

High Performance Polymer Films

BIEGLO GmbH offers a spectrum of high-performance polymer films tailored for OEMs, developments, designers, processors as well as specialized industries.



Made from the most versatile and highest performing polymers, these films are capable of achieving high temperature performance, reduced system costs, durability, lightweight, advanced functionality as well as eco-friendly designs. These films can be applied in a broad range of markets including but not limited to: electronics, acoustics, aerospace, automotive, industrial, oil and gas, food and alternative energy.

Key Factors Comparison					
Key factors	PEEK	PI-s	TPI	PAI	PEI
Mechanical Properties	Very good	Excellent	Excellent	Excellent	Good
Chemical Resistance	Excellent	Good	Fair	Good	Fair
Temperature Resistance	Very good	Excellent	Excellent	Very Good	Very good
Tear Resistance	Very good	Excellent	Excellent	Very good	Very good
Dielectric Properties	Very good	Very Good	Good	Good	Good
Cost-Price	High	Low	Medium	Fair	Fair

1. PEEK

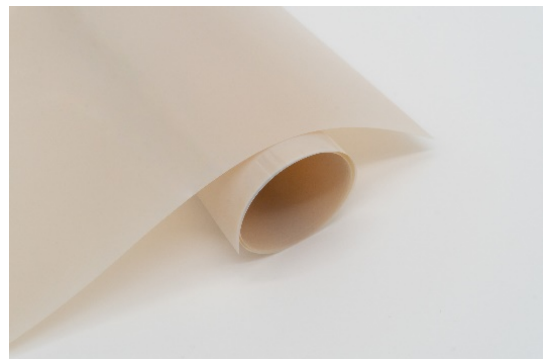
PEEK – Polyetheretherketone Films

Dexnyl© PEEK film is a thermoplastic film that is characterized by a distinct combination of properties, which include excellent wear resistance, best-in-class fatigue resistance, high purity, and excellent chemical resistance to organics, acids, and bases. These properties make it well-suited for applications in aerospace, electronics, chemical processing, healthcare, transportation, food and other industrial uses.

Wide range of dimensions –

Thickness – 6 µm up to 1200 µm

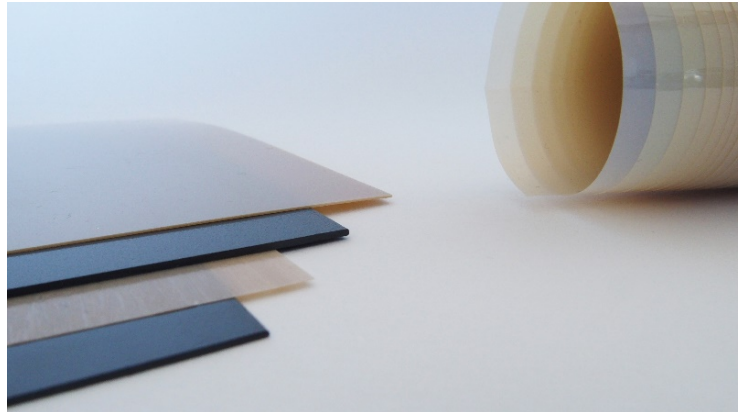
Width – 270 mm up to >1500 mm (or cut to demand)



Advantages –

- Very high melting temperature: ~345 °C (Tg = ~150 °C)
- Excellent environmental resistance
- Excellent wear resistance
- Excellent creep, fatigue and modulus

- Radiation resistance
- Low flammability
- Low smoke emission (non-toxic)
- Chemical resistant
- Good impact resistance
- Ductile
- Good sterilizability
- Flame retardant
- Good dimensional stability
- FDA Compliant



Different types of Dexnyl© PEEK films offered by BIEGLO GmbH –

- PEEK Natural films – High Crystallinity
- PEEK Natural films – Amorphous
- PEEK Black films
- PEEK with Carbon fibre reinforced
- PEEK with PTFE reinforced
- PEEK Modified (PTFE + Graphite + Carbon fibre)
- PEEK with 10-30% Talc

