

SUSTAINABLE POLYMERS AT SABIC FOR PACKAGING APPLICATION

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Presented by:

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SABIC – Technology and Innovation

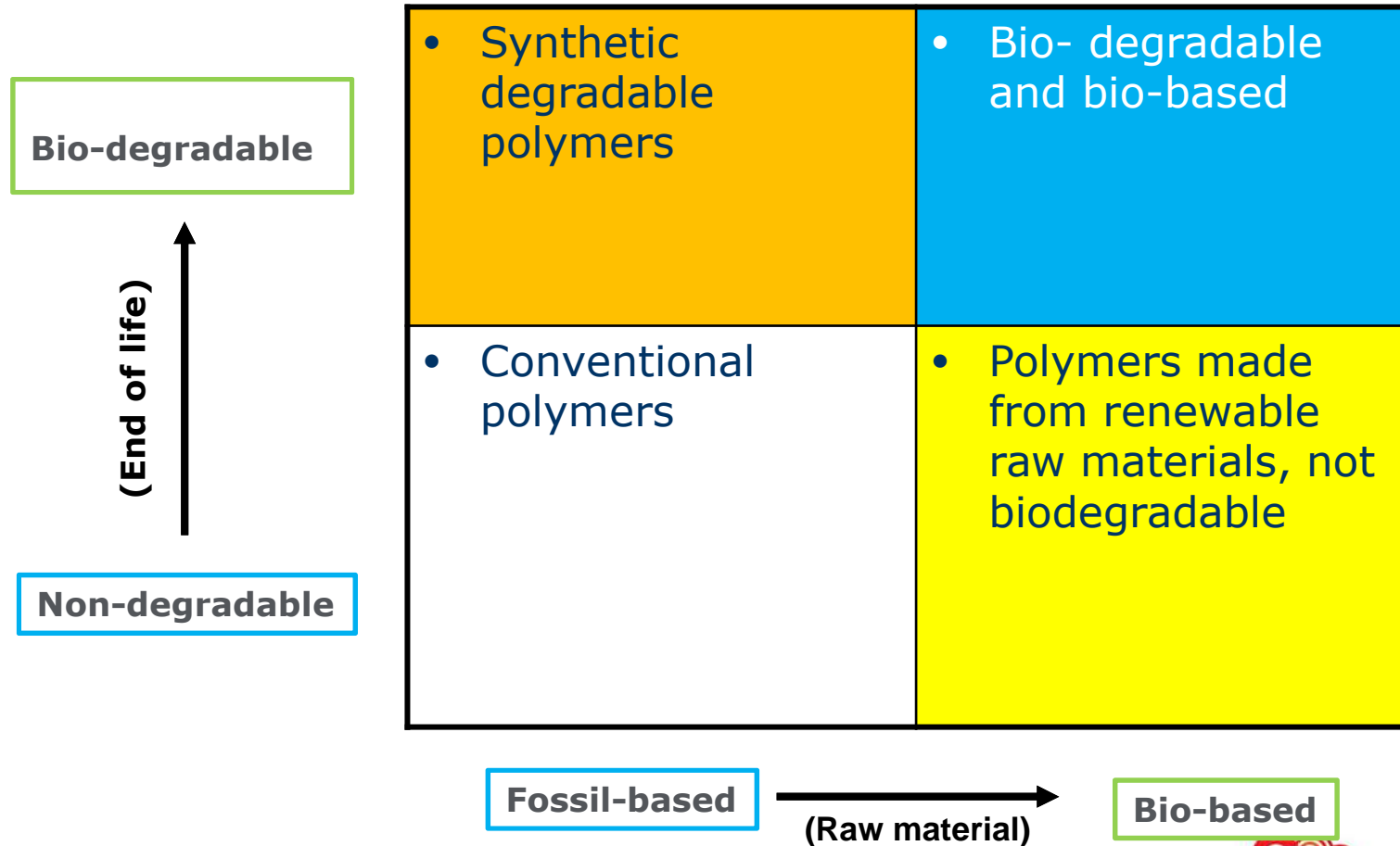
Compounding and Application / Packaging

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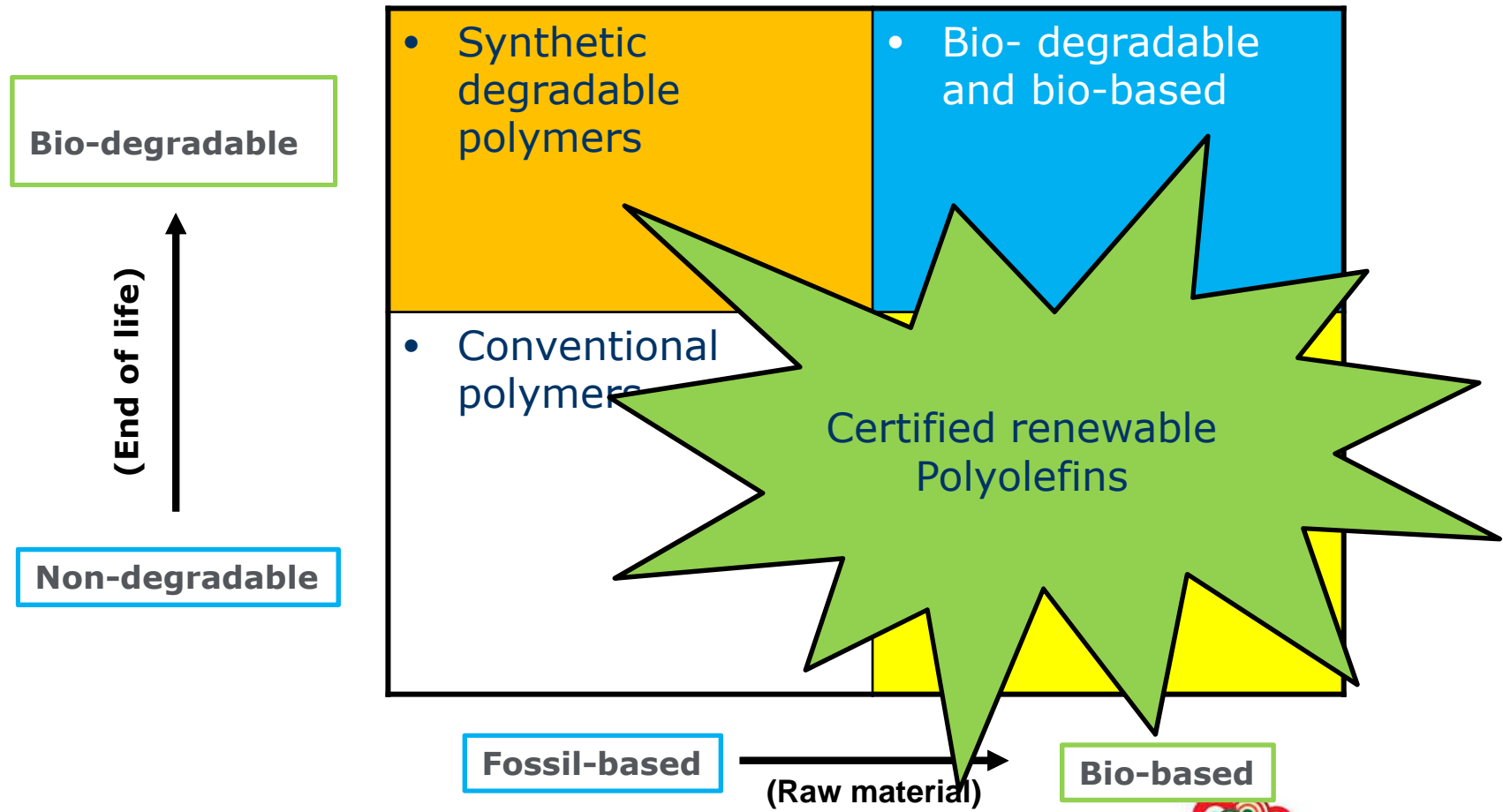
Le frontiere del packaging alimentare

