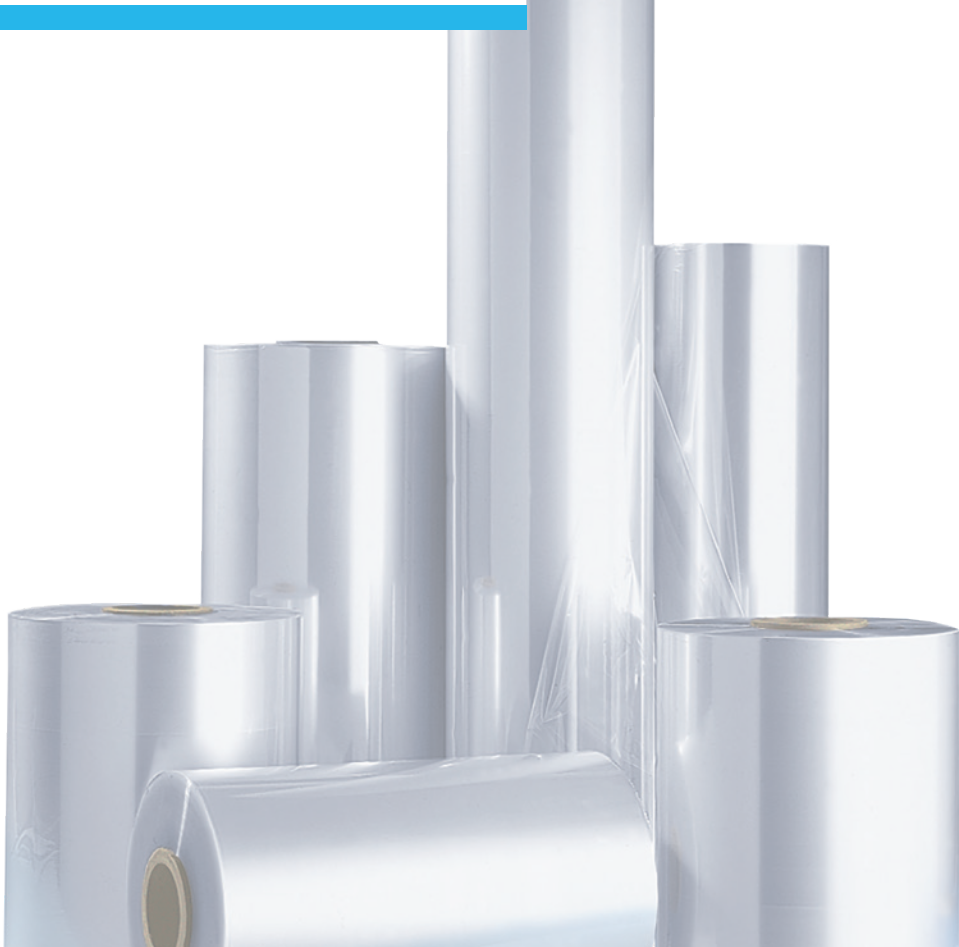




i protect



SHRINK FILM



 **Exfilm**[®]
brand shrink film

 **Exfilmplus**[®]
brand performance shrink film

i protect



SHRINK FILM

IPG® is a recognized global leader in packaging and protective solutions. We began producing polyolefin shrink film in 1993. For three decades, we have been shrink wrapping products throughout the world with films produced at our manufacturing sites in the US and Portugal.

NORTH AMERICAN MANUFACTURING

In January 2022, IPG expanded its North American shrink film production by acquiring a new film plant in Everetts, NC that allowed us to increase our production capacity and product types. This expansion will help us grow with our North American distributor partners. IPG will continue to invest in people, capital assets and product development to maintain our position and the Exfilm® line as world leaders in shrink film performance and technology.

The values of a safe work environment, environmental stewardship and good corporate citizenship are deeply embedded in IPG's culture. We live these values every day through our effective resource management, product innovation and our commitment to meet and exceed customer expectations.

IPG SUSTAINABLE ACHIEVEMENTS AND FOOD GRADE CERTIFICATIONS



Certifications and achievements are product and manufacturing plant specific.

SHRINK FILM



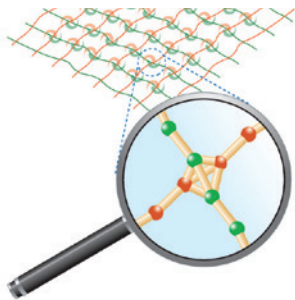
Exlfilm® polyolefin shrink film is engineered to make your packaging look its absolute best, while providing unmatched value, versatility and durability.