Dexnyl© PEEK film typical applications –

- Insulation films
- Bearings and gaskets
- Washers
- Cable/wire coating
- Packaging
- Composites development
- Smartphone speaker diaphragms/cones
- Sensor technology
- Belts
- Marked labels
- Graphics printing laminate
- Heater tapes
- Adhesives & many more



2. PI-s

PI-s – Thermosetting Polyimide films

Dexnyl© PI-s Polyimide film is a thermosetting film characterized by its excellent electrical, thermal, physical, and chemical properties over a wide temperature range. The lightweight property of these films makes them superior for a wide array of applications. These films are electrically sound, have a tolerant behaviour in abrupt conditions, are highly stable and thus best suited in aerospace, electronics, industrial and other energy sector applications.

Wide range of dimensions –

Thickness – 6 µm up to 200 µm

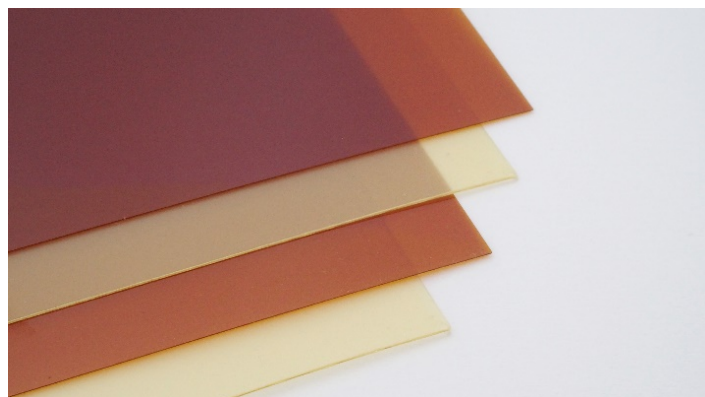
Width – 550 mm up to 1500 mm (or cut to demand)

Advantages –

- High dielectric strength
- Temperature resistance from ~ -265°C to > 410°C
- Isotropic
- Dimensionally stable
- Retains 100% tensile strength in abrupt conditions
- Scratch and abrasion resistant

Dexnyl© PI-s film typical applications –

- Integrated circuits
- Insulation films
- New energy vehicles
- Solar battery
- Aviation/Aerospace protective films
- Automotive electronics/Flexible vehicle electronics
- Flexible FCCL
- Etching
- High-intensity FPC
- COF circuit for chips encapsulation
- Flexible display products
- Medical equipment's
- Smart phones, camera, tablet PCs
- Cables, tapes & adhesives



3. TPI

TPI – Thermoplastic Polyimide films

Dexnyl© TPI Polyimide film is a thermoplastic film characterized by its excellent physical properties along with wear resistance. Thermoplastic Polyimide is the most heat resistant thermoplastic material available which makes these films thermally, chemically, electrically as well as mechanically very strong. TPI film is also inherently flame retardant.

Wide range of dimensions –

Thickness – 12.5 µm up to 150 µm

Width – 550 mm up to 1500 mm
(or cut to demand)

Advantages –

- Chemical resistant
- Flame retardant
- Good electrical properties
- High heat resistance
- Radiation resistance
- Excellent wear resistance

Dexnyl© TPI film typical applications –

- Electrical insulations
- Pressure sensitive tapes
- Heater circuits
- Mechanical parts
- Electronic parts
- Heat sealable bags
- Screen printing
- Diaphragms for sensors and manifolds
- Etching
- Shims/Washers

Different types of Dexnyl© TPI films offered by BIEGLO GmbH –

Thermoplastic Polyimide Dexnyl© 185TPI natural films

Thermoplastic Polyimide AURUM films



4. PAI

PAI – Polyamideimide films

Dexnyl© PAI film is a thermoplastic film characterized by its strength and better stiffness especially at temperatures above 150°C. These films compete with both PEEK and polyimide films, whereas PAI has excellent chemical resistance and flammability properties making it ideal for electronic and aerospace applications. The PAI films are utilised as protective films and offer a non-scratch surface even at high temperature environments mainly due to its high wear resistance and high surface hardness.

