

3M™ Exterior Trim Film

September 2017

Frequently Asked Questions – External Use

General Product Information

Q: What is 3M™ Exterior Trim Film?

A: 3M™ Exterior Trim Film is a film that can be applied to exterior trim components such as beltline moldings to give a metallic or high gloss black appearance – replacing formed metal, chrome-plated plastic or painted parts.

Q: What are the advantages of 3M™ Exterior Trim Film?

A: Advantages of 3M™ Exterior Trim Film include:

- **Model differentiation** - different finishes for the same base components
- **Streamlined manufacturing process** - enables shorter cycle times and fewer process steps
- **Weight reduction** – substitute plastic components for traditional metal parts
- **Design flexibility** – film demonstrates excellent elongation for complex designs
- **Speed to Market** – simple change of Exterior Trim Film rolls enables quick changeover of color or finish on parts without additional tooling costs
- **Cost savings** – In-line process requires limited extra tooling cost and enables increased capacity, reduced unit cost and yield loss reduction
- **Helps OEMs comply with chromate reduction initiatives** - 3M Exterior Trim Film helps OEMs move away from traditional chrome plating and galvanized processes (plastic parts), which can be hazardous to the environment and worker health
- **Cost effective trim solution** – process enables improved styling for A and B segment and low volume models
- **Corrosion and weather resistance** – non-metal alternative reduces potential for corrosion

Q: What types of applications would be good targets for this Film?

A: These films are initially targeted at replacing formed metal, chrome-plated plastic or painted parts on beltline moldings. Additional exterior trim component applications can be explored on a case by case basis. Please contact your technical service representative for further evaluation.

Q: What types of finishes are available?

A: The film is currently available in three finishes and compatible with three processes:

- High Gloss Metal - FPO9101JH co-extrusion, FPB9101JH injection molding
- Matte Gloss Metal - FPO9201JH co-extrusion, FPB9201JH injection molding
- High Gloss Black - FPO8501JH co-extrusion, FPB8501JH injection molding, FPS6505J roll forming process

Q: Is the film in other colors available?

A: The above mentioned colors represent the actual portfolio. Contact your local 3M representative for specific requests.

Q: What substrates are compatible with this film?

A: This product is formulated to work with TPO (Thermo Plastic Olefins) and metal substrates. Compatibility with other substrates should be evaluated on a case by case basis. Please contact your local technical service representative for assistance.

Q: How is Exterior Trim Film supplied?

A: The product is currently available in planetary rolls up to 250m long. Rolls can be slit to order in increments of 0.5 mm to widths of 15.0mm – 32.5mm* for the co-extrusion and roll forming process. Master rolls of 290 / 390 mm* x 90 m are available for the injection molding process

*Additional slit roll dimensions and roll length may be available upon request – check with your sales representative for availability

Q: What is the minimum order quantity for Exterior Trim Film?

A: Minimum orders are 1000m² for slit rolls for co-extrusion process-and one Master roll for injection molding process.

Processing

Q: What are the advantages of using this material in my process?

A: 3M™ Exterior Trim Film enables the following manufacturing process advantages:

- Compatibility with existing extrusion, injection molding and roll forming processes
- Elimination of process steps traditionally associated with creating metal or painted beltline molding parts, enabling faster cycle times, increased capacity and reduced unit costs.
- Minimal tooling investment, especially for extrusion processes, allows faster reaction time to customer change requests and makes process economically feasible for low/medium volume vehicles.
- Helps OEMs move away from traditional chrome plating and galvanized processes (plastic parts), which can be hazardous to the environment and worker health

Q: What substrates are compatible with these films?

A: This product is formulated to work with TPO (Thermo Plastic Olefins), ABS, ABS-PC and metal substrates. Compatibility with other substrates should be evaluated on a case by case basis. Please contact your local technical service representative for assistance.

Q: Is the product die-cuttable?

A: Yes, this product is die-cuttable per existing die-cutting tools. Die-cut, laser or ultrasonic techniques are preferred trimming processes. Computerized Numerical Control (CNC) also feasible for trimming.

Q: How is the film applied?

A: Extrusion: The film is laminated to the base substrate such as TPO during the extrusion process. The film can be laminated directly in the extrusion die forming the profile, or right after the profile leaves the die by using a specific lamination shoe or tool. Please contact your local technical service representative for assistance.

