

## rPE Film Natural – target specification

**rPE Film Natural** is a high quality L(L)DPE-rich recyclate from household transparent post-consumer flexible packaging which has been processed in a Quality Recycling Process (QRP). It is the target fraction of additional sorting of DKR-310. QRP includes additional sorting, hot washing with detergents, extrusion with homogenization and degassing as well as double melt filtration and de-odourization.

This **target specification** is based on values, obtained during the extensive trial period on QRP under CEFLEX. All mentioned thresholds were met during these trials. Separate certificates of analysis (CoA) of materials resulting from these trials are available. These CoA contain some additional measurements, which have been omitted here because they are challenging to translate to objective target values (e.g. independent of sample sizes).

A **critical property for further development** of rPE Film Natural is the dart drop resistance, which is too low considered to virgin or C&I grades.

PROPERTY	UNIT		TARGET VALUE	COMMENTS	TEST METHOD
GENERAL					
Name	-		rPE Film Natural		
Composition	wt%		PE > 92, PP < 5, other < 3	Other = other than PE or PP	DSC-based (must be properly baselined)
APPEARANCE					
Shape	-		Granules		
PHYSICAL					
Melt Flow Index (MFI)	g/10 min		< 0.8	2.16 kg, 190 °C	ISO 1133
Density	g/cm³		0.920-0.950		ISO 1183
Ash content	wt%		< 1	after 1h - 900°C	ASTM D5630
MECHANICAL – blown film*					
Modulus	MD	MPa	100-250	1 mm/min	ISO 527
Tensile strength	MD	MPa	> 20	50 mm/min	ISO 527
Strain at break	MD	%	> 600	50 mm/min	ISO 527
Dart drop resistance	g/μm		> 1.3		ASTM D1709
Haze	%		< 50	TT C/2	ASTM D1003/8B
OTHER					
Bulk density	g/cm³		> 0.55		EN 15344

\* Film blowing advised with single screw extruder, L/D min 20. BUR min 2.5, die temperature 220 °C.

Thickness= 60-65 μm. Die cut samples type 5A for tensile test.

After prolonged storage or for the manufacture of sensitive products, drying of the material prior to processing and/or the use of moisture scavenger is recommended.