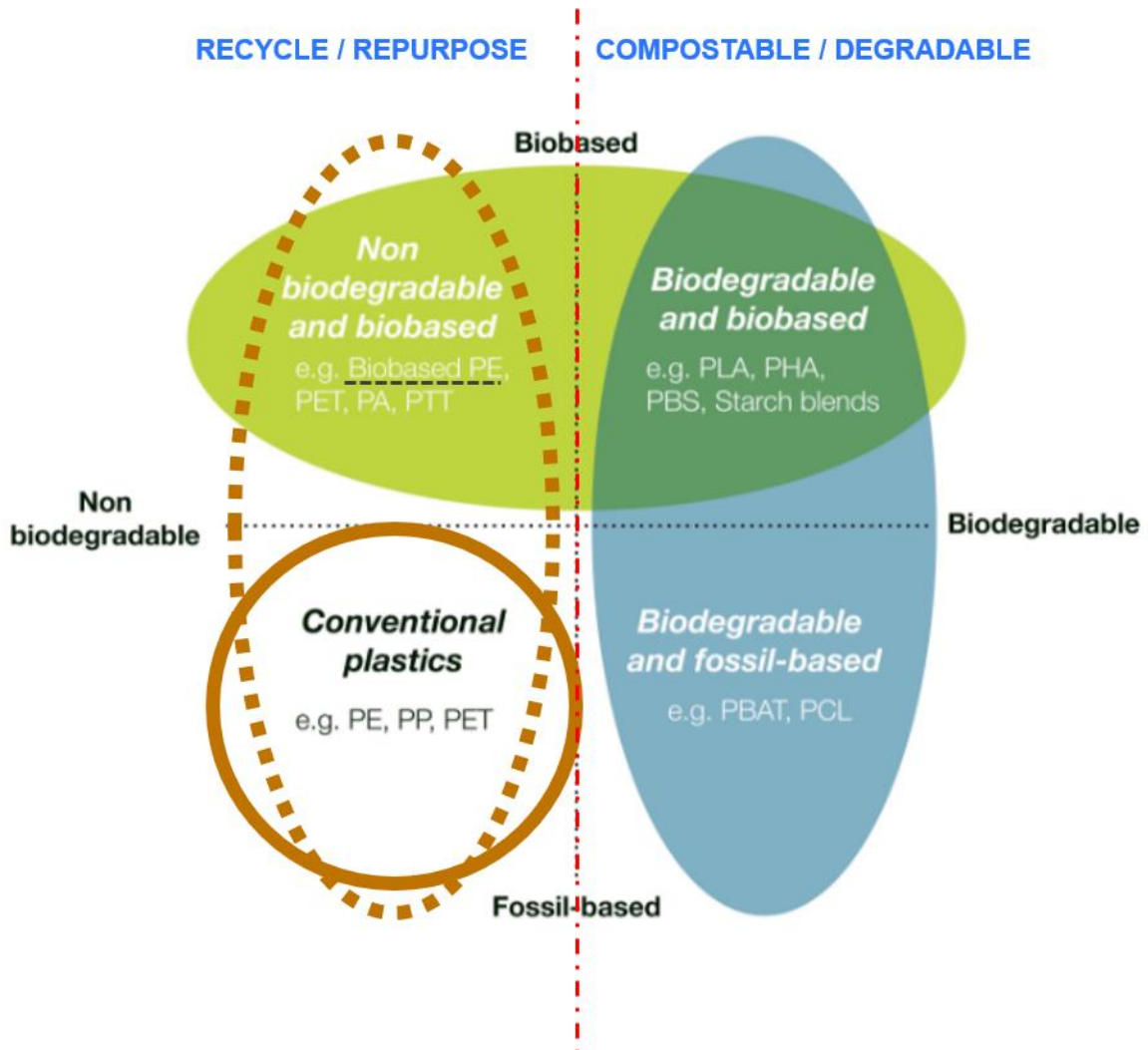




New Anchor Plant Based Milk Bottle

Overview

Fonterra is moving some of its range from conventional fossil based plastics to non-biodegradable biobased plastics, which can be recycled and repurposed in the same way as any other natural HDPE bottle.



The material used for the new Anchor milk bottle is called bio high-density polyethylene (Bio HDPE). It is a recyclable plant-based plastic made from ethanol, derived from sugarcane.

The molecular structure of Bio HDPE is exactly the same as regular natural HDPE, which is widely used to make milk bottles. Meaning Bio HDPE also makes for fully recyclable, non-compostable milk bottles[1].

The Bio HDPE exhibits the same characteristics as the petrochemical polyethylene, in application, performance, and especially recycling.[2]

BIO HDPE SPEC – Braskem.

Control Properties:

	ASTM Method	Units	Values
Melt Flow Rate (190/2.16)	D 1238	g/10 min	0.70
Melt Flow Rate (190/21.6)	D 1238	g/10 min	50
Density	D 792	g/cm ³	0.961

Typical Properties:

Plaque Properties^a

	ASTM Method	Units	Values
Tensile Strength at Yield	D 638	MPa	32
Tensile Strength at Break	D 638	MPa	22
Flexural Modulus – 1% Secant	D 790	MPa	1600
Shore D Hardness	D 2240		64
Izod Impact Strength	D 256	J/m	89

RECYCLING – Astron.

To validate the reprocessing aspect of Bio HDPE, 250kg of Anchor bottles manufactured from the resin were granulated and ran through a recycling extruder using standard HDPE settings. The material did not exhibit any abnormal behaviours during the recycling process, and from visual checks was of an acceptable standard.

The recycled polymer was transferred to a repurposing facility where it was used in the manufacture of slipsheet and cablecover products. The Bio HDPE recyclate was added at a 10% inclusion level to a blend of recycled HDPE/LDPE. The resultant products were successfully manufactured without any detrimental effect to the product or related extrusion process.

RECYCLING – Kerb Side Collection.

HDPE bottle is 100% kerbside recyclable across the proposed planned North Island only distribution plans and should be collected exactly the same as all other natural HDPE bottles.

07/10/2020

References:

1. Siracusa, V. and I. Blanco, *Bio-Polyethylene (Bio-PE), Bio-Polypropylene (Bio-PP) and Bio-Poly (ethylene terephthalate)(Bio-PET): Recent Developments in Bio-Based Polymers Analogous to Petroleum-Derived Ones for Packaging and Engineering Applications*. *Polymers*, 2020. **12**(8): p. 1641.
2. <http://plasticoverde.braskem.com.br/site.aspx/Frequent-Asked-Questions>