



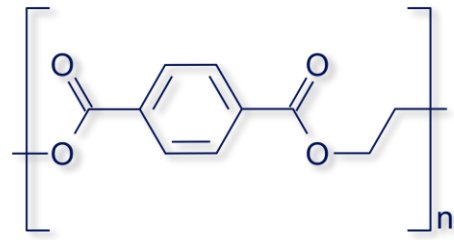
Sustainability in the Composites Supply Chain

Converting recycled PET to value added composite materials

UK Advanced Engineering, Birmingham Nov 2nd 2022

1. An introduction to Polyethylene Terephthalate
2. INEOS Composites PET based resin technology
3. Benefits of using PET resins
4. Typical applications
5. PET resin portfolio

What is PET?



- PET (Polyethylene Terephthalate) is a thermoplastic polyester with excellent mechanical properties that is primarily used for packaging foods & beverages.



- It is completely recyclable by thorough washing and re-melting or by chemically breaking it down.
- The use of PET waste is an effective way of incorporating terephthalic functionality into the backbone of a polyester resin providing improved properties.

1. An introduction to Polyethylene Terephthalate
2. **INEOS Composites PET based resin technology**
3. Benefits of using PET resins
4. Typical applications
5. PET resin portfolio

Our sustainable technology platform

INEOS Composites sustainable technologies

Renewable

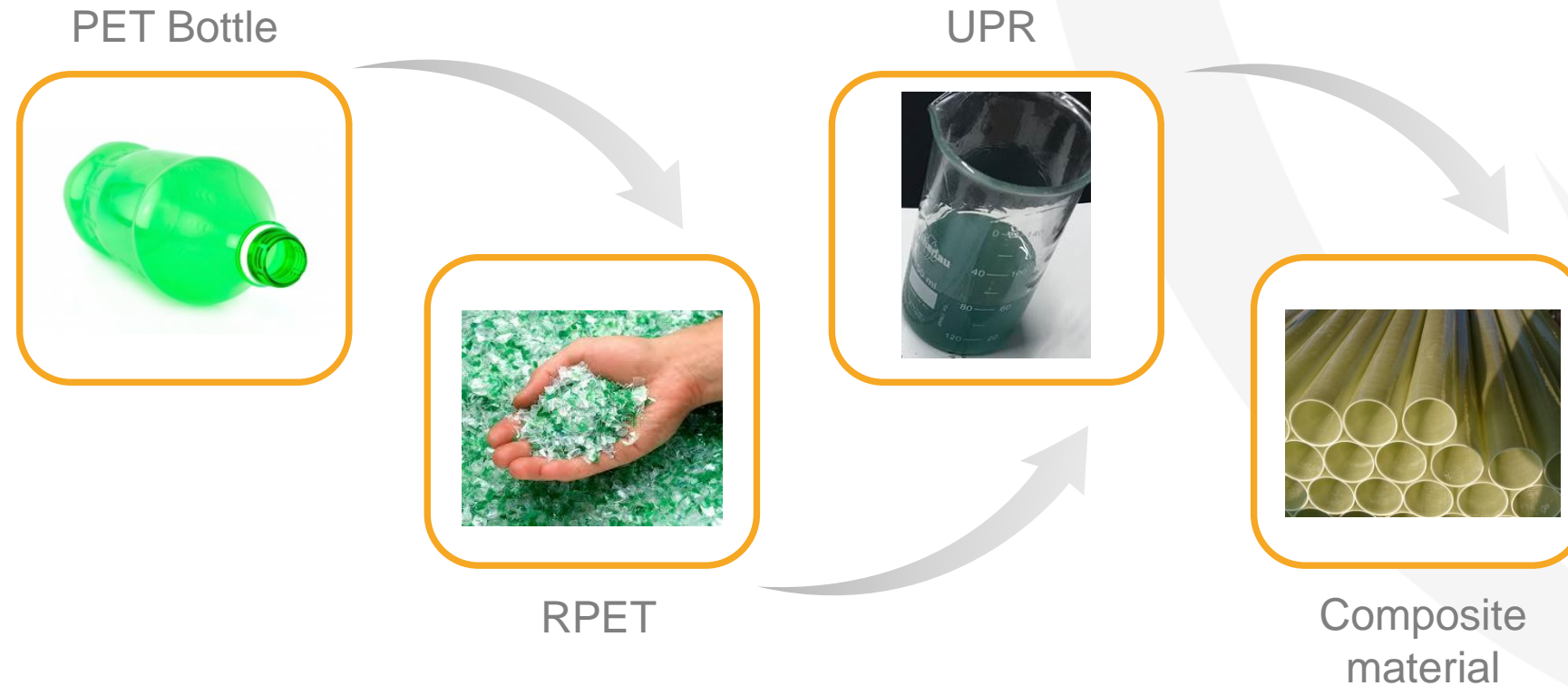
Recyclable

Low VOC

Styrene Free



The new life of the recycled plastic bottle



INEOS Composites R-PET technology

1. Dedicated equipment/
production process



2. Access to long-term
qualified PET sources



3. PET based resin formulation and application
expertise for over more tan 10 years

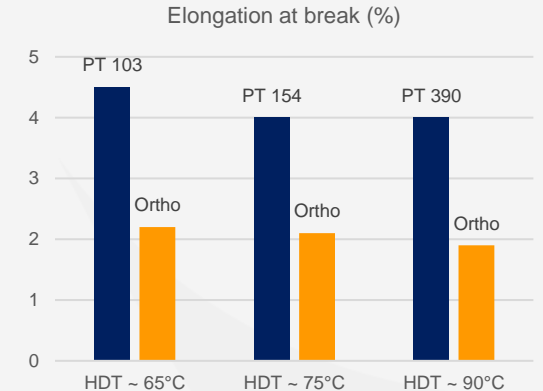
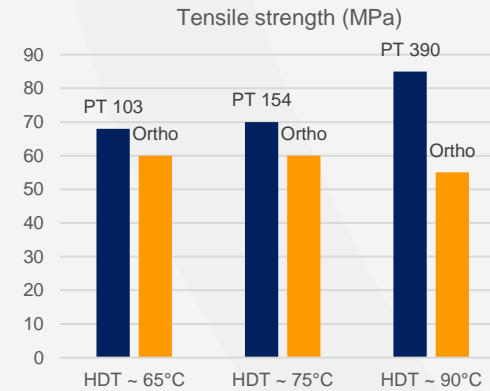
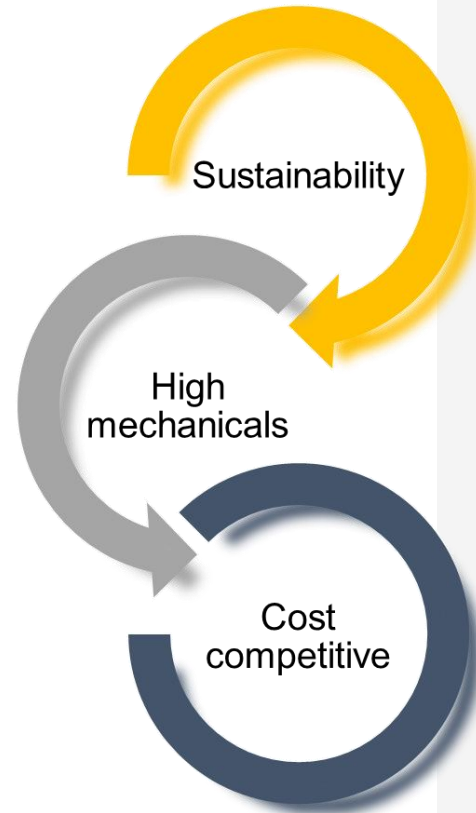
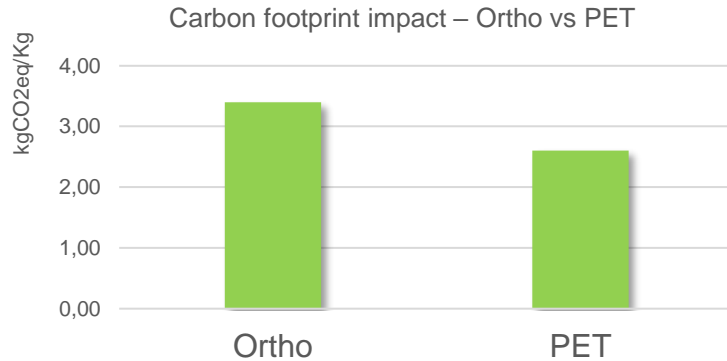


