WINDMÖLLER & HÖLSCHER

PE-FILM WITH PA-RECYCLATE

Processing of PA-Recycylate with Compatibilizer

Why PE-film with PA-recyclate?

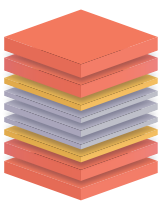
With our PE-film with PA-recyclate, we are providing you with a proven circular economy concept overcoming the recycling issue of barrier and high barrier films.

- 3-layer film with PA 6 and also CoPA/EVOH-recyclate content
- Optimised film quality by compatibilizer
- Final product is a general packaging film for various applications
- Proven reusability of barrier films

Your advantages

- Recyclability of PA-films proven by W&H
- Use of recycled material for general packaging film
- Consistent production with W&H technology
- Continous quality control with RUBY Gain

Recipes



BUR: 1:2.1
Output: ~ 600 kg/h
Thickness: 100 µm

PA 6-Barrier Film

Amount	Resins		Layer thickness	Functions
100%	mLLDPE	Marlex	17 µm	Optical properties
80% 20%	mLLDPE LDPE	Marlex LDPE	16 µm	Mechanical properties
100%	Tie	Tie Layer	7 µm	Bonding
100%	PA6	Ultramid PA 6	6 µm	Oxygen barrier; puncture resistance
100%	PA6	Ultramid PA 6	8 µm	Oxygen barrier; puncture resistance
100%	PA6	Ultramid PA 6	6 µm	Oxygen barrier; puncture resistance
100%	Tie	Tie Layer	7 µm	Bonding
80% 20%	mLLDPE LDPE	Marlex LDPE	16 µm	Mechanical properties
100%	mLLDPE	Marlex	17 µm	Sealing

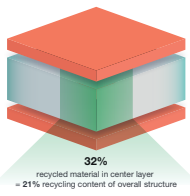
BUR: 1:2.1
Output: ~ 600 kg/h
Thickness: 100 µm

CoPA-EVOH-Barrier Film

Amount	Resins		Layer thickness	Functions
100%	mLLDPE	Marlex	15 µm	Optical properties
80% 20%	mLLDPE LDPE	Marlex LDPE	14 µm	Mechanical properties
100%	Tie	Tie Layer	7 µm	Bonding
100%	CoPA	Ultramid PA 6/66	12.5 µm	Oxygen barrier; puncture resistance
100%	EVOH	EVOH	3 µm	Oxygen barrier; film strength
100%	CoPA	Ultramid PA 6/66	12.5 µm	Oxygen barrier; puncture resistance
100%	Tie	Tie Layer	7 µm	Bonding
80% 20%	mLLDPE LDPE	Marlex LDPE	14 µm	Mechanical properties
100%	mLLDPE	Marlex	15 µm	Sealing

General Packaging Film with PA 6-Recyclate

Amount	Resins		Layer thickness	Functions
100%	mLLDPE	Marlex	8.5 µm	Optical and mechanical properties
66%	mMDPE	Marlex		Toughness; stiffness
32%	rPE	**Recyclate of PA 6-Barrier Film**	33 µm	Reuse of production waste
2%	Compatibilizer	Retain		Compatibility of PA 6 with PE
100%	mLLDPE	Marlex	8.5 µm	Optical and sealing properties

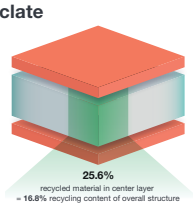


BUR: 1:2.7
Output: ~ 400 kg/h
Thickness: 50 µm

6.4% recycled PA 6 content in center layer = **4.2%** recycled PA 6 in overall structure

General Packaging Film with CoPA-EVOH-Recyclate

Amount	Resins		Layer thickness	Functions
100%	mLLDPE	Marlex	8.5 µm	Optical and mechanical properties
72.4%	mMDPE	Marlex		Toughness; stiffness
25.6%	rPE	**Recyclate of CoPA/EVOH-Barrier Film**	33 µm	Reuse of production waste
2%	Compatibilizer	Retain		Compatibility of CoPA/EVOH with PE
100%	mLLDPE	Marlex	8.5 µm	Optical + sealing properties



BUR: 1:2.7
Output: ~ 400 kg/h
Thickness: 50 µm

0.8% recycled EVOH in center layer = **0.5%** recycled EVOH in the overall structure
6.4% recycled CoPA in center layer = **4.2%** recycled CoPA in overall structure

Our partners

Chevron Phillips Chemical Company

BASF We create chemistry

Learn more about **PE-FILM with PA-RECYCLATE:**
www.wh.group/int/en/sustainability/circular_economy/recyclable_solutions/pa_recycylate.html

Find more information about **VAREX⁄⁄** on the back of the page.

WINDMÖLLER & HÖLSCHER

VAREX″

The Benchmark in Blown Film Extrusion

Why VAREX″?

The VAREX″ offers unequaled modularity. Tailor-made solutions result in best-in-class flexibility. The LT and HPS II screws do not only process conventional polyolefins – but also recycled materials.

- Innovative die head and extruder design for perfect melt distributions
- The designable mandrels of the MAXICONE die head concept are a perfect fit for your application
- Our extra long and driven collapsing unit is necessary for optimal flatness of the film
- Our Gravimetric Throughput Control unit guarantees constant weight per m^2 of film thanks to automated processing
- ARCTIS cooling ring in combination with W&H internal bubble cooling for high output and perfect film tolerances
- Our PROCONTROL TS is the highly-intuitive single point of operation system that integrates all the line operations and enables smart machine learning

Your advantages

- A universal blown film line with the highest line output
- Most precise film tolerances and product quality
- Highest level of process stability and flexibility with the most demanding applications
- Highest level of machine intelligence and well integrated processes

Technical Data VAREX″	
Line widths	1300 – 3600 mm
Number of film layers	1, 3, 5, 7, 9, 11
Extruder screw diameters	50, 60, 70, 90, 105, 120, 135 mm
Die diameters	160 – 900 mm
Raw materials	Biomaterials, recycling materials, PE, PP, EVOH, PA, ionomers, ...
Winders	FILMATIC″ V (surface/center/gap winder) FILMATIC″ T (double turret winder) FILMATIC″ N (surface/center/gap winder)
Special equipment	Side gussets, water bath, annealing units, MDO, ...

Learn more about **VAREX″:**
www.wh.group/int/en/our_products/extrusion/blown_film_lines/varex_ii

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on the back of the page.

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