Wide range of dimensions –

Thickness – 12.5 µm up to 1000 µm

Width – 150 mm up to 1000 mm (or cut to demand)

Advantages –

- Excellent mechanical strength
- Scratch and abrasion resistant
- Chemical resistance
- Great thermal stability
- High wear resistance
- High temperature resistance
- Good adhesion properties
- High tensile and flexural strength
- Good electrical properties

Dexnyl© PAI film typical applications –

- Gaskets
- Stamped thrust washers
- Insulators in Automotive/recreational vehicle industries
- Solder mask tapes for electrical equipments
- Insulators within the electronics industry
- Insulative films in aircrafts
- Protective surfaces for service critical sensors
- Integrated optics
- Pressure sensors
- Adhesives, etc.



5. PEI

PEI – Polyetherimide films

Dexnyl® PEI film is a thermoplastic film characterized by its excellent thermal performance with a continuous use at higher temperatures. The film can maintain mechanical strength and stiffness with low thermal expansion. These films offer high heat resistance, coupled with high mechanical strength, stiffness, UV stability, and broad chemical resistance. This combination of properties proves the ability of this film to be used for a wide variety of demanding new design concepts. The PEI films has struck the 3D printing world as a high-performance material for 3D printing beds. PEI film enables 3D printing enthusiasts to produce smooth prints and surface along with an excellent finish and highly reduced adhesion problems.

Wide range of dimensions –

Thickness – 15 µm up to 1000 µm

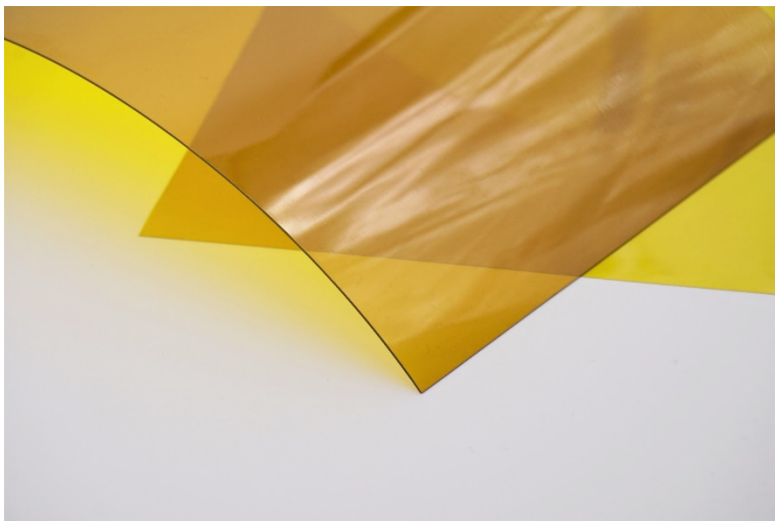
Width – 270 mm up to 1000 mm (or cut to demand)

Advantages –

- Flame retardant
- High heat resistance
- High dimensional stability
- Low smoke emission
- High strength and rigidity
- Excellent electrical properties
- Good chemical resistance
- Excellent hydrolysis resistance

Dexnyl® PEI film typical applications –

- 3D Printing surfaces
- Flexible circuits
- Solder mask tape
- Electrical insulation
- Speaker cones and voice coils
- High temperature vacuum bagging films
- 3D Printer Bed Liners



BIEGLO GmbH
Bahrenfelder Str. 242
22765 Hamburg
+49 40 40113000 0
info@bieglo.com
www.bieglo.com