1. An introduction to Polyethylene Terephthalate
2. INEOS Composites PET based resin technology
3. **Benefits of using PET resins**
4. Typical applications
5. PET resin portfolio

What makes recycled PET an interesting alternative ingredient for the synthesis of unsaturated polyester resins?

Introducing recycled PET in our manufacturing process...

- Reduces volumes of plastic waste
- Saves natural resources
- Saves energy in production process
- Lowers carbon footprint impact



...but also provides some key advantages over standard industry resins,

- Stronger
- More flexible
- Lighter
- Cost competitive



... making PET based resins an excellent choice for many industry applications

Our contribution to improving sustainability



In every drum of INEOS's recycled PET based resin(220 kg) there is an average of 1,800 reused plastic bottles



On annual basis, INEOS is facilitating the conversion of 80 million PET waste bottles into valuable composite materials



1. An introduction to Polyethylene Terephthalate
2. INEOS Composites PET based resin technology
3. Benefits of using PET resins
4. Typical applications
5. PET resin portfolio

The new life of recycled PET plastic bottles

Converting r-PET into high value composite materials



recycled into site in 2019



Shower trays



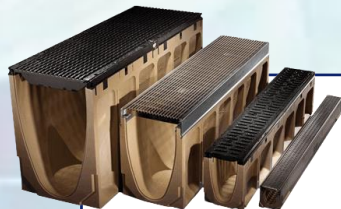
Lighting posts



Tanks and pipes



Building panels



Drainage systems



Marine

1. An introduction to Polyethylene Terephthalate
2. INEOS Composites PET based resin technology
3. Benefits of using PET resins
4. Typical applications
5. **PET resin portfolio**

Products by process application

Aropol PT series

Castings filled resins (sanitary, engineered stone)

- **AROPOL PT 101:** low reactivity
- **AROPOL PT 101 E:** low reactivity, accelerated
- **AROPOL PT 1903 BV:** low viscosity, accelerated
- **AROPOL PT 103 TE/TB:** slightly thixed, accelerated

Hand Lay-Up and Spray-Up (general purpose)

- **AROPOL PT 154 TA/TB:** medium reactivity, thix and accelerated
- **AROPOL PT 390 TB:** high reactivity, thix. and accelerated
- **AROPOL PTM 208 TA/TB:** lloyds register, low emission, thixed acc.

Infusion and Injection

- **AROPOL PT 208 INF-100:** infusion
- **AROPOL PT 208 RTM:** RTM light

Pultrusion

- **AROPOL PT 390:** high reactivity, unaccelerated

Polymer concrete

- **AROPOL PT 156 LV:** for highly filled systems, fast curing, unaccelerated
- **AROPOL PT 382:** higher reactivity, fast curing, unaccelerated

Filament Winding (Pipes & Tanks)

- **AROPOL PT 154:** medium reactivity
- **AROPOL PT 201:** good mechanicals
- **AROPOL PT 333:** low viscosity, high reactivity

CIPP

- **AROPOL PT 101 TX:** low reactivity, highly thixed
- **AROPOL PT 390 TX:** high reactivity, highly thixed

Panels

- **AROPOL PT 110:** low reactivity
- **AROPOL PTM 627:** low emission, unaccelerated

INEOS Composites

Let's get there, together
ineoscomposites.com