



XMAPP™ Technology

Your Fast Track to Consistent, Compliant Interior Parts



Accelerate Smart Interior Part Development with XMAPP™ Technology

Powered by the XtraForm® Continuous Improvement Program

XMAPP Technology is a powerful combination of advanced materials and deep process expertise, designed to streamline the development, validation, and production of smart automotive interior parts.

Built on the XtraForm Continuous Improvement Program using XMAPP™ services enables manufacturers to:

- Reduce development time by aligning with globally recognized performance standards
- Ensure consistent quality across gloss levels, scratch resistance, chemical resistance, and formability
- Meet or exceed OEM specifications with confidence and repeatability
- Minimize production risks by removing variability across sites and suppliers
- Accelerate time-to-market with validated materials and processes

XMAPP Technology services, include tailored manufacturing guidance and expert consultation across every production step, helping you avoid costly scrap, simplify global production, and stay ahead of OEM quality demands.



What You Get with XMAPP™ + XtraForm®

- Meet global automotive specifications
- Achieve consistent quality across regions
- Products meet various automotive specifications
- Consistency in producing parts globally

What Does XMAPP Mean?

XtraForm Materials Mapping and Analysis of Product Design & Production Processes



Choose the Right XMAPP Standard for Your Process

XMAPP offers three tailored standards — XMAPP Liquid, XMAPP 2D, and XMAPP 3D — each aligned to a specific XtraForm product range.

The XMAPP standard depends on the XtraForm product manufactured by the XMAPP Partners:



Standard	Pictures	Overview
XMAPP Liquid		XtraForm Liquid product range offers a cost-effective method of adding selective surface textures and antiglare effects
XMAPP 2D		XtraForm 2D polycarbonate film hardcoated with gloss and antiglare finishes for flatter applications
XMAPP 3D		XtraForm 3D is available in: - Gloss: 3D formable hardcoated high gloss finish film - Antiglare: 3D formable hardcoated textured film (35GU & 65GU Antiglare) - Matt: Low gloss finish (5GU & 15GU Matt)



Match XMAPP Performance to Your Part Complexity

Powered by Design



XMAPP performance levels are tailored to:

- The complexity of your part geometry
- The quality expectations set by OEMs and required by XMAPP Partners

You get a performance level that fits your needs — no overengineering, no underperformance.

Illustrations	XMAPP Liquid	XMAPP 2D	XMAPP 3D			
			1K Molding	2K Molding	R (Registration)	D (Displays)
The Complexity of Automotive Parts	No special requirements	1K or 2K molding displays. (Suitable to form 650 mm part)	1K molding	X		
			2K molding		X	
			1K or 2K molding			X
High Registration (Motif Accuracy)	Registration tolerance <=0.35mm*	No special requirements			X	
Cosmetic	High cosmetic requirement (Depending on OEM/Tier 1s spec)	No special requirements				X

*<=0.35mm: Registration tolerance is related to the XtraForm part and depends on several factors, design and dimension for example. The 0.35mm specifications is based on an XtraForm part like the one illustrated in the R column in the above table. It is important to agree the capability of the application with the XMAPP Partners.

How We Qualify XMAPP Partners

We assess each XMAPP Partner's capabilities through a rigorous audit, evaluating:

- FIM (Film Insert Molding) equipment
- Quality Control for printing motif registration
- Contamination prevention capabilities

XMAPP Partners receive a certificate confirming their use of XMAPP Technology and their status under the XMAPP brand. This certification enables partners to integrate XMAPP standards into their processes and products, while clearly demonstrating proven quality and performance to customers.



XMAPP Partner Capabilities	XMAPP Liquid	XMAPP 2D	XMAPP 3D Standard Levels			
			1K Molding	2K Molding	R (Registration)	D (Display)
Forming	No requirement	N/A	Medium pressure (pressure >=10 bar)		- High pressure (>=40 bars) - Heater elements are individually and independently controllable	- Large (>=650 mm film) High pressure (>=80 bars)
UV Curing	H lamp		H lamp		H Lamp	
Molding	1K molding or 2K molding		1K molding	2K molding	1K molding or 2K molding	Large 1K or 2K Molding (>=500 T)
Quality Control					- Offline registration or - Inline registration	No requirement
Contamination Prevention	Good cleaning standard	Good cleaning standard	Good cleaning standard		Enclosure molding	- Enclosure forming or clean room forming - Enclosure molding with positive pressure and HEPA filter in molding - Inline cleaning during molding process



Continuous Validation. Guaranteed Performance

MacDermid Alpha continuously educates, audits and validates XMAPP Partners to ensure:

- Compliance with XMAPP specifications
- Performance under extreme conditions

We test for:

- Chemical resistance
- High-temperature resistance
- Hard-wearing



You get peace of mind — every part meets the toughest standards, every time.

XtraForm Properties	Test Method	XMAPP Specification	XMAPP Liquid	XMAPP 2D	XMAPP 3D
Scratch resistance	Taber haze testing	Change in haze <15%			X
	Hydrolysis aging 72h at 80°C and 80% relative humidity according to: DIN EN ISO 2409:2007 DIN EN 20105-A02 ASTM G60	Any tear-off of the paintwork is not permissible. Any trace of the indentation causing by the loading of the substrate is permissible	X	X	X
10% in high gloss films (>70 GU) 40% in low gloss films (<70 GU)		X	X	X	
Pass criteria for gray scale is ≥ 4		X	X	X	
Cross-cut test characteristic value ≤1		X	X	X	
Apperance after high temperature and humidity condition	Sun cream testing according to: DIN EN ISO 4628-1 DIN EN ISO 291-23/50-2 DIN EN ISO 4626-1	No cracking observed	X	X	X
Adhesion after high temperature and humidity condition					
Chemical resistance					



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