Exlfilmplus® films are crosslinked. The “plus” of crosslinking provides customers with a stronger film capable of working on a wider variety of equipment and sealing systems.

CROSSLINKING TECHNOLOGY

This innovative technique makes Exlfilmplus Shrink Films one of the toughest and most versatile on the market. This is because the polymer chains are permanently bound into a network, significantly increasing their heat stability and strength. Our films have an inherently greater window of seal and shrink performance at a broader range of temperatures.



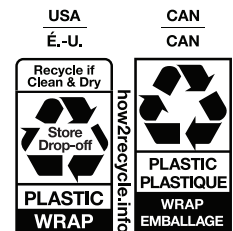
- **Prevention of buildup** on wires and knives during sealing
- **Prevention of film burn-through** in heat tunnels
- **Increased film toughness** on the finished package

In Crosslinking Technology, bonds are created where molecules crosslink, resulting in a much stronger film.



SUSTAINABILITY

- Exlfilm and Exlfilmplus shrink films are pre-approved for the store-drop off label through the How2Recycle® program
- **Post-consumer recycled (PCR) content** - Exlfilmplus PCR contains 10% certified PCR
- **Post-industrial recycled (PIR) content** - Exlfilmplus GPL, Exlfilmplus GPS, and Exlfilmplus SHIELD contain up to 25% PIR
- **Cradle to Cradle Certified®** - Exlfilmplus GPL, Exlfilmplus GPS and Exlfilmplus SHIELD are Cradle to Cradle Certified® Silver
- **Downgauge solutions** - Exlfilmplus GPL and Exlfilmplus 365 unique film formulations offer similar performance to thicker standard gauge film. Reduce film, save time, and save money.



SHRINK FILM

Exfilmplus PCR is the first clear polyolefin shrink film containing post-consumer recycled content. IPG's breakthrough proprietary film blend contains 10% post-consumer recycled content and 25% post-industrial recycled content for a total of 35% recycled content, making it an even more sustainable solution. Exfilmplus PCR offers 7%-9% yield savings compared to traditional films. Exfilmplus PCR is the ideal choice for customers seeking a more circular, sustainable shrink packaging solution.



KEY PERFORMANCE FEATURES

- Performs well on all sealing systems and tunnels
- Consistent shrink
- Strong seals



MINIMUM 35% RECYCLED CONTENT
10% POST-CONSUMER
25% PRE-CONSUMER



BENEFITS

- Contains 35% recycled content
- 7% -9% yield savings compared to traditional gauges
- Excellent machinability
- Printable
- Crosslinked technology
- Pre-perforated film available

| CHARACTERISTICS | TEST METHOD | 55 GAUGE | | 70 GAUGE | | |
|--|-------------|----------|------------|-----------|------------|-----------|
| | | MD | TD | MD | TD | |
| Roll Length – Center Fold | | | 4,770 | | 3,750 | |
| Roll Length – Single Wound | | | 9,540 | | 7,500 | |
| Post-Consumer Recycled Content | | | 10% | | 10% | |
| Post-Industrial Recycled Content | | | 25% | | 25% | |
| Low Temperature Usage (°F) | | | -45° | | -45° | |
| Shrink Temperature (°F) | | | 240 – 340° | | 240 – 340° | |
| Max. Storage Temp. (°F) 2 years max. | | | 90° | | 90° | |
| Haze % | D1003 | | 5.0 | | 5.2 | |
| Gloss at 20° | D2457 | | 110 | | 100 | |
| Coefficient of Friction (film to film), kinetic | D1894 | | 0.2 | | 0.2 | |
| Oxygen Transmission Rate (cc/100 in ² /24 hrs.) | D3985 | | 874 | | 580 | |
| Water Vapor Transmission Rate (g/100 in ² /24 hrs.) | F1249 | | 0.45 | | 0.45 | |
| | | | MD | TD | MD | TD |
| Tensile Strength (PSI) | D882 | 18,000 | 18,000 | 18,000 | 18,000 | |
| Elongation at Break (%) | D882 | 120 | 130 | 120 | 130 | |
| Stiffness Modulus (PSI) | D882 | 40,000 | 42,000 | 40,000 | 42,000 | |
| Unrestrained Shrink (%) @ 250°F | D2732 | 65 | 65 | 65 | 65 | |
| Tear Propagation (g / ply) | D1922 | 15 | 15 | 18 | 18 | |

Note: These values are typical and not intended as limiting specifications.
MD = Machine Direction
TD = Transverse Direction



Exfilmplus PCR is pre-approved for the Store Drop-off label through the How2Recycle® program.