30 Settembre 2015, Milano

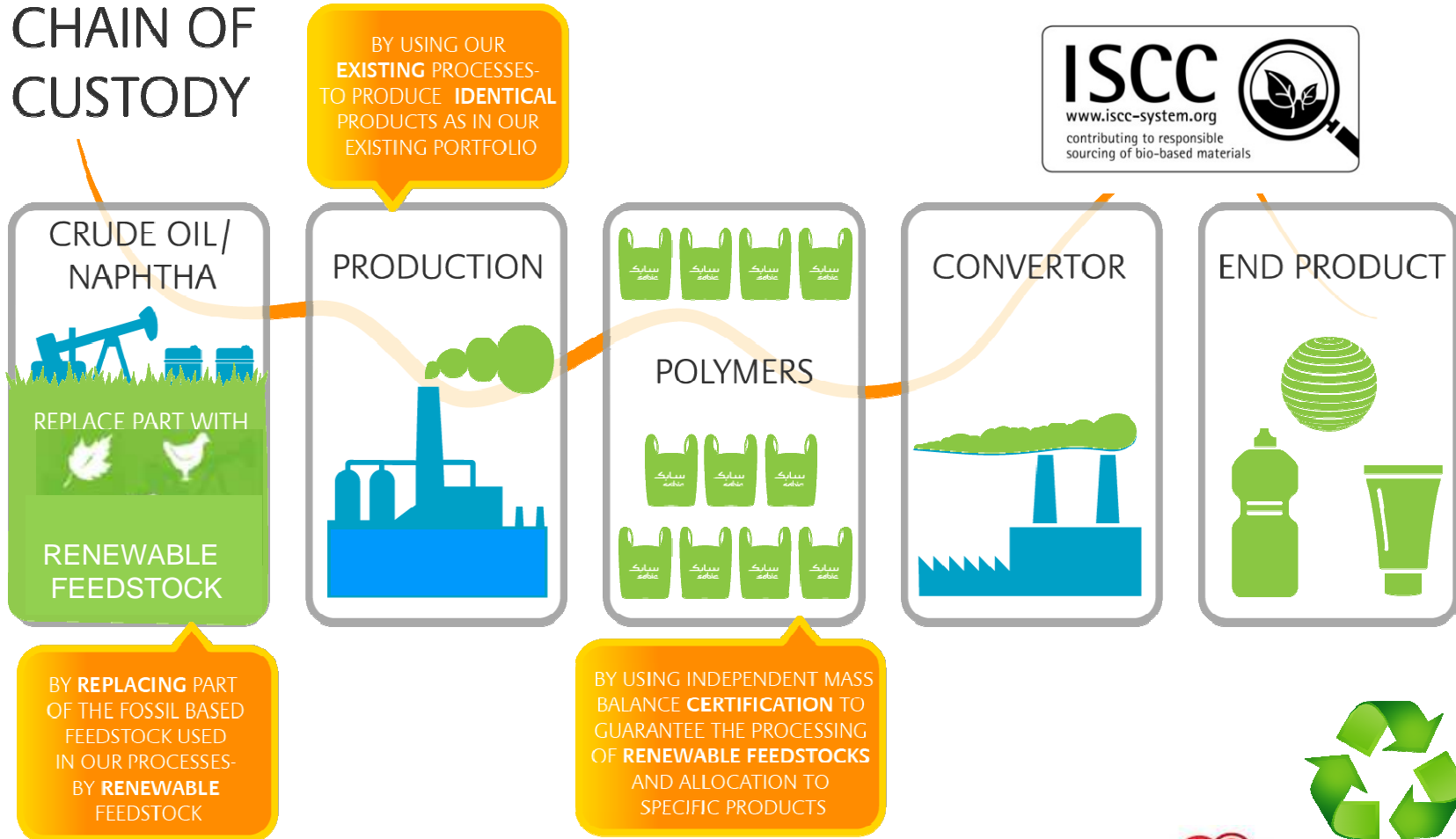
ROUTES TO SUSTAINABLE PRODUCTS



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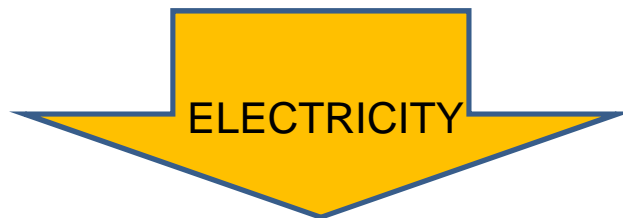


CHAIN OF CUSTODY



WHAT DOES THIS MEAN?

Per 10.000 ton of product the following savings are achieved with a CO₂ saving of 4 kg/kg → giving 0.04 million ton CO₂



- This emission saving is equal to 18.500 MWh (0,462 kg CO₂ per kWh) per year
- An average household uses ca 3500 kWh per year, thus the energy saving at the size of 5,300 households.



