Recycling in Rotomoulding

Nordic Arm 2020

Tony Potts – Regional Sales Manager

We will discuss…

- Reasons for recycling
- Reducing the need for recycling
- Advanced material technologies

PLASTIC OCEAN

192 COUNTRIES BORDERING THE ATLANTIC, PACIFIC, INDIAN OCEANS AND MEDITERRANEAN AND BLACK SEAS PRODUCED **2.5 BILLION METRIC TONS OF SOLID WASTE IN 2010.** AN ESTIMATED **8 MILLION METRIC TONS** OF PLASTIC ENTERED THE OCEAN THAT SAME YEAR.

Ocean Conservancy

2.5 BILLION METRIC TONS OF SOLID WASTE IS PRODUCED ALL AROUND THE WORLD

AND WITHIN THAT **275M** METRIC TONS IS PLASTIC WASTE

2 BILLION PEOPLE WITHIN 30 MILES OF THE COAST CREATE **100M** METRIC TONS OF COASTAL PLASTIC WASTE

AND **EVERY YEAR,**

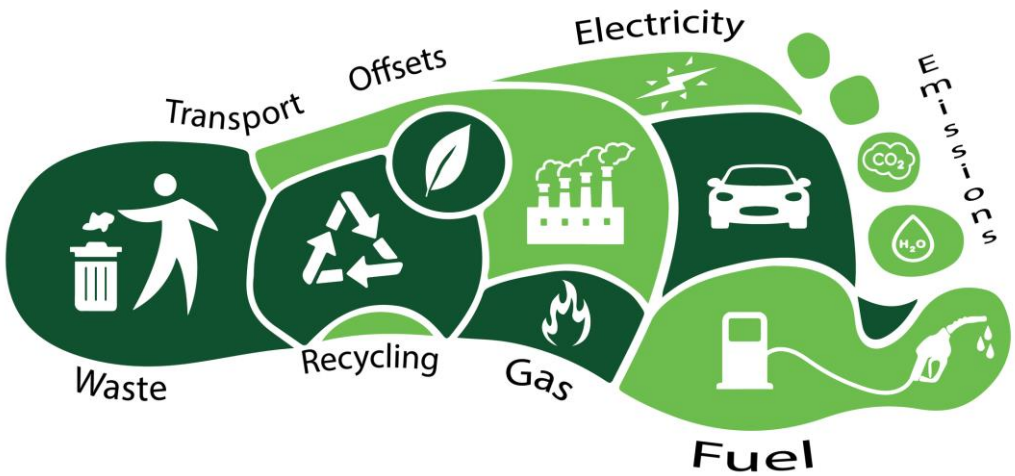
8 MILLION METRIC TONS OF PLASTIC GOES INTO THE OCEAN

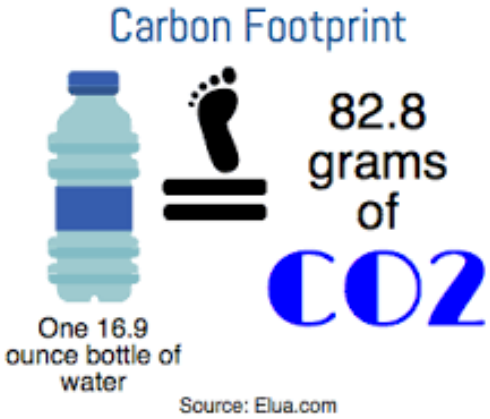
WHAT WE CAN DO → REDUCE PLASTIC IN WASTE STREAM → IMPROVE SOLID WASTE MANAGEMENT → INCREASE CAPTURE & REUSE → **HEALTHY OCEANS**

JAMBECK ET AL., *SCIENCE* 2015
*PLASTICS EUROPE, "PLASTICS—THE FACTS 2013" (2010 DATA)
**COZAR ET AL., 2014; ERIKSEN ET AL., 2014

Plastic Ocean

Reducing carbon footprint





Carbon footprint: The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community.