SHRINK FILM

Exfilmplus GPL, available in 35, 42, and 55 gauge, is a thin gauge, high performance, crosslinked polyolefin shrink film. Exfilmplus GPL provides customers superior machinability, clarity and cost savings through higher yield. Exfilmplus GPL's unique shrink characteristics make it the ideal choice for both general use and light force applications for printers, bakeries and many others.



KEY PERFORMANCE FEATURES

- High yield
- Wide operating window
- Minimal shrink force

BENEFITS

- Ultra light gauge
- Lowest cost per package
- Consistently strong seals
- Superior clarity and gloss
- Minimal shrink force
- Excellent machinability
- Crosslinked technology
- Pre-perforated film available
- Available on 3in or 6in core
- Contains post industrial recycled content



| CHARACTERISTICS | TEST METHOD | GAUGE | | | | | |
|--|-------------|------------|-----------|------------|-----------|------------|-----------|
| | | 35 | | 42 | | 55 | |
| Roll Length - Center Fold | | 7,500 | | 6,250 | | 4,770 | |
| Roll Length - Single Wound | | 15,000 | | 12,500 | | 9,540 | |
| Post Industrial Recycled Content (not less than %) | | — | | 10 | | 20 | |
| Low Temperature Usage (°F) | | -45° | | -45° | | -45° | |
| Shrink Temperature (°F) | | 240 - 340° | | 240 - 340° | | 240 - 340° | |
| Max. Storage Temp. (°F) 2 years max. | | 90° | | 90° | | 90° | |
| Haze % | D1003 | 2.1 | | 2.3 | | 2.4 | |
| Gloss at 20° | D2457 | 125 | | 135 | | 135 | |
| Coefficient of Friction (film to film), kinetic | D1894 | 0.22 | | 0.22 | | 0.22 | |
| Oxygen Transmission Rate (cc/100 in ² /24 hrs.) | D3985 | 1550 | | 1,100 | | 1,100 | |
| Water Vapor Transmission Rate (g/100 in ² /24 hrs.) | F1249 | 1.07 | | 0.81 | | 0.74 | |
| | | MD | TD | MD | TD | MD | TD |
| Tensile Strength (PSI) | D882 | 17,000 | 17,000 | 17,000 | 16,000 | 17,000 | 16,000 |
| Elongation at Break (%) | D882 | 100 | 110 | 115 | 125 | 130 | 140 |
| Stiffness Modulus (PSI) | D882 | 50,000 | 50,000 | 40,000 | 40,000 | 40,000 | 40,000 |
| Unrestrained Shrink (%) @ 250°F | D2732 | 72 | 72 | 72 | 72 | 72 | 72 |
| Tear Propagation (g / ply) | D1922 | 10 | 11 | 11 | 11 | 13 | 13 |

Note: These values are typical and not intended as limiting specifications.
MD = Machine Direction
TD = Transverse Direction



Exfilmplus GPL is Cradle to Cradle Certified® Silver and pre-approved for the Store Drop-off label through the How2Recycle® program.



SHRINK FILM

Exfilmplus GPS is a high performance crosslinked polyolefin shrink film. This multi-layered film is versatile enough to perform on all sealing systems and shrink tunnels. The premium resin formulation provides our strongest seals ever. Exfilmplus GPS offers high shrink force, making it the ideal choice for multi-packing and unitizing product.



KEY PERFORMANCE FEATURES

- Consistently strong seals
- Wide operating window
- High shrink force

BENEFITS

- Wide window of operation
- Superior sealing performance
- Higher shrink force
- Printable
- FDA compliant
- Excellent machinability
- Crosslinked technology
- Pre-perforated film available
- Available on 3in or 6in core
- Contains post industrial recycled content

