

# Peelable

## PPH / PPHA

Data Sheet (November 2021)

### Product family Introduction

Nuroll Peelable film is a bi-axially oriented polyester (BOPET) film with an amorphous polyester heat seal layer. It is specially designed for heat sealable lidding application on packaging refrigerated and frozen foods.

Nuroll Peelable film shows also an excellent hot-tack for hot filling process. It can be placed at temperature down to  $-60^{\circ}\text{C}$  and up to  $200^{\circ}\text{C}$ , and it is designed for self opening during cooking, when temperature goes over  $90^{\circ}\text{C}$ .

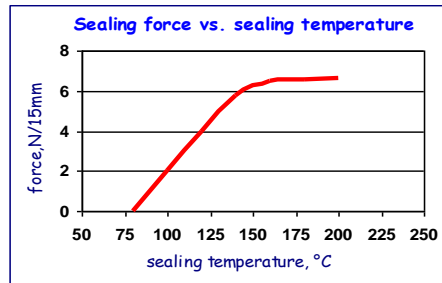
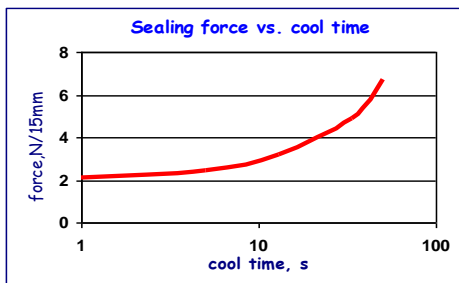
Nuroll Peelable film is dual ovenable, pasteurizable and provides strong, consistent peeling to substrates such as APET, CPET, PETG and PVC in all the usual conditions.

The heat seal layer is available in 2 different thicknesses,  $2\mu\text{m}$  (PPL grade) and  $3,5\mu\text{m}$  (PPH grade).

Nuroll Peelable is commercially available also with **anti-fogging** characteristics to assure more clarity and transparency when stored in refrigerators.

### Sealing properties

Nuroll Peelable film shows a very good seal immediately after the sealing (hot tack properties), for this reason it represents the right choice for hot filling and MAP packaging applications. Its particular formulation guarantees a good seal without stress the shredding behavior.



### Welding force of 23 PPH on different substrates

Welding conditions	Film/Film	Film/Film at 0°C	Film/ CPET (APET layer)	Film/ Cardboard	Film/ Cardboard at 0°C	Film/ 23 $\mu$ Film plain
140°C-4bar-1sec	> 6,5	5	5,5	2,5	2,5	2,5
140°C-4bar-2sec	> 6,5	5,5	6,5	3,5	2,5	2,5
140°C-4bar-4sec	> 6,5	5,5	7,5	3,5	2,5	2,5
160°C-4bar-1sec	> 7	6,5	7	3	3	3
160°C-4bar-2sec	> 7	6,5	7,5	3	3	3
160°C-4bar-4sec	> 7	6,5	7,5	4	3	3
190°C-4bar-1sec	> 7	> 7	7	3,5	3,5	4
190°C-4bar-2sec	> 7	> 7	8	4	3,5	4
190°C-4bar-4sec	> 7	> 7	8	4	3,5	4

Specimen structure	N/15 mm
Film/Film	> 6,5
Film/ 50 $\mu$ Film plain	5
Film/ Cardboard	3,5
Film/ APET	7,5
Film/ 100% CPET	5

FORCE is measured by INSTRON dynamometer in N Sample dimension is 15 mm width

Cardboard is laminated with BOPET film, cardboard polyester extrusion coated behavior is like CPET