Important to remember…

- Polymers bring many benefits
  - Weight and CO2 reduction in transport
  - Water storage to irrigate arid farm land
  - Insulating materials for energy efficient housing, transport and storage
  - Medical products

Reducing the need for recycling

- Producing sub-standard parts is a major factor for the need to recycle material
- Wastage can be reduced by close liaison with the mould manufacturer and raw material supplier
- Education and training of operators to avoid spillage – BPF “Operation Clean Sweep®”

Clean Sweep

- Education, education, education
- Training of operators to avoid spillage
- “Operation Clean Sweep®” initiative developed by the British Plastic Federation (BPF)

matrix polymers®

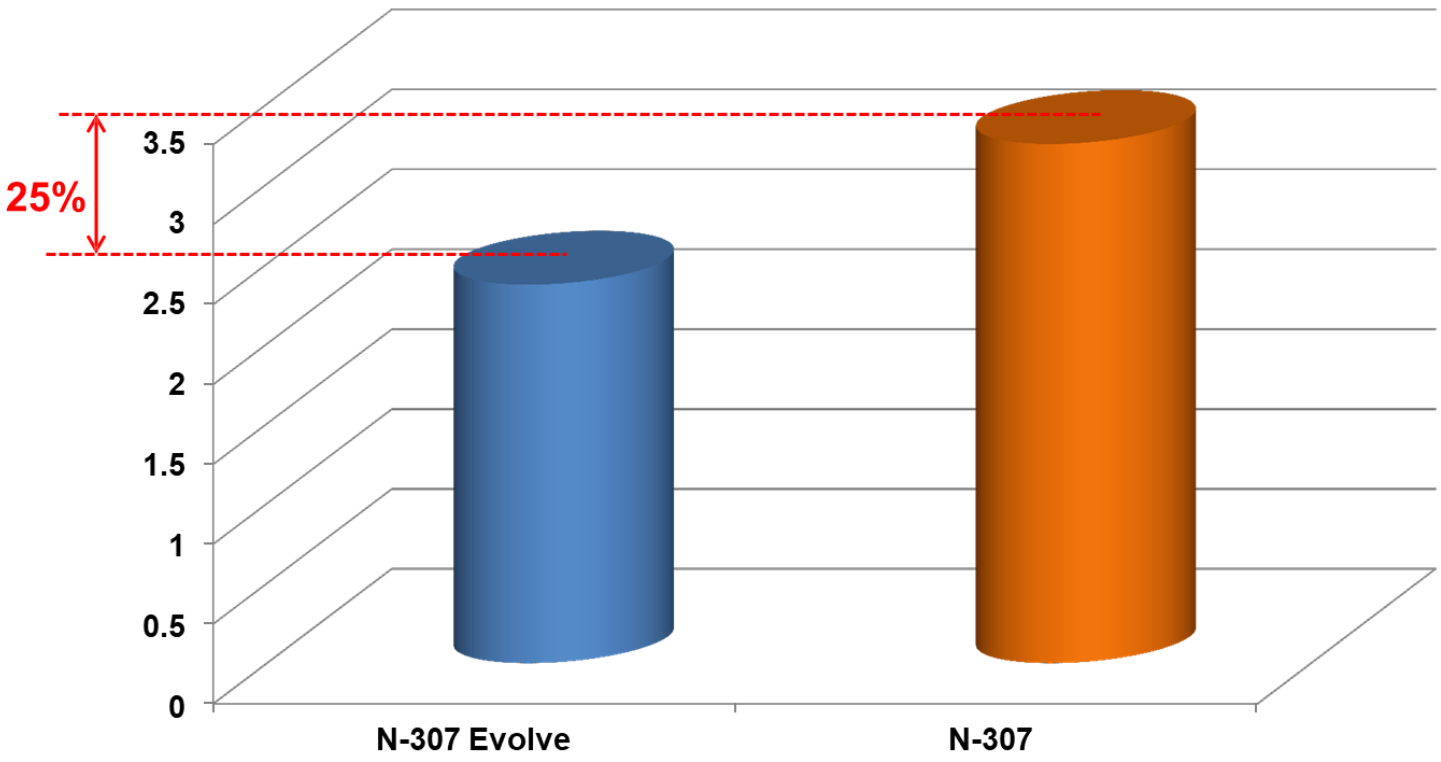
Advanced material technologies…

Evolve

- Surface deficiencies - Pinholes
