ecovio®-based compostable packaging solutions

Tabea Manne
BASF South Africa
Strong Commitment to Biodegradable Polymers
We believe in this market – and invest long term!

- **1993**: kickoff R&D
- **1998**: market introduction ecoflex®
- **2006**: market introduction ecovio®
- **2007**: market introduction ecoflex® FS
- **2009**: market introduction ecovio® grades with mainly biobased content
- **2009**: ecovio® product range extension
- **2010**: startup of the new single-purpose capacity extension in Ludwigshafen (D)
  - Total capacity: 14kta → 74 kta
- **Continous R&D to improve existing products and develop new applications**
Bio-polymer – What does it mean?

In general:  

Fossil-based and biobased polymers can both be 100% biodegradable.
ecovio® applications & solutions

- Organic Waste Bags
- Compostable Can Liners
- T-Shirt Bags
- Mulch Films
- Thermoforming
- Injection molding
- Paper Coating
- Particle Foam
BASF’s Biodegradable Solutions
Complete Compostability and Biodegradability!

- Trade names: ecoflex® and ecovio®
- No “magic” additives – naturally biodegradable
- Applications include films, foams and paper coatings
- Products made with ecoflex® and ecovio® fulfill all standards for compostable and biodegradable plastics. WORLDWIDE!

Europe

Australia

Asia

North America

EN 13432

AS 4736

GreenPla

ASTM 6400
Coffee Capsules Video
Coffee capsules

ecovio® for hot beverage single serve packaging:

• excellence resist to hot water and pressure applied during the brewing process

• thin wall capsules can be molded with and without O2 barrier properties

• processable on high cavity molds in fast cycle times

• offers an good barrier property against mineral oils, fats and aroma
Compostable solutions for coffee capsules based on ecovio® - End of life

To use coffee grounds as composting material, degradable capsules are required

High variety of hot drinks easily preparable via capsules

Compostable

Used coffee capsule contains 70 wt-% of water

Missing property

Compostable

5 Mio t/a coffee grounds worldwide

Plastic waste

5 Mio t/a coffee grounds worldwide
Coffee capsules details

**Transport packaging:**
- Strapping band
- Shrink film

**Secondary packaging:**
- Pouch
  - Multi or mono-layer
  - with or w/o barrier
- Card board
  - with migration barrier

**Lidding film:**
- Single layer film or (filter) paper
- Multi-layer film with or w/o barrier

**Capsule:**
- Injection molded
  - with or w/o co-injected barrier
- Thermoformed
  - with or w/o co-ex barrier

**Inner filter:**
- Compostable filter paper
- Injection molded filter inlay(s)
Compostable solutions for coffee capsules based on ecovio®

**Compostable Transport packaging:**
- ecovio®-based strapping band
- ecovio® F-based shrink film

**Compostable Secondary packaging:**
- ecovio® Pouch films
  - Multi or mono-layer
  - with or w/o barrier
- Card board coated w. ecovio®
  - with migration barrier

**Compostable lidding film:**
- ecovio®-based solutions available

**Compostable capsule:**
- Self produced or purchased?
- ecovio® IA or TA with or w/o G-Polymer®

**Compostable inner filter:**
- Some suppliers available

* G-Polymer is a brand of a third party
Packaging solution based on ecovio®
Ecovio films bags
Blown film extrusion of PLA based compounds

- Higher heat resistance of PLA based compounds (up to 220°C)
  - Easy transition from/to PE starting with higher extrusion temperatures
  - Purging time: normally 0.5 h
- Broad processing window
- Recommended processing temperatures
  - Feed section: 150-160 °C
  - Barrel zones: 160 -170 °C (rising)
  - Die: 170 °C
  - Melt temperature target: 170°C
- Die gap: 1.0-1.5 mm
- LDPE bubble shape
- Blow up ratio = 3.0 ~ 4.0
- 1 ~ 2% of slip MB to adapt sliding properties and avoid fold formation
ecovio® and EBM and ISBM
Extrusion Blow Molding with ecovio®

We’ve tested a lot of EBM geometries positively with ecovio® FS2224
ecovio® F2332 and ecovio® T2308
Multilayer bag-in-bottle and mono-layer wide mouth bottle
ecovio® T2308

Pump bottle

- Injection stretch blow-molded ecovio® T2308 colored uncolored (single layer)
- Marble like surface
- Based on min. 80% renewable resources
ecovio® for packaging
where also ‘end of life’ matters
Disclaimer

Note

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