- Average emission: 215 g CO₂ per km, thus a saving similar to 186 million km



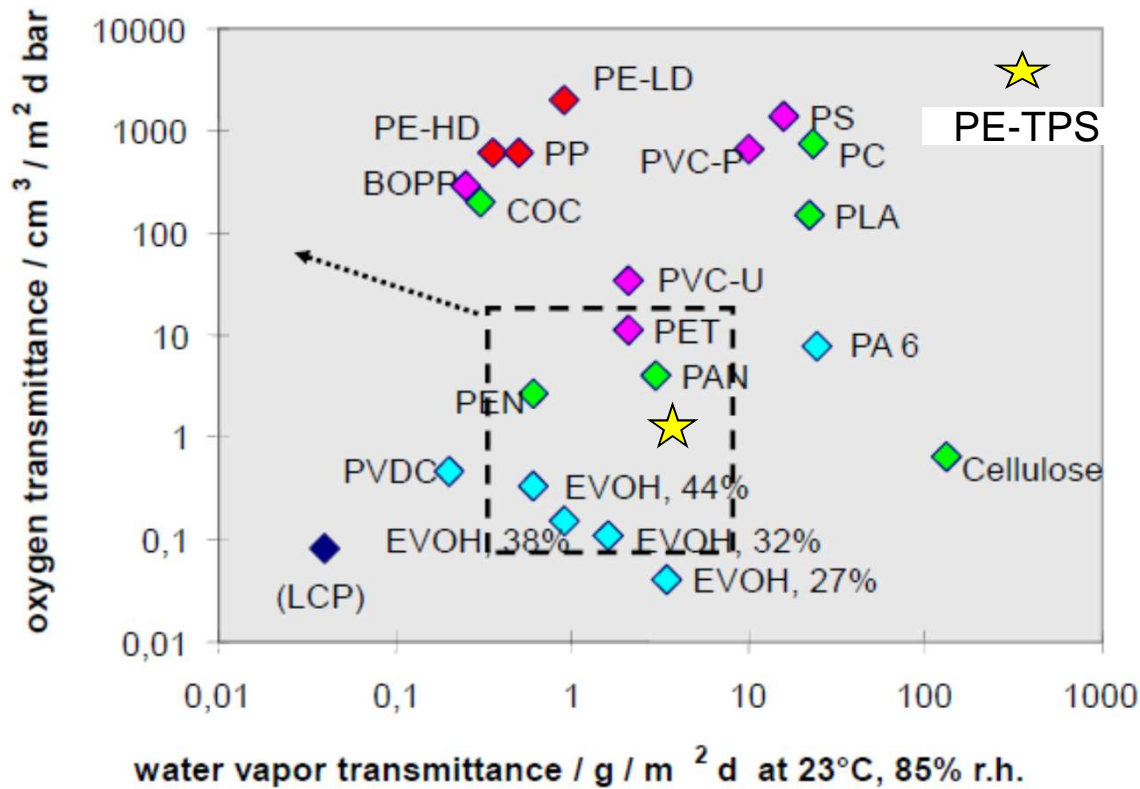
* BCC Research, GLOBAL MARKETS AND TECHNOLOGIES FOR BIOPLASTICS PLS050B, February 2012

PE-STARCH BLENDS

- Combining the advantages of polar and apolar polymers
- Idea: Create a co-continuous blend of polyethylene and thermoplastic starch
- **Advantages:**
 - Add polarity to PE for printability
 - High barrier properties w.r.t. O₂ and CO₂
 - Add green content ~ 50% starch
 - Add interface for easy processing
- **Disadvantage:** - Degradation of starch above 160°C

Be aware: PE-starch is not biodegradable!!

PE-STARCH BLENDS



- SABIC first in market with bio-based film material with combined high O₂ and high H₂O barrier performance

- 3 layer PE-starch can be compared to 5 layer PE-EVOH blown film in terms of barrier performance but more proc simplicity.

- Other benefits of 3 vs. 5 layer: high flexibility film, no mechanical breakage of barrier layer to ensure high oxygen barrier, more sustainable (lower LCA)

- SABIC is busy finding sustainable alternatives to reduce fossil usage
- Use of Certified renewable PE and PP:
 - Gives reduction in fossil depletion potential by up to 84%. Gives 4kg CO2 saving for each kg of used renewable PE product in the market
 - Is not in competition to the food chain
 - Does not require modification in production processes downstream
- Only bio content is not enough – functionality counts.
- Bio-based materials can be tuned for the application.
- Using the primary features of natural materials like polarity make them valuable partners for polyolefins.

ACKNOWLEDGMENT

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