

Petcore Working Group

Taskforce 4

Applications for recycled PET Thermoforms

Injection Molding test bars, preforms
and Yarn made from Mixed Trays

By Morssinkhof Plastics

m.ruesink@morssinkhofplastics.nl

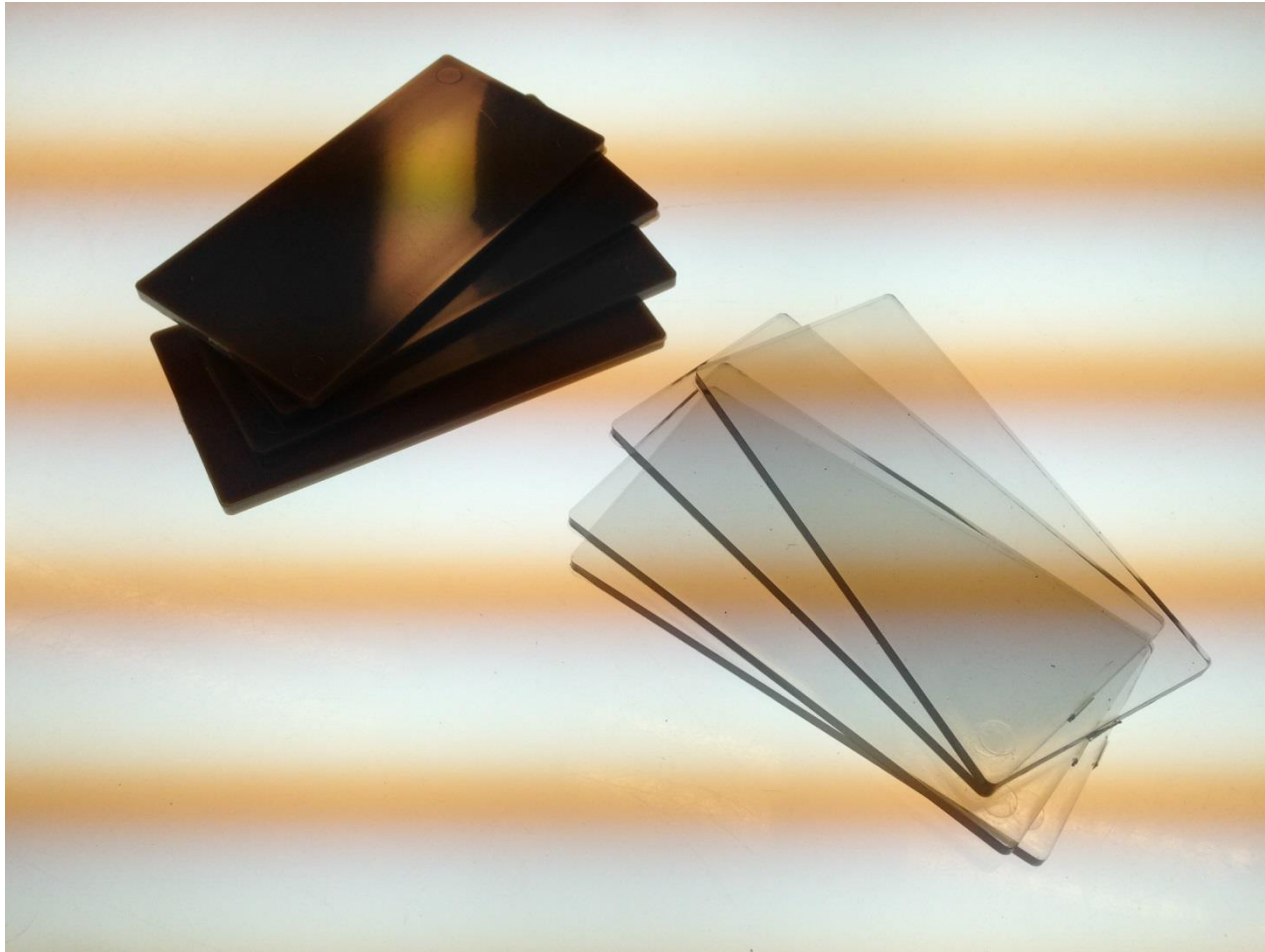
Input

- Mixed trays from Belgium F+ system
- Approx. 55% monolayer and 45% multilayer
- Relatively clean (low % organic residue)
- Low amount of lidding film
- Yield in recycling approx. 55%-60%
- Extruded and filtered
- Pelletized and SSP to final IV

Tests

- IM of plaques, test bars and preforms
- Blowing bottles
- Carpet BCF Yarn 1450dtex
- Textile Yarn 1100dtex
- Low linear density Yarn 220dtex
- Estimation non-PET content
- Tensile properties
- IV
- Appearance

Plaques



Preforms



Bottles



BCF Yarn 1450dtex f136



Textile Yarn 1100dtex f210



Tray based
Yarn made by
Morssinkhof
Sustainable
Products

Green
bottle
flake

Clear
bottle
flake

Properties pellets

	L*	A*	B*	Haze	IV
rPET mixed Trays	2.7	5.8	4.6	98	0.73
Virgin PET	91	-0.1	1	5.4	0.78

Properties test bars

	Elongation at break (%)	Tensile strength (Mpa)	Modulus (Mpa)
rPET mixed Trays			
Average	379	58	2252
STDev	118	4.8	
Virgin PET			
Average	1005	59	3529
STDev	135	0.2	

Conclusion

- The “Mix” with other plastics limits the applications after recycling to opaque/colored
- No crystallization
- New Trays and Bottles can be produced with reasonable to good mechanical properties
- Polyester BCF Yarn, Textile Yarn and low linear density Yarn for textile and household applications can be produced out of trays!