

PLA monofilament



Perlon[®] – The Filament Company

Perlon[®] – The Filament Company – is an innovative, global group of companies specialized in the manufacture of synthetic filaments. Perlon[®] generates annual sales of more than 150 million euros, employs about 850 people and has a production capacity of 23,000 tons. We operate from locations in Germany, Poland, in the USA and in China.

Through our technical expertise and strength in innovation we develop premium quality products for our customers. The comprehensive product portfolio is based on a variety of raw materials. In line with the intended application, these are modified and processed into high quality, application-specific filaments. The consistent high quality of our products sets worldwide benchmarks.

PLA: This biopolymer can do more

Poly lactide belongs to the biopolymer group and is manufactured entirely from renewable raw materials such as starch or sugar. The starch or the sugar is extracted from plant material and converted by means of enzymatic hydrolysis into a fermentable sugar. In the course of the next manufacturing step the carbon and other elements are converted by fermentation into lactic acid.

The polymer is formed through the polymerisation of lactic acid. In the production process any DNA is completely destroyed. PLA can be rotted down in standard composting facilities. Under the right conditions (temperature 60 °C and 98% air humidity) the monofilaments decompose into natural sugar. The duration of this degradation is dependent on the molecular structure of the polymer.

The PLA used by us fulfils all standards for biodegradability in North America, Japan and Europe. Our polymer manufacturer is certified to ASTM, ISO, DIN and CEN. PLA also reduces the consumption of fossil fuels over its life cycle by up to 50%. In comparison with conventional PET, 15–60% less greenhouse gases are produced in the manufacture of PLA.

The advantages at a glance

- Flame retardant compared with PET (LOI of 25) with low smoke development (UL94 – vertical burning: V2 rated)
- Outstanding UV stability
- Monofilaments with high strength and good resistance when stressed
- Excellent moisture management (hydrophobic)
- Dyeable, intense colours
- Low refractive index



| | |
|------------------|----------------------------------------------------|
| Textile industry | Clothing, home textiles, furniture, carpet |
| Agriculture | Putrescible geotextiles, vegetation protection |
| Filtration | Foodstuffs production, tea filters, spacer fabrics |
| Automobile | Vehicle interiors |
| Hygiene articles | Disposable products |

Technical specifications

| Technical parameters | Unit | Variations |
|---------------------------|--------|---------------|
| Diameter range | mm | 0.220 – 0.500 |
| Titre | dtex | 475 - 2454 |
| Tenacity | cN/tex | 30 – 45 |
| Shrink 120 °C a t 30 min. | % | 2 – 24 |

Physical and chemical properties

| Physical parameters | Unit | Range |
|------------------------------|-------------------|-------------|
| Density | g/cm ³ | 1.25 |
| Moisture absorption | % | 0.40 – 0.60 |
| Melting temperature | °C | 160 – 170 |
| Glass transition temperature | °C | 45 – 60 |
| Refractive index | | 1.35 – 1.45 |
| LOI | % | 25 |

| Chemical parameters | Resistance |
|---------------------------|------------|
| Lightfastness | Excellent |
| Acid resistance | Good |
| Alkali resistance | Limited |
| Oil and grease resistance | Good |
| Hydrolysis resistance | Limited |
| FDA tested* | Yes |

*Subject to raw material type

Brand related products: 6**1

This product information has been compiled to the best of our knowledge and with the greatest of care. We cannot, however, assume any liability for the correctness, completeness or currentness of the contents. Depending on diameter and production technique the technical parameters and the behaviour of the monofilament can vary.