

# Stretch Film



## Machine Film

Product range

### Performance driven

We design, we produce and we deliver blown and cast films, with outstanding mechanical properties for maximum performance on your production line.

### Load securement

No compromises on safety and stability. Our field expertise and technical knowledge is at your service for the best film and machine association.

### Cost efficient

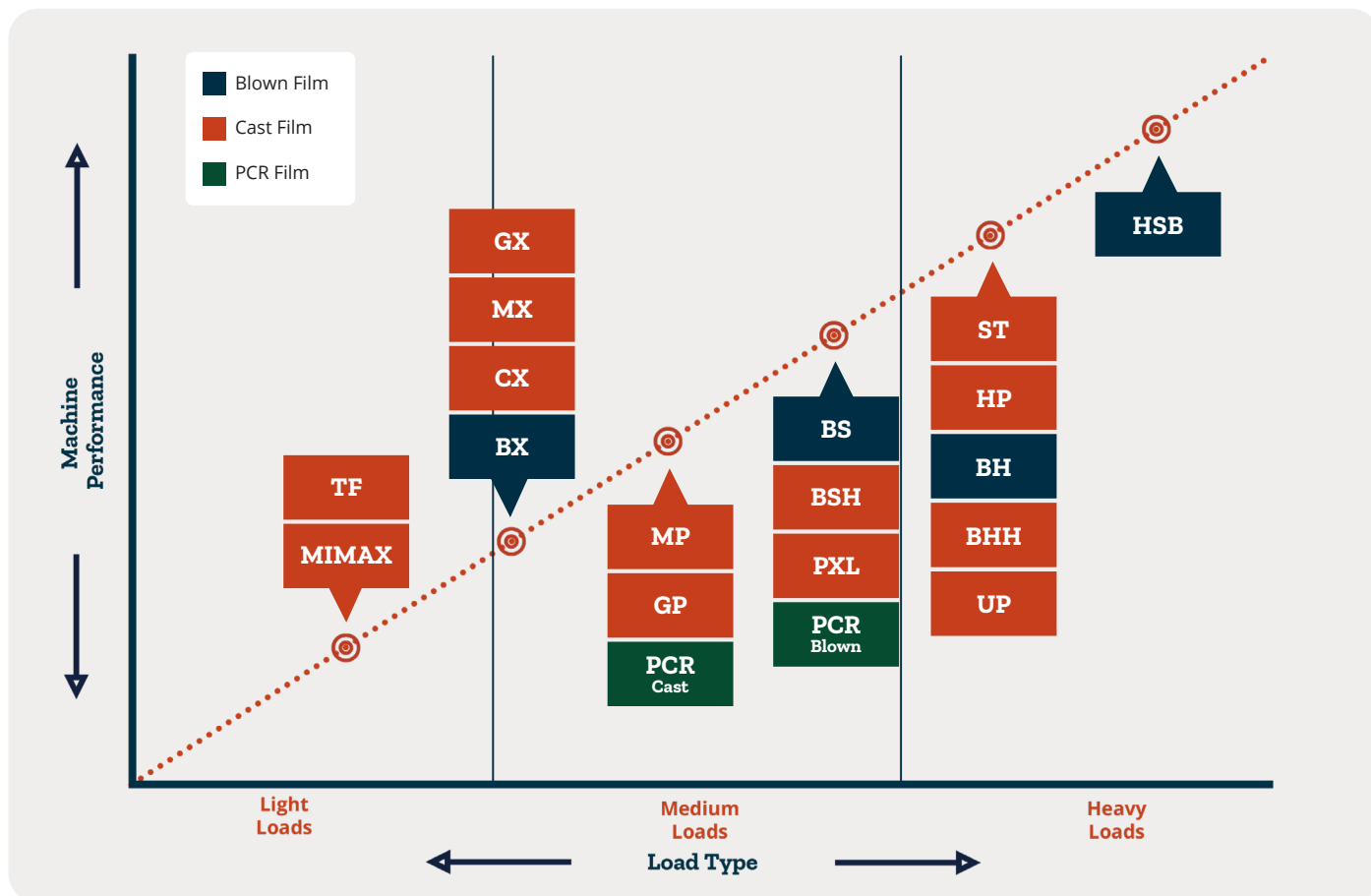
Always looking for the best cost versus efficiency results. Our holistic step by step validation process is key to maximizing pallet stability at the best cost.

