Extreme™ Plus D
Decorative Thermoplastic Polyolefin Sheet

PRODUCT DESCRIPTION

Extreme™ Plus D is a high performance polyolefin sheet which has been enhanced with a decorative pattern. For those OEMs looking for design flexibility and a desire to differentiate their product with a camouflages, wood grains, marble, stone, graphite look, or custom solid colors Extreme™ Plus D is the most cost effective product in the marketplace for large part thermoforming applications. Extreme™ Plus D is a replacement option for painted surfaces or can act as an adhesion layer for painting TPO substrates.

MARKETS AND APPLICATIONS

Extreme™ Plus D is a great choice for a wide range of applications and market segments including:

- **Agricultural & Construction Equipment** – engine hoods, covers, fenders, instrument panels
- **Medium & Heavy Truck** – front bumpers, air deflectors, tank flares
- **Recreational Vehicles** – front bumpers, end caps, light bars, slide out covers
- **Power Sports** – ATV fenders, flares, body armor, front hoods, canopies, dash boards, accessories
- **Automotive Aftermarket** – scoops/spoilers, body armor, ground effects, tonneau covers
- **Lawn & Garden** – fenders, front hoods, instrument fronts, canopies
- **Marine** – kayak and paddle boat decks, canoe body and instrument panels

KEY CHARACTERISTICS

- Molded in decorative pattern or solid colors
- Acrylic cap for scratch and mar protection
- Tough, high impact thermoplastic TPO substrate
- Good UV protection and resistance
- Paint surface without prime coat
- Wide thermoforming process window
- Vibration resistant
- Low CLTE for dimensional stability

PROCESSING

Extreme™ Plus D TPO Sheet can be thermoformed in standard thermoforming ovens, although zoned ceramic or quartz heaters are recommended. Forming over temperature-controlled aluminum tooling results in the best part aesthetics. Molds made from fiberglass or epoxy, can be used for tooling prototyping or small part runs. Care must be taken in forming to heat sheet evenly and not overheat. Stock temperatures of approximately 340 °F – 360 °F are recommended targets, but each process should be adjusted to allow proper forming. As with any thermoplastic material, coefficient of thermal expansion and mold shrinkage should be considered for proper part fit and tooling design.

AVAILABILITY

Print Patterns & Solid Colors

Extreme™ Plus D overlays are available in standard print patterns such as camouflages, graphite and wood grains as well as custom and solid colors.

Extreme™ Plus D substrate layer is offered in a wide variety of customer colors for matching.

Available Textures – Smooth hair cell and calf

Extreme™ Plus D is a custom extruded sheet product

- **Sheet size** – maximum width is 62"
- **Gauges** – 0.060" - 0.400"

Minimum Order – 5,000 lbs. per production run. Acrylic film minimum order requirement is 800 lbs.

TECHNICAL PROPERTIES

PROPERTY	TEST METHOD	UNITS	DATA
Specific Gravity	ASTM D792	–	1.08 - 1.13
Tensile Strength	ASTM D638	psi/MPa	3,100/21
Flexural Modulus	ASTM D790	psi/MPa	270,000/1,860
Flexural Strength	ASTM D790	psi	9,600
Izod Impact (Notched) 73° F	ASTM D256	ft-lbs/in	6.5
Melt Flow Rate	ASTM D1238	g/10 min	0.7
Coefficient of Linear Thermal Expansion	ASTM D696	-30 - 30° C	$2.2x10^5$ in/in/° F
Deflection Temperature Under Load, 66 psi	ASTM D648	°F/°C	240/110
Gardner Gloss	ASTM D523	60%	25-30% Typical
Gardner Impact	Gardner	in-lbs	270

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