

# Details of UL Recognition (Approved Surfaces and