### 100% recyclable

Our stretch films are 100% recyclable. We invest in new production methods to become more sustainable and improve our carbon footprint.

# Product Line Overview

The right film, for the right application



## Reasons why our Stretch Film product range are the key choice for consumers

### Quality & Performance

All our stretch films are designed, produced and delivered with the highest grade of quality control. We make no compromises on safety, traceability and performance. Our quality incidence report was < 0.1% in 2020. We are BRC / IOP, ISO 9001, 14001 and 50001 certified.

### Consistency

We select purposefully, top quality raw materials, sourced in Europe and carefully controlled to perfect our recipes and make your application work flawlessly. As a producer we understand the absolute necessity to keep your lines running with no incident, that is why our product range is designed to bring the most consistent results depending of the mechanical properties of the film.

### Producer Expertise

40+ years experience as the pioneer stretch film producer in Europe. We produce both Cast and Blown films on our 3 production facilities located in Belgium and Ireland.

### Research & Development

We are consistently improving our products in order to find better solutions for our customers, we also commit our focus to sustainability, waste reduction and carbon footprint.

### Technical Consultancy & Holistic Approach

We deliver to our customers superior technical support and expertise. Our film specialists provide ad-hoc and on site audits to perfectly match the right film with the right machine and application. We do not only rely on weight or cost, we analyze your whole production and supply chain process, from primary to tertiary packaging and automated storage to provide you the best solution, both in stability and economical performance.

Our laboratory and test centers – unique in Europe – are powerful tools to achieve the best-in-class performance according to your needs.

# Sustainability

How we are making a difference

## Stretch film is fully Recyclable

Stretch film is made with Linear Low Density PolyEthylene (LLDPE) which is 100% recyclable and can be reused for recycled stretch film or numerous applications depending on the purity of the collected material.



## Produced locally in Belgium & Ireland

The raw material that we use for our films is carefully selected and sourced in Europe. Mass balanced, bio based and recycled raw materials in order to reduce environmental impact are our top priorities.



## Technical Consultancy to our Customers

Being closer to our customers and contributing to optimal consumptions is one of our commitments. The best stretch film is the one you don't waste by being overpacked.



## Energy Management

More than 50% of 2021 Capital Investments are Sustainability related projects. As an example, 3600m<sup>2</sup> solar panels were installed in 2021 for our Virton plant, with an objective of using 40% green energy, to end 2021.



## Internal Recyclability

Our Target is to reuse 100% of internal scrap by 2023 latest. Today our Gorey factory in Ireland is a leader in this commitment with almost 100% of the internal scrap reprocessed and reused in house.



## Quality Performance

We make no compromises on quality with an average return rate of <0.1% in 2020. This prevents multiple trips, unnecessary resources and carbon footprint increase.



WE'LL ALWAYS  
PROTECT IT.

# PCR Stretch Film

The sustainable alternative to fossil fuel based stretch film

## PCR: One of our ways to contribute to a better circular economy

Reducing environmental impact through the re-usability of stretch film

### What is Post Consumer Recycled (PCR)?

PCR, is recycled materials collected from industrial waste packaging. In order to produce PCR Resin, waste packaging must be sorted to isolate LLDPE (linear low density polyethylene) and processed through the recycling chain. This includes returns of used stretch film material.