| CHARACTERISTICS | TEST METHOD | GAUGE | | | | | | | | | | | |
|--|-------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|
| | | 45 | | 60 | | 75 | | 100 | | 125 | | 150 | |
| Roll Length - Center Fold | | 5,830 | | 4,375 | | 3,500 | | 2,625 | | 2,100 | | 1,750 | |
| Roll Length - Single Wound | | 11,660 | | 8,750 | | 7,000 | | 5,250 | | 4,200 | | 3,500 | |
| Post Industrial Recycled Content (not less than %) | | 15 | | 20 | | 20 | | 20 | | 20 | | 20 | |
| Low Temperature Usage (°F) | | -45° | | -45° | | -45° | | -45° | | -45° | | -45° | |
| Shrink Temperature (°F) | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | |
| Max. Storage Temp. (°F) 2 years max. | | 90° | | 90° | | 90° | | 90° | | 90° | | 90° | |
| Haze % | D1003 | 2.6 | | 2.8 | | 3.0 | | 3.3 | | 4.3 | | 4.5 | |
| Gloss at 20° | D2457 | 135 | | 135 | | 135 | | 125 | | 125 | | 115 | |
| Coefficient of Friction (film to film), kinetic | D1894 | 0.2 | | 0.2 | | 0.2 | | 0.2 | | 0.17 | | 0.17 | |
| Oxygen Transmission Rate (cc/100 in ² /24 hrs.) | D3985 | 1,203 | | 874 | | 700 | | 503 | | 400 | | 319 | |
| Water Vapor Transmission Rate (g/100 in ² /24 hrs.) | F1249 | .88 | | .45 | | .39 | | .29 | | .24 | | .20 | |
| | | MD | TD | MD | TD | MD | TD | MD | TD | MD | TD | MD | TD |
| Tensile Strength (PSI) | D882 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 18,000 | 20,000 | 20,000 | 20,000 | 20,000 | 15,000 | 16,000 |
| Elongation at Break (%) | D882 | 115 | 125 | 120 | 130 | 130 | 135 | 140 | 150 | 150 | 150 | 160 | 160 |
| Stiffness Modulus (PSI) | D882 | 38,000 | 40,000 | 40,000 | 42,000 | 42,000 | 44,000 | 43,000 | 48,000 | 44,000 | 44,000 | 35,000 | 45,000 |
| Unrestrained Shrink (%) @ 250°F | D2732 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 65 | 63 | 63 |
| Tear Propagation (g / ply) | D1922 | 12 | 12 | 16 | 16 | 18 | 18 | 25 | 25 | 27 | 27 | 30 | 30 |

Note: These values are typical and not intended as limiting specifications.
MD = Machine Direction
TD = Transverse Direction



Exfilmplus GPS is Cradle to Cradle Certified® Silver and pre-approved for the Store Drop-off label through the How2Recycle® program.



SHRINK FILM

Exfilmplus 365 is a newly developed all-purpose crosslinked polyolefin shrink film. This uniquely engineered multi-layered film demonstrates exceptional performance on manual, semi-automatic and high-speed automatic equipment. The thinner gauges offer a 7%-11% yield savings compared to traditional films. In addition to material savings, longer roll lengths improve uptime due to fewer roll changeovers. Exfilmplus 365 exhibits strong seals, quick shrink initiation, and improved optics. Exfilmplus 365 delivers worry free performance "All day, every day".



KEY PERFORMANCE FEATURES

- Wide operating window
- Quick shrink initiation
- Improved optics

BENEFITS

- 7% - 11% Yield savings when compared to traditional films
- Wide window of operation
- Category leading shrink performance
- FDA compliant
- Crosslinked technology
- Optional pre-perforation
- Available on 3" and 6" core

