

XTRAFORM M HCL

Product Data Sheet

Formable Hardcoated Polycarbonate Film

DESCRIPTION

XtraForm M HCL is a formable hardcoated polycarbonate film with a gloss finish on the hardcoat side and matt on the reverse. The hardcoat surface has a protective laminate.

XtraForm M HCL is designed for deep draw 3D film insert molding (FIM) applications using the XtraForm process.



PROCESS RECOMMENDATIONS

Method	Recommendations
Handling	The film must be handled in UV safe conditions at every process stage until the UV cure is complete
Printing	Second surface decoration can be achieved with a variety of suitable screen printing inks, <u>excluding</u> UV inks. The hard coating will slightly retard the drying of solvent inks. The ink manufacturer's process recommendations must be used to develop production processes. We do not recommend that baking cycles, in the printing process, exceed 5 hours at 80 degrees Celsius. Colour matching of the ink and film must be undertaken with the protective laminate removed ¹
Forming	In a constant smooth action, remove protective laminate on top of the hardcoat surface prior to forming. Use static control measures to prevent contamination. Thermoforming or pressure forming by the Niebling process must be carried out <i>after</i> decoration ¹
Curing	The formed part must be UV cured immediately after forming to prevent any scratching during subsequent processing ¹
Cutting	Trimming of the formed part should be carried out with precision matched metal tooling for optimum results ¹
Inject molding	The printed, formed and trimmed part is inserted into a suitably designed injection mold tool cavity and resin injected onto the printed side of the film ¹
Hazards warnings	Refer to MSDS

¹Full processing guidelines for printing, cutting, moulding, UV curing and forming are available and must be referred to when designing a process using this product.



TYPICAL PROPERTIES

Property	XtraForm M HCL	Test Method ²
Thickness 180 µm 250 µm 380 µm	180 µm ± 8% 258 µm ± 8% 380 µm ± 8%	Test method 096
Haze	< 1.6%	ASTM D1003
Total Luminous Transmission	89 %	ASTM D1003
Yellowness Index Uncured Cured	≤4 ≤6	ASTM E313
Resistance to Humidity	No adhesion loss or visible change	72 hours @ 60°C,95% RH
Gloss level 20° 60° 85°	85 GU 92 GU 100 GU	ASTM D523 Flat, black back-printed
Heat ageing	No adhesion loss or visible change	240 hrs @ 90°C
Taber abrasion 25 cycles 100 cycles	Change in % haze < 5.0 <15.0	Test method 103 CS10F wheel, 500grams

² For details of test method, please contact MacDermid

BASE FILM DATA³

Property	Data	Test Method
Tensile strength	≥ 60 MPa / 23°C	ASTM D882
Water absorption equilibrium	0.4%	ASTM D570
Specific gravity	1.2 g/cm ³	ASTM D792
Elongation at break	≥ 100% / 23°C	ASTM D882

³Derived from suppliers' literature. The coating slightly enhances most properties

All properties quoted show typical values Shelf life: 6 months IMDS ID-No: 451576015



CONTACT INFORMATION

To confirm this is the most recent issue, please contact us:

AutomotiveFilms@macdermidenthone.com

Americas 245 Freight Street Waterbury, CT 06702, USA (800) 323 0632	Europe & rest of the world Grove Road, Wantage, Oxon OX12 7BZ, UK +44 (0) 1235 771111	Asia 26 Tuas West Road Singapore 638382 +65 6862 3327
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Website: industrial.macdermidenthone.com

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