- During the heating part of the process, pockets of air are randomly formed and these remain trapped between the powder particles.
- This results in lower impact strength, stiffness and toughness.
- Use of Evolve technology removes pin-holes, can be embedded in any PE and PP resin and is available in any colour.

Reducing carbon footprint – Evolve

Gas consumption



Bio-polymers within rotomoulding

- Polymer produced from renewable resources
- Very little is being used within the rotomoulding industry
- Roto PA11 is the obvious exception – 100% made from castor oil
- Other sectors of the plastics industry have embraced bio-polymers

Polyethylene production

Oil

Gas

Converted to ethylene

PE

Polyethylene production

Maize

Sugar cane

Converted to ethylene

PE

Sugarcane fermented and distilled to produce ethanol

Ethanol which is dehydrated to produce ethylene

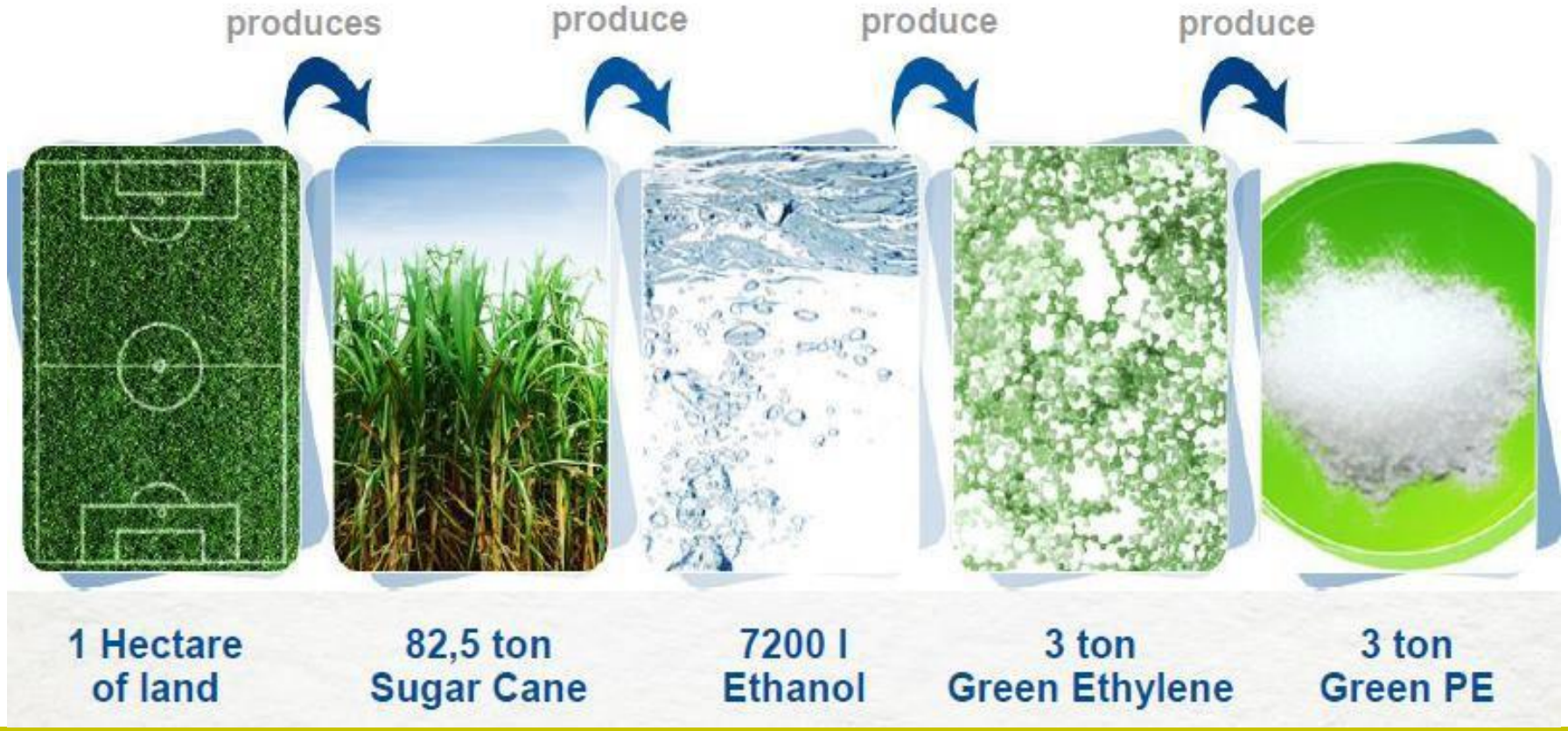
Ethylene which is polymerised to produce