| CHARACTERISTICS | TEST METHOD | GAUGE | | | | | | | | | | | | | | | |
|--|-------------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|------------|--------|--|--|
| | | 45 | | 55 | | 70 | | 90 | | 115 | | 150 | | 200 | | | |
| Roll Length - Center Fold | | 5,830 | | 4,770 | | 3,750 | | 2,910 | | 2,280 | | 1,750 | | 1,310 | | | |
| Roll Length - Single Wound | | 11,660 | | 9,540 | | 7,500 | | 5,820 | | 4,560 | | 3,500 | | 2,620 | | | |
| Low Temperature Usage (°F) | | -45° | | -45° | | -45° | | -45° | | -45° | | -45° | | -45° | | | |
| Shrink Temperature (°F) | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | | 240 - 340° | | | |
| Max. Storage Temp. (°F) 2 years max. | | 90° | | 90° | | 90° | | 90° | | 90° | | 90° | | 90° | | | |
| Haze % | D1003 | 3.5 | | 3.5 | | 4.0 | | 4.6 | | 5.4 | | 6.0 | | 6.0 | | | |
| Gloss at 20° | D2457 | 120 | | 120 | | 110 | | 100 | | 100 | | 100 | | 100 | | | |
| Coefficient of Friction (film to film), kinetic | D1894 | 0.21 | | 0.21 | | 0.21 | | 0.20 | | 0.20 | | 0.17 | | 0.17 | | | |
| Oxygen Transmission Rate (cc/100 in ² /24 hrs.) | D3985 | 770 | | 700 | | 580 | | 520 | | 400 | | 300 | | 250 | | | |
| Water Vapor Transmission Rate (g/100 in ² /24 hrs.) | F1249 | 0.65 | | 0.55 | | 0.45 | | 0.32 | | 0.26 | | 0.20 | | 0.16 | | | |
| | | MD | TD | MD | TD | MD | TD | MD | TD | MD | TD | MD | TD | MD | TD | | |
| Tensile Strength (PSI) | D882 | 12,500 | 13,000 | 12,500 | 13,000 | 12,500 | 13,000 | 12,500 | 13,000 | 12,500 | 13,000 | 12,500 | 13,000 | 12,500 | 13,000 | | |
| Elongation at Break (%) | D882 | 100 | 115 | 110 | 115 | 110 | 115 | 125 | 130 | 150 | 150 | 160 | 150 | 160 | 150 | | |
| Stiffness Modulus (PSI) | D882 | 30,000 | 40,000 | 30,000 | 40,000 | 30,000 | 40,000 | 30,000 | 40,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | | |
| Unrestrained Shrink (%) @ 250°F | D2732 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 72 | 70 | 70 | 70 | 70 | | |
| Tear Propagation (g / ply) | D1922 | 18 | 14 | 20 | 16 | 22 | 18 | 25 | 20 | 40 | 30 | 45 | 45 | 45 | 45 | | |

Note: These values are typical and not intended as limiting specifications.
MD = Machine Direction; TD = Transverse Direction



Exfilmplus 365 is pre-approved for the Store Drop-off label through the How2Recycle® program.

SHRINK FILM

Exfilm 307 is a strong, multi-layered polyolefin shrink film with balanced shrink properties. This film is ideally suited for high speed static lap and wire sealing systems, and exhibits superior clarity, gloss, and optics.



KEY PERFORMANCE FEATURES

- High yield
- Wide operating window
- Excellent optics



BENEFITS

- High speed performance
- Excellent machinability
- Superior clarity and gloss
- Excellent static sealing
- Consistently strong seals
- Pre-perforated film available
- Available on 3in or 6in core

| CHARACTERISTICS | TEST METHOD | GAUGE | | | | | | | |
|--|-------------|------------|--------|------------|--------|------------|--------|------------|--------|
| | | 50 | | 60 | | 75 | | 100 | |
| Roll Length – Center Fold | | 5,250 | | 4,375 | | 3,500 | | 2,625 | |
| Roll Length – Single Wound | | 10,500 | | 8,750 | | 7,000 | | 5,250 | |
| Low Temperature Usage (°F) | | -40° | | -40° | | -40° | | -40° | |
| Shrink Temperature (°F) | | 240 – 340° | | 240 – 340° | | 240 – 340° | | 240 – 340° | |
| Max. Storage Temp. (°F) 2 years max. | | 90° | | 90° | | 90° | | 90° | |
| Haze % | D1003 | 3.0 | | 3.2 | | 3.4 | | 3.6 | |
| Gloss at 20° | D2457 | 125 | | 115 | | 115 | | 115 | |
| Coefficient of Friction (film to film), kinetic | D1894 | 0.15 | | 0.15 | | 0.15 | | 0.15 | |
| Oxygen Transmission Rate (cc/100 in ² /24 hrs.) | D3985 | 527 | | 431 | | 344 | | 333 | |
| Water Vapor Transmission Rate (g/100 in ² /24 hrs.) | F1249 | 1.91 | | 1.52 | | 1.179 | | 0.93 | |
| | | MD | TD | MD | TD | MD | TD | MD | TD |
| Tensile Strength (PSI) | D882-80 | 13,000 | 13,000 | 13,000 | 13,000 | 13,000 | 13,000 | 13,000 | 13,000 |
| Elongation at Break (%) | D882-80 | 120 | 120 | 120 | 120 | 140 | 140 | 140 | 140 |
| Stiffness Modulus (PSI) | D882-80 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 | 40,000 |
| Unrestrained Shrink (%) @ 250°F | D2732 | 62 | 62 | 62 | 62 | 62 | 62 | 62 | 62 |
| Tear Propagation (g/ply) | D1922 | 11 | 11 | 14 | 14 | 20 | 20 | 25 | 25 |

Note: These values are typical and not intended as limiting specifications.
MD = Machine Direction; TD = Transverse Direction



Exfilm 307 is pre-approved for the Store Drop-off label through the How2Recycle® program.

