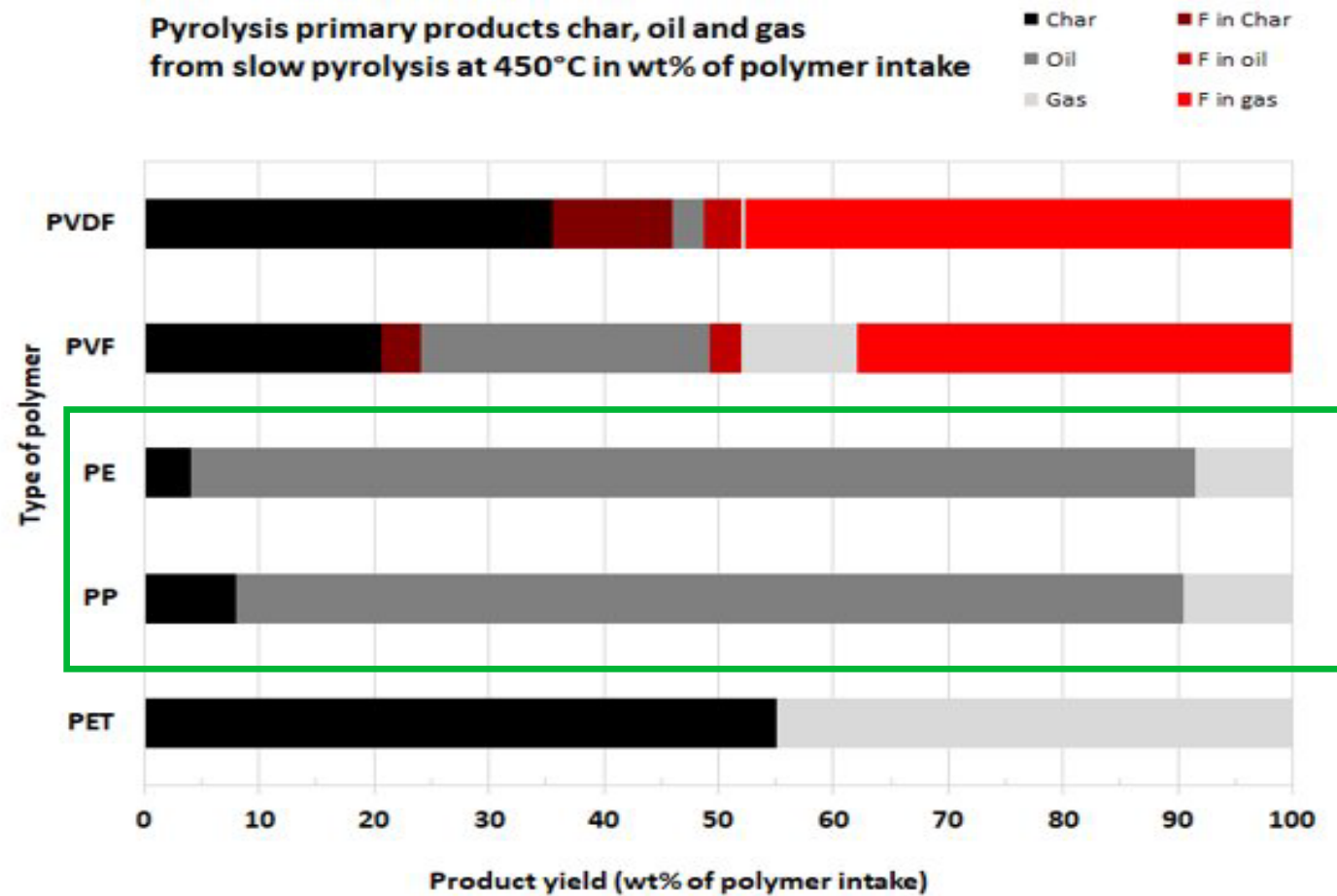


Endurans™ HP circular backsheets

The thermoplastic nature and mono-material design enable a “closed-loop”



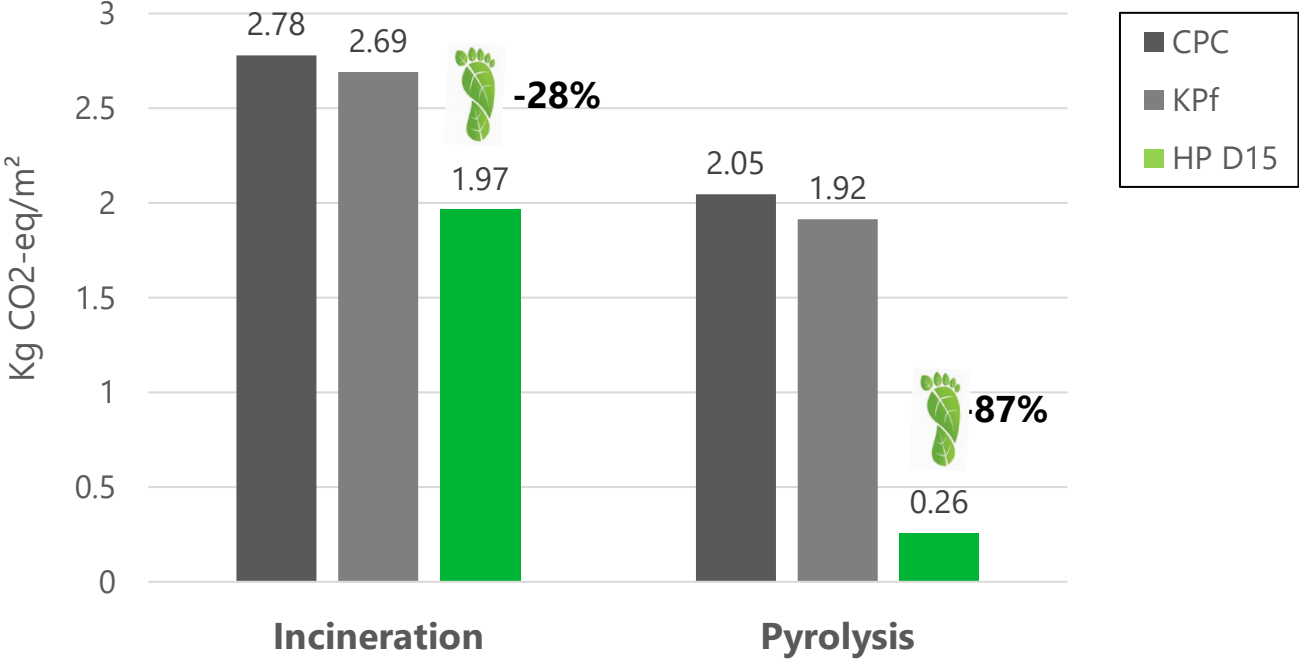
Pyrolysis efficiency of base polymers



Near-zero carbon emission

Turning waste into value with Endurans™ HP.

Carbon emissions (production + EoL treatment)



Endurans HP backsheets



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AND the planet

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Same sun. More power.™

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