Oil and/or gas is converted to ethylene

Ethylene is polymerised to produce

Polyethylene

Green PE – in perspective



Renew XBK25 – PE bio-polymer for rotomoulders

- General purpose PE powder based on a renewable resource
- Green content level certified by an independent laboratory
- 0.937 (g/cm³) density and 5.0 (g/10 min) melt index
- Comparable material properties vs. fossil-derived polymer
- Tested by a wide range of European rotomoulders

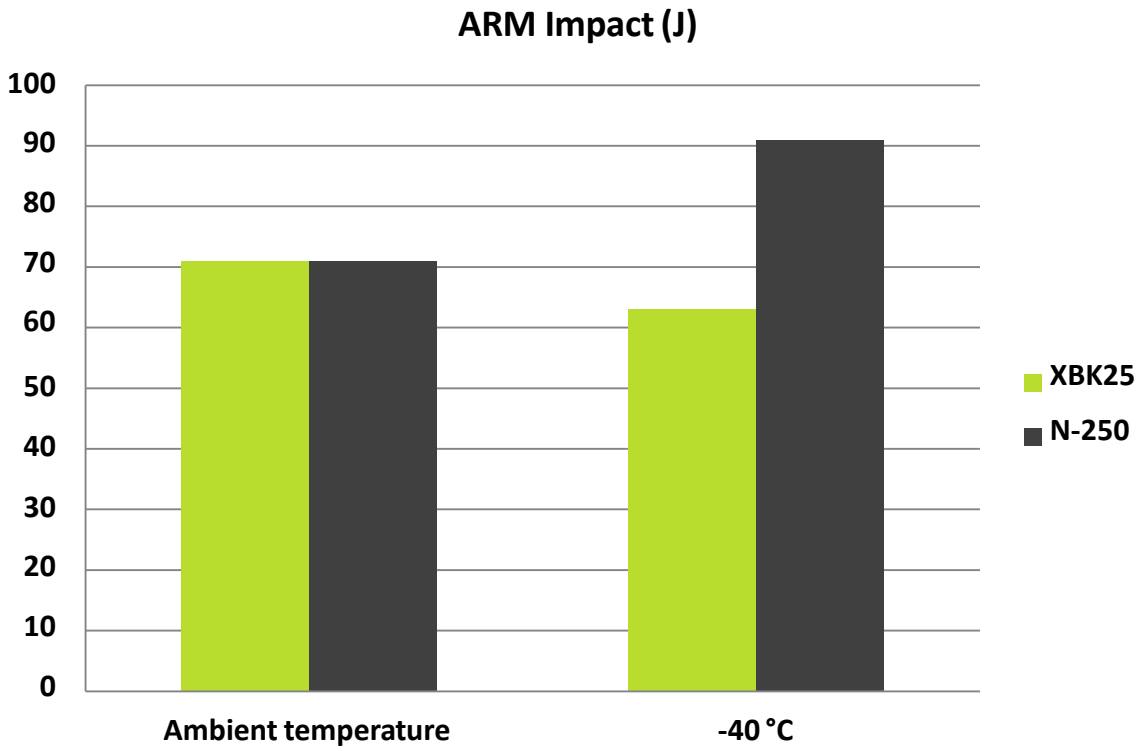
Examples

Dansk Rotations Plastic

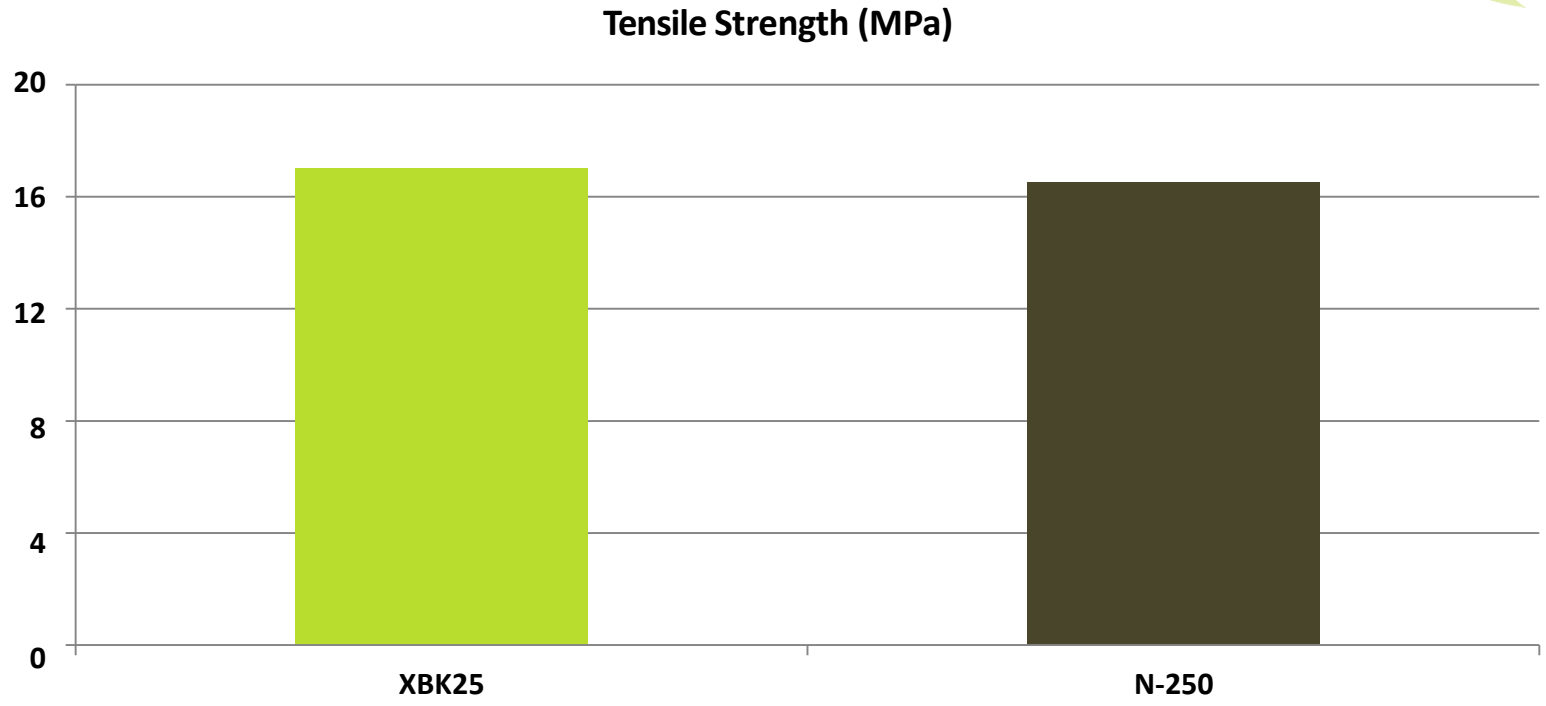
Spila S.r.l.