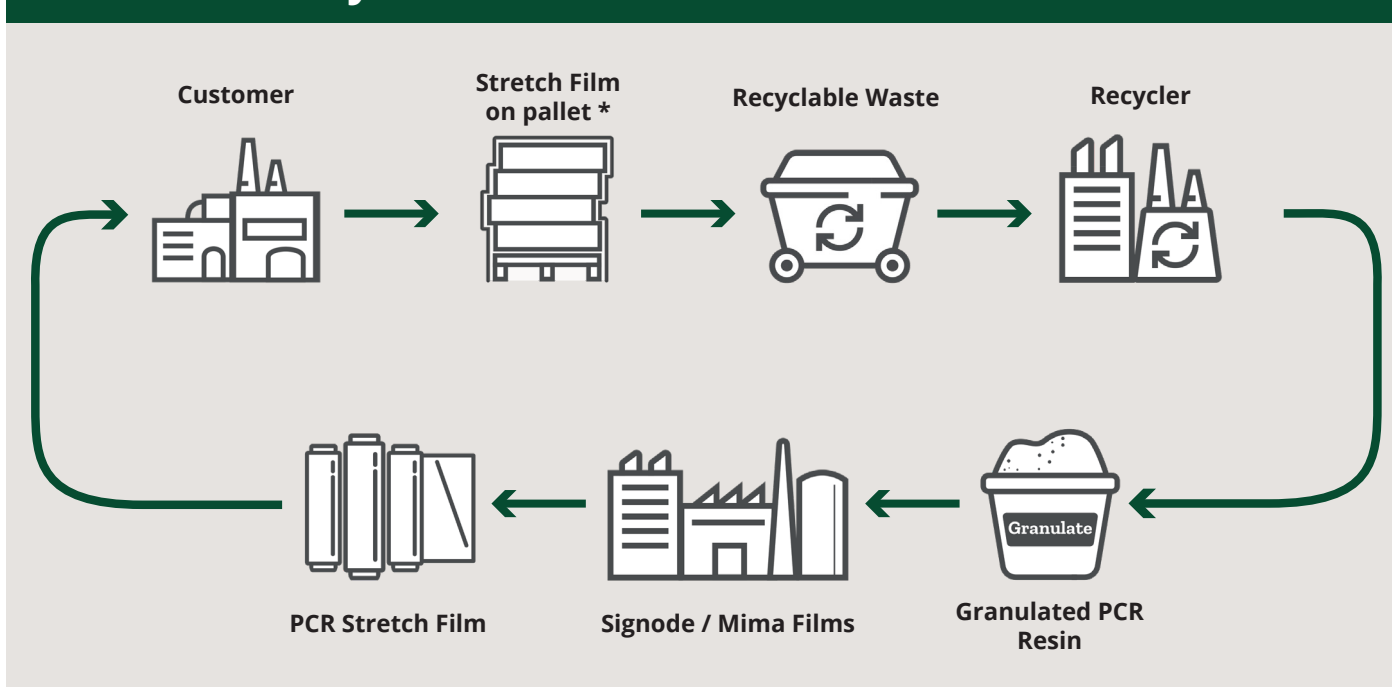
We acquire PCR Resin, from our trusted circular economy partners, with the highest grade of purity to ensure the same mechanical properties as regular stretch film.

### How Does PCR Stretch Film perform?

When it comes to mechanical performance there is no difference between PCR Stretch films and fossil fuel based films. We have invested time and resources in to research and development to create the optimum recipe for the highest quality.

Stretchability of film requires a strong and stable molecular chain to achieve consistent results. By using 30% PCR resin in product composition we ensure a reliable and consistent quality, with the highest performance standards. We designed our PCR product range with both cast and blown extrusion processes, and a recommended pre-stretch of up to 220%.

## Material Life Cycle of PCR Stretch Film



\* Fossil fuel based and PCR stretch film can be recycled several times in this loop



## Benefits of using PCR stretch films

### Why PCR is the key choice for a more sustainable method of wrapping pallets

#### ■ A More Sustainable Industry

Made with 30% PCR content, recovered from post consumer waste streams. Signode stretch film delivers the same mechanical performance and transportation efficiency as film produced with virgin raw material, maintaining full recyclability.

#### ■ CO2 Reduction

The fossil fuel, stretch film production process involves numerous steps with high CO2 impact. By recycling used LLDPE you minimize CO2 emissions, in comparison to the production of film, made from virgin raw material. It also prevents the export of plastic waste outside of the EU and its associated CO2 emissions.

#### ■ Cuts Tax Costs in EURO

The EU plans to raise a tax per ton of non-recycled plastic content. Each metric ton of non-recycled plastic is a loss and potentially a cost, both financially and environmentally. By using PCR stretch film you reduce the volume of non-recycled plastic, minimizing waste & contributing to EU environmental goals.

#### ■ Future Ready

The trajectory of industries is leading towards a more sustainable way of re-using waste packaging. By using Signode PCR stretch film, you contribute to prevent the use of unnecessary resources, involved in the production process of new packaging.



