

NEW YORK FEDERATION  
Solid Waste & Recycling Conference  
May 6, 2015

Brand Owner Use of  
Recycled Content

# Considerations for Recycled PET Usage

## Matrix for Recycled PET Usage by Brand Owner

Food Safety	FDA food-grade requirement with LNO (Letter of No Objection)
rPET Quality	Color specifications (L* a* b*)
	Black specks specifications
	IV for intended applications - CSD bottle vs. water bottle vs. APET clamshell
rPET Costs	Parity to, or premium over, virgin PET
Bales Source	Deposit vs. curbside vs. dirty MRF vs. landfill
Recycling Process	Washing process - Sorema vs. Amut vs. Self-developed
	Extrusion process - EREMA vs. Buhler vs. Starlinger vs. URRC vs. Krones
	IV increase - solid stating vs. chain extender
	Melt filtration - screen pack size
	Pellets vs. flakes
Conversion Process	Blending ratios; single pellet solutions
	Pellet/flake sizes - mismatch may lead to potential bridging problem at the feed throat
	Moisture content - drying before extrusion
	Storage of virgin/recycled PET resins in multiple silos

# Considerations for Recycled PET Usage

## Food Safety

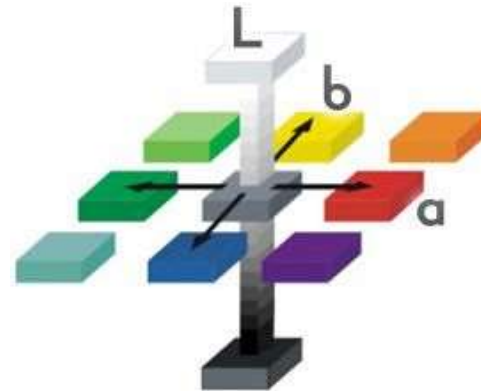
- Number one issue
- Meet FDA food-contact requirements
- LNO (Letter of No Objection)



No Objection Letter for Recycled Plastics  
June 30, 2003

## Recycled PET Quality

- Color ( $L^* a^* b^*$ )
- Black specks specifications
- IV for intended applications
  - CSD bottle
  - Water bottle
  - APET clamshell



# Considerations for Recycled PET Usage

## Recycled PET Costs

- Parity to, or premium over, Virgin PET
- Flakes cheaper than Pellets
- Low IV cheaper than high IV



## Bales Sources

- Deposit
- Curbside
- Dirty MRF (mixed wastes)
- Landfill



## Sustainability

- LCA impacts
- Recycled content



# Considerations for Recycled PET Usage

## PET Recycling Process

- **Washing process**
  - Sorema
  - Amut
- **Extrusion process**
  - EREMA
  - Buhler
  - Starlinger
  - URRC
  - Kronos
- **IV increase**
  - Solid stating
  - Chain extender
- **Melt Filtration**
- **Pellets vs. flakes**



# Considerations for Recycled PET Usage

## Bottle Conversion Process

- **Blending Ratios**
  - Virgin/recycled PET blends
  - Single pellet solutions
- **Pellet/Flake Sizes**
  - Potential bridging problem
  - Different melting rates
  - Burning of smaller particles
- **Moisture Content**
  - Drying before extrusion
  - IV drop
- **Storage with Multiple Silos**
  - Inventory/logistics issues



- Test business case with brands
- Pricing and Content levels
- Technology type
- Supply contract
- Material Compatibility
- Testing for Quality
- 40-60 weeks

- Questions?
- Thank you.
- [salexander@cmrgroup4.com](mailto:salexander@cmrgroup4.com)