Rota GmbH

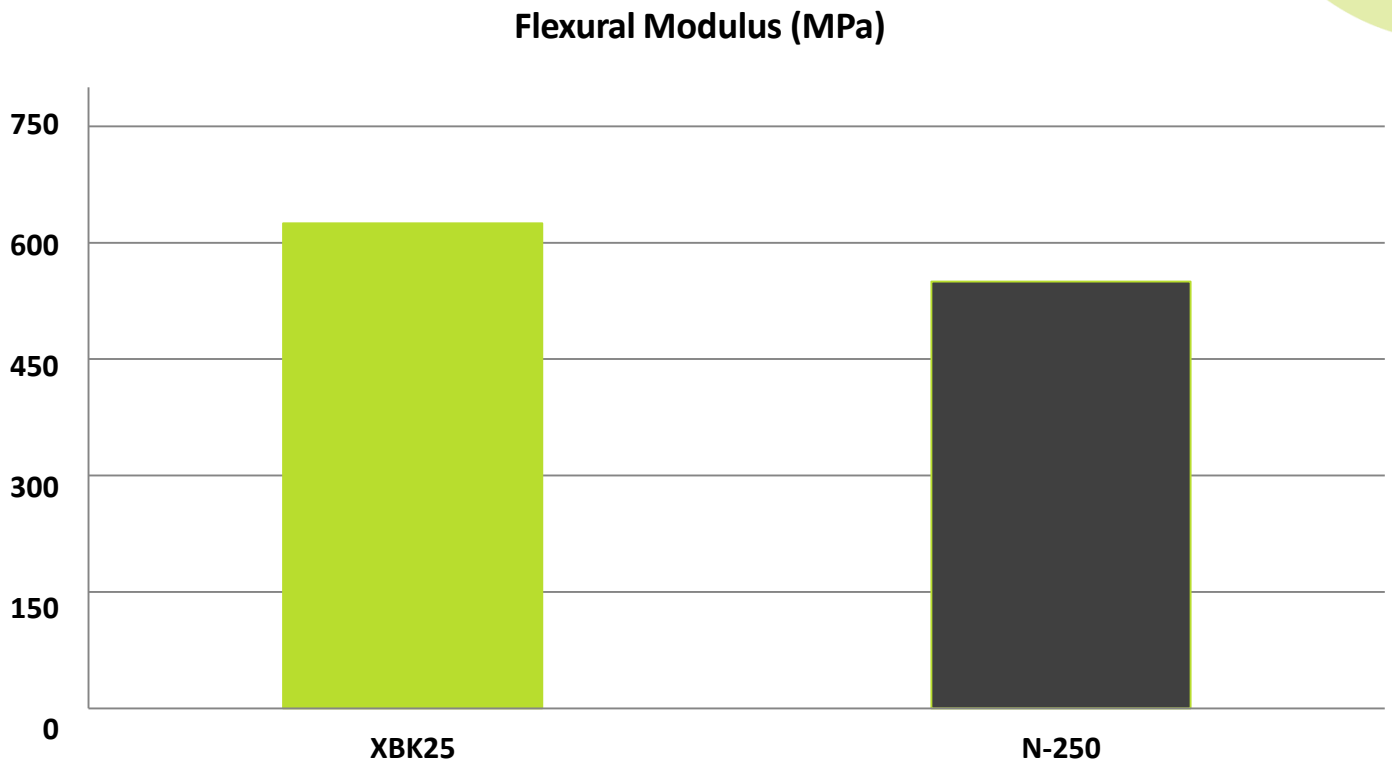
Renew XBK25 vs. Revolve N-250



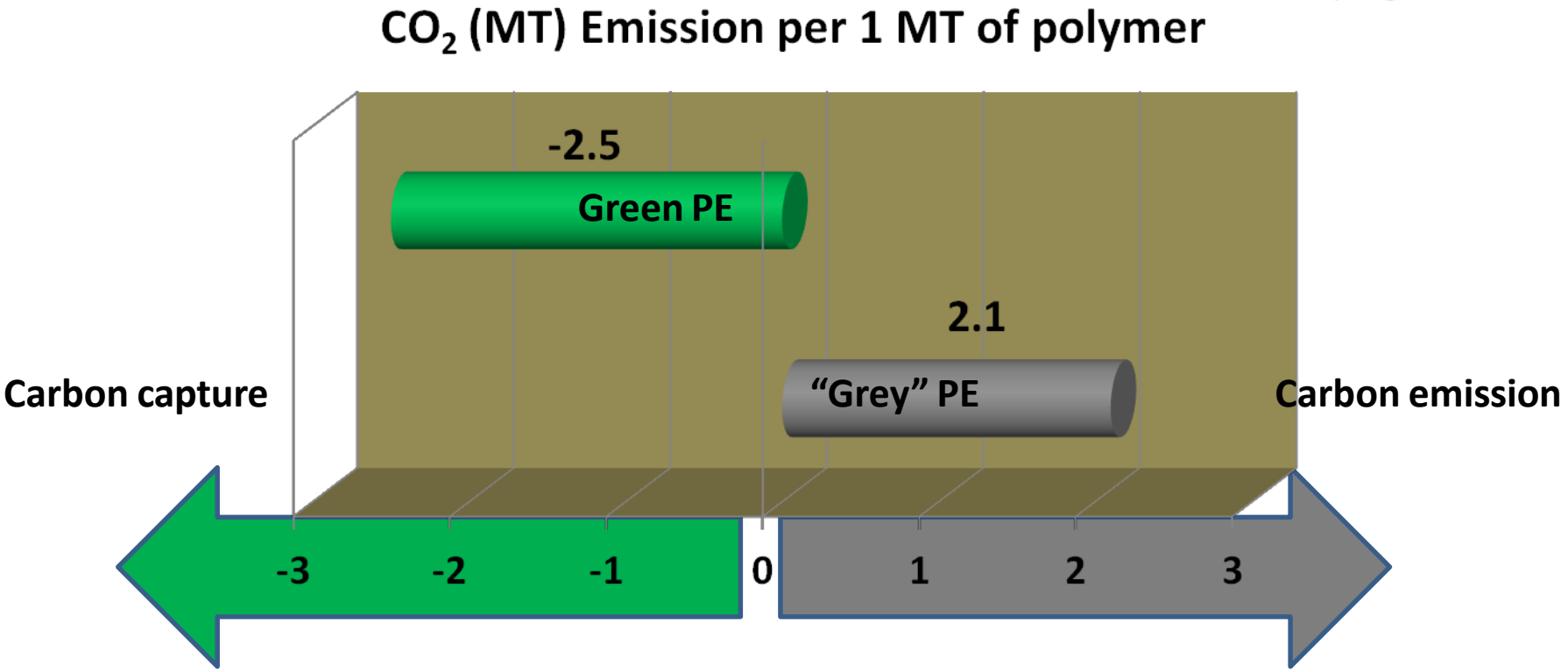
Renew XBK25 vs. Revolve N-250



Renew XBK25 vs. Revolve N-250



Carbon footprint



Conclusions

- Education and Training
  - Technical Service support to manufacture good quality end products first time thus reducing rework and scrap rates.
  - Prevent wastage “Operation Clean Sweep®”
- Advanced material technologies
  - Evolve
  - Biopolymers

Thank you

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