**Granulated PCR Resin**

# Technology & Expertise

How we can help you achieve premium packaging for your pallet

## POP Center: Our packaging test and optimization program in Europe

Unrivaled integrated test center with 40+ years of producer knowledge

### ■ Stability Expertise

As a stretch film producer, we were pioneer at developing the first integrated stability test center in Europe. Our POP Center (Pallet Optimization Program), located in VIRTON (Belgium) and our Test Center in SØNDERBORG (Denmark) production plants provides a holistic study of the load you want us to improve.

### ■ Test Protocol

From primary packaging to the wrapping cycle, we analyze the stability level of your pallets with unique test protocol including...

- Acceleration table (G-Force tool)
- Vibrations platform
- Tilt table
- Water resistance test

### ■ Data Analysis

Once we have a reliable and data driven overview of your current stability level, our dedicated engineers start to perform a series of tests with our films and Octopus wrapper machine, to provide you with a customised, best in class solution, both in stability and economic performance.

### ■ From Test Centre to your Production Line

Our POP Center is today a unique tool and perfect solution to design optimized packaging according to your requirements.



**Dedicated Engineers**



**G-Force Tool in action**

## Stability tool: independent lab certified transportable unit

### The best way to check and improve pallet stability

#### ■ Pallet Stability Check

Our Stability tool is a transportable solution designed by an independent laboratory in Belgium. This mobile tool records in real time the forces, both in position and intensity, applied by the film on your pallet during the wrapping cycle. It allows us to check accurately on your own production line the most important indicators regarding the stability of your pallet.

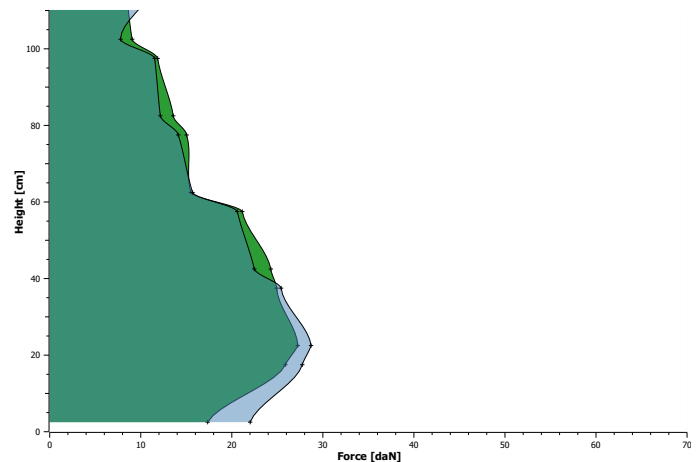
#### ■ Real Time Feedback

Weak points or overpacked parts of your load are instantly spotted by the sensors on our device and transmitted wirelessly to our dedicated software for analysis and comparison. Reliable data sent by the Stability tool allows ad hoc stability studies, in depth optimizations to solve or upgrade according to your needs.

#### ■ Replicability and Accuracy

The Stability tool is a Perfect solution to ensure optimal pallet loading, especially when combined with the POP Center, to duplicate results from one machine to another.

Real Time Force Diagram recorded with the stability tool



Real time data collection, on pallet during wrapping cycle



Sensors on edge of pallet

# PCR Cast line

## The sustainable industrial cast film



Introducing PCR Cast line, the industrial cast stretch film that uses 30% post consumer recycled material, for identical mechanical performance. The sustainable all around film.

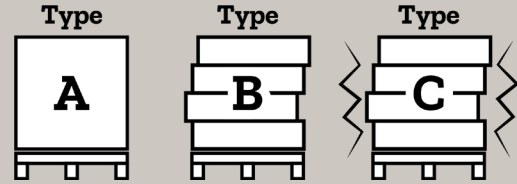
### PCR Cast Line Benefits

- Consistent high performance stretchability
- One side cling film
- Low coefficient of friction
- Good clarity and optics
- Optimum machinability
- Silent unwind

### Applications

- Up to 220% PPS stretch (1 m => 3,2 m)
- Type A, B and C loads
- Easy loading / unloading of products