SHRINK FILM

IPG's new Exfilm^{plus} Shield is a polyolefin shrink film designed to conceal the contents of wrapped products. This heavy-duty film can be used to replace expensive corrugated containers.



KEY PERFORMANCE FEATURES

- Fully opaque gray film
- Designed for fulfillment houses and e-commerce shippers
- Fully recyclable



BENEFITS

- Eliminates the corrugated container and void fill when packaging items strong enough to withstand the rigors of shipping
- High speed pack off for improved output rates and lower labor costs
- Crosslinked technology provides consistent sealing and shrinking
- Printable for enhanced marketing opportunities

| CHARACTERISTICS | TEST METHOD | GAUGE | | | |
|--|-------------|------------|--------|------------|--------|
| | | 100 | | 150 | |
| Color | | Gray | | Gray | |
| Roll Length - Center Fold | | 2,625 | | 1,750 | |
| Roll Length - Single Wound | | 5,250 | | 3,500 | |
| Post Industrial Recycled Content (not less than %) | | 25 | | 25 | |
| Low Temperature Usage (°F) | | -45° | | -45° | |
| Shrink Temperature (°F) | | 240 - 340° | | 240 - 340° | |
| Max. Storage Temp. (°F) 2 years max. | | 90° | | 90° | |
| Transmittance % | D1003 | 5.5 | | 2.5 | |
| Gloss at 20° | D2457 | 60 | | 68 | |
| Coefficient of Friction (film to film), kinetic | D1894 | 0.17 | | 0.12 | |
| Oxygen Transmission Rate (cc/100 in ² /24 hrs.) | D3985 | 421 | | 265 | |
| Water Vapor Transmission Rate (g/100 in ² /24 hrs.) | F1249 | .32 | | .19 | |
| | | MD | TD | MD | TD |
| Tensile Strength (PSI) | D882 | 14,000 | 14,000 | 14,000 | 14,000 |
| Elongation at Break (%) | D882 | 150 | 140 | 155 | 145 |
| Stiffness Modulus (PSI) | D882 | 47,000 | 50,000 | 35,000 | 45,000 |
| Unrestrained Shrink (%) @ 250°F | D2732 | 65 | 65 | 63 | 63 |
| Tear Propagation (g/ply) | D1922 | 23 | 23 | 35 | 35 |

Note: These values are typical and not intended as limiting specifications.
MD = Machine Direction; TD = Transverse Direction



Exfilm^{plus} GPS is Cradle to Cradle Certified® Silver and pre-approved for the Store Drop-off label through the How2Recycle® program.





CORPORATE PROFILE

Headquartered in Sarasota, Florida, IPG is a global provider of packaging and protective solutions across a diversified set of geographies and end-markets. The Company develops, manufactures, and sells a variety of solutions including paper and film-based pressure-sensitive and water-activated tapes, stretch and shrink films, protective packaging, woven and non-woven products and packaging machinery.

NORTH AMERICA

- | | | |
|----------------------|-------------------|--------------------|
| 1. Ansonia, CT | 8. Carlstadt, NJ | 14. Everetts, NC |
| 2. Atlanta, GA | 9. Carrollton, TX | 15. Marysville, MI |
| 3. Bardstown, KY (2) | 10. Chicago, IL | 16. Menasha, WI |
| 5. Blythewood, SC | 11. Corona, CA | 17. Midland, NC |
| 6. Brighton, CO | 12. Cornwall, ON | 18. Montreal, QC |
| 7. Carbondale, IL | 13. Danville, VA | 19. Sarasota, FL |

EUROPE

- | | |
|---------------------|------------------------|
| 20. Schaumburg, IL | 25. Flensburg, Germany |
| 21. Springfield, OH | 26. Porto, Portugal |
| 22. Toronto, ON | 27. Soest, Germany |
| 23. Tremonton, UT | 28. Widnes, UK |
| 24. Truro, NS | |

ASIA

- | |
|--------------------------|
| 29. Chopanki, India |
| 30. Daman, India |
| 31. Dahej, India |
| 32. Jiangmen City, China |
| 33. Karoli, India |