Injection Molding: The film is pre-thermoformed and trimmed before injection molding with ABS, ABS-PC and other compatible polymers. A direct injection process is also feasible. Please contact your local technical service representative for assistance.

Roll Forming: The film is laminated to the metal substrate during the roll forming process. This process will require priming the PVC resin when laminating to Stainless Steel. (Do not laminate directly to stainless steel.) The recommended adhesion promoter for this process is Konishi KBS-17A/B.

Q: What automated and processing equipment should be used to apply this product?

A: This film requires a continuous extrusion line process, injection molding or roll forming process-

Q: What is the recommended application temperature range for the film?

A: Extrusion: During the application process, the temperature of the substrate should be above 160°C to ensure there is sufficient bond between the 3M™ Exterior Trim Film and the substrate. The TPO is typically extruded at temperatures between 180°C -210°C. These temperatures are more than adequate to ensure a good bond to the substrate.

Injection Molding: Before back injection molding, the thermoforming film temperature range should be between 138°C to 145°C. A hot channel injection is preferred for the injection molding process and injection temperature should be above 240°C. The cavity temperature of the injection tool should be up to 80°C.

Roll Forming: The roll forming temperature range is 40°C - 60°C. The heating temperature before inserting PVC resin should be less than 135°C. The temperature after film lamination should be more than 180°C. Prime PVC resin when laminating to Stainless Steel. (Do not laminate directly to stainless steel.) The recommended adhesion promoter for this process is Konishi KBS-17A/B.

For all processes, the processing must take place in a clean environment to avoid visual defects from dust and debris.

Q: What is the maximum temperature that can be used while applying Exterior Trim Film?

A: The maximum application temperature is 270°C, depending on piece geometry and mold temperature.

Q: Can a water cool down process be used after the film application?

A: Yes, a water cooling process can be used to cool the part after the co-extrusion process. The part can also be cooled using an air process. For the injection molding and roll forming processes, a cooling process is not mandatory after

Q: When should the transparent, protective polyester strip be removed from the part?

A: Removal of the protective liner will depend on your process. Please contact your local technical service representative for guidance.

Product Performance

Q: Are OEM specification data packages available?

A: Select OEM specification data packages are available. If you have an OEM application and need specification data, contact your local technical service representative for assistance.

Q: Is the product available in another color or finish besides high gloss chrome, matte chrome and high gloss black?

A: Contact your local 3M representative to discuss alternative finishes and colors.

Pricing

Q: How much will this product cost?

A: The product is priced competitively and in line with the current portfolio of products. The price reflects the appropriate value to customers and allows for total system savings for lower overall costs through production efficiencies and lower cost of poor quality. Contact your local 3M representative.

Source of Supply

Q: Where is the product produced?

A: The product is produced entirely in 3M manufacturing facilities.

Q: When may we audit the plant?

A: The quality system may be audited, but due to the confidential nature of the process we are unable to offer tours of operations.

Q: Where are the raw materials sourced?

A: The formulation is confidential. The raw materials are sourced from multiple suppliers around the world.

Quality

Q: How do you ensure the continuity of product quality?

A: 3M uses ISO 16949 standards to ensure a robust quality system is in place and utilizes regular quality control in the labs to measure the products quality.

Q: How is the dimension of the product controlled? What test methods are used for dimension measurement?

A: Procedures are in place to assure products will meet all aspects of product specifications.

Q: Is 3M able to provide a statement of quality assurance?

A: 3M defines the quality assurance statement on the Exterior Trim Film, only. For finish goods statements of quality assurance, please contact your Tier.



Storage and Handling

Q: What is the shelf life of the product?

A: Twelve (12) months from date of manufacture when stored at room temperature.

Q: What are the storage conditions?

A: Product should be stored at room temperature and used within twelve (12) months from date of manufacture.

Delivery and Supply

Q: When will the product be available?

A: Samples and master rolls are now available with additional production planned. However, as with any new product, to ensure adequate and uninterrupted supply, please submit a ramp up forecast as early as possible and double check lead times. Contact your 3M customer service or sales representative.

Q: What is the lead time for the product?

A: Lead times are determined by receiving location, local import regulations, and product availability. However, as with any new product, to ensure adequate and uninterrupted supply please submit a ramp up forecast as early as possible and double check lead times. Contact your 3M customer service representative.

Samples

Q: Where can I get samples?

A: Contact your local 3M representative.

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