### Pallet Load Types



### Film Tolerances

Thickness Tolerance	+/- 10%
Core Protrusion	6 ± 3 mm
Tolerances on weight	± 5 %
On Reel length	± 5 %
On Film width	± 4 mm

### Reel & Packaging Specifications

Product Reference	17PCRC501	20PCRC501	23PCRC501
Thickness $\mu$	17 $\mu$	20 $\mu$	23 $\mu$
Film width (mm)	500	500	500
Reel length (m)	2300	2000	1750
Recommended Pre-Stretch	+/- 180%	+/- 200%	+/- 220%
Cling	Inside	Inside	Inside
Core weight (kg)	1,04	1,04	1,04
Reel weight (kg GFN)	18,928	19,340	19,454
Pallet size	800 x 1200	800 x 1200	800 x 1200
Outside diameter (mm)	250	250	250
Inside core diameter (mm)	$\geq 76$	$\geq 76$	$\geq 76$
Palletization/nr of layers	2	2	2
Nr of reels/pallet	28	28	28
Pallet gross weight (kg)	530	542	545
Pallet net weight (kg)	501	512	516

Please contact us for more information or visit  
[www.signode.com](http://www.signode.com)



# PCR Blown line

## The sustainable industrial blown film



Introducing PCR Blown line, the industrial blown stretch film that uses 30% post consumer recycled material, for identical mechanical performance. The sustainable heavy duty film.

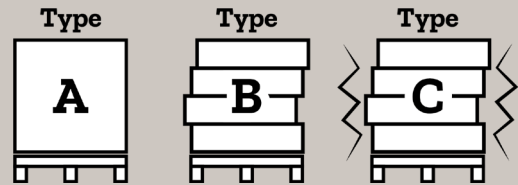
### PCR Blown Line Benefits

- Consistent high performance stretchability
- Extremely versatile, can be used on all load types
- Superior toughness / puncture resistance
- Optimum elongation with very high load force
- Extra low noise

### Applications

- Up to 220% PPS stretch (1 m => 3,2 m)
- Type A, B and C loads
- Easy loading / unloading of products

### Pallet Load Types



### Film Tolerances

Thickness Tolerance	+/- 10%
Core Protrusion	6 ± 3 mm
Tolerances on weight	± 5 %
On Reel length	± 5 %
On Film width	± 4 mm

### Reel & Packaging Specifications

Product Reference	17PCRB501	19PCRB501	22PCRB501
Thickness $\mu$	17 $\mu$	19 $\mu$	22 $\mu$
Film width (mm)	500	500	500
Reel length (m)	2300	2110	1830
Recommended Pre-Stretch	+/- 180%	+/- 200%	+/- 220%
Cling	Outside	Outside	Outside
Core weight (kg)	1,04	1,04	1,04
Reel weight (kg GFN)	18,928	19,381	19,459
Pallet size	800 x 1200	800 x 1200	800 x 1200
Outside diameter (mm)	250	250	250
Inside core diameter (mm)	≥ 76	≥ 76	≥ 76
Palletization/nr of layers	2	2	2
Nr of reels/pallet	28	28	28
Pallet gross weight (kg)	530	543	545
Pallet net weight (kg)	501	514	516

Please contact us for more information or visit

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# Additional Products

Available on request

PRODUCTS

SERVICES

INTEGRATION

AUTOMATION



pack



bundle



unitize



warehouse



transport



## Interested in more specific dimensions or items?

### ■ Film width

Find the correct width for your needs, with choices between: 250mm, 300mm, 500mm, 750mm and 1000mm on certain product ranges.

### ■ Coloured films

We offer specific white and grey film product ranges, which help to prevent light exposure and increase your product confidentiality during transport.

### ■ Narrow films

Our Narolite range is specifically dedicated to banding applications, in both logistic and industry.

### ■ Macro-perforated films

Our Climawrap range is dedicated to industrial applications, where breathability is mandatory to deter excess moisture & temperature regulation.

### ■ Top Sheets

We produce 50µ top sheets with blown extrusion for superior toughness and load protection, exclusively for automated lines.

### ■ UV stabilized films

We produce UV stabilized stretch films in transparent grey or white for external storage

Please contact us for more information or visit [www.signode.com](http://www.signode.com)