# Peelable

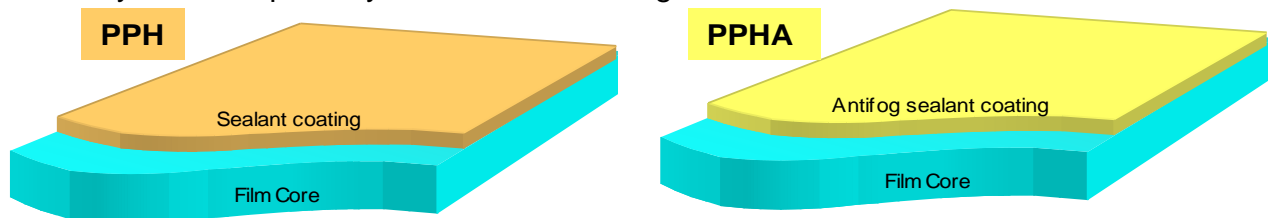
## PPH / PPHA

### Product description

**Nuroll PPH** is suggested when strong sealability is requested, when tray design is complex or the filling process can dirt the sealing area (by powder, fats or liquids).

**Nuroll PPH** is commercially available in nominal thicknesses (plain film) of 23, 36 microns. For different thicknesses it is necessary to agree a minimum order and to full chart the mother roll width.

**Nuroll PPH** is commercially available also with anti-fogging characteristics (**PPHA**) to assure more clarity and transparency when stored in refrigerators



### Main Applications

Food containing fats, liquids, powder; food packaging for pasteurization; food packaging for hot fill process; food packaging for MAP process

### Technical details

Nuroll PPH/PPHA is usually supplied with following characteristics:

- ⊕ **Core diameter:** 6 inches (152.76 mm)
- ⊕ **Film width:** min 400 mm, max 1400mm
- ⊕ **Film length:** According with film thickness and max external reel diameter 640mm

Film Thickness (microns)	23	36
Standard reel length (m)	8000	4000
		8000

- ⊕ **Packing presentation:** suspended reel; wooden endboards, lid and pallet; stretchable PE film

**Different characteristics than the above on request**

### Storage conditions

Nuroll PPH/PPHA need to be stocked in a close warehouse and preserved from the light and from the humidity.

Reels must be not stacked.

Nuroll will not accept any responsibility for material older than 1 year from the delivery.

### Compliance with regulations

**Polyester Film produced by Nuroll SpA, complies with EEC, Italian and FDA requirements on packaging for direct contact with foodstuffs**

# Peelable

## PPH / PPHA

Properties		Unit	Test Method	Typical values PPH grade		Typical values PPHA grade	
Base film thickness		Microns	ASTM E 252	23	36	23	36
Coating thickness		Microns	ASTM E 252	3,5	3,5	3,5	3,5
Total thickness		Microns	ASTM E 252	26,5	39,5	26,5	39,5
Yield (nominal)		m <sup>2</sup> /kg	ASTM E 252	28	19	28	19
		g/m <sup>2</sup>		35,7	53,7	35,7	53,7
Tensile strength		MD	ASTM D 882	230	230	230	230
		TD		13,5	20,5	13,5	20,5
		MD		240	240	240	240
		TD		14,3	21,8	14,3	21,8
Elongation at Break		MD	ASTM D 882	130	140	130	140
		TD		120	130	120	130
Thermal Shrinkage 150°C-30'		MD	ASTM 1204	2	2	2	2
		TD		0,5	0,5	0,5	0,5
Haze		%	ASTM D1003	8	9	8	9
MVTR (38°C, 90%RH)		g/m <sup>2</sup> *day	ASTM E398	25	15	25	15
OTR (20°C, 0%RH)		cc/m <sup>2</sup> *day	ASTM D3985	50	35	50	35
Welding force (on itself) 140°C; 4 bar; 4 s		N/15mm	Internal	breaking	7,5	6,5	6,5

**⇒ For thicknesses different than those reported above it is necessary to agree a minimum order and to full chart the mother roll width**

1. This information is the best currently available on product and it is subject to revision as additional knowledge and experience is gained.
2. The results obtained and the above properties refer to average value of laboratory tests. Therefore, such results have only to be considered as an indicative general guide to material properties and not as an implied guarantee that the product actually has said properties and/or a warranty of fitness for a particular purposes and/or suggestion for infringement of any existing patents.
3. Due to many factors which may affect customer production process, including but not limited by different equipments and techniques used, PPH-PPHA film must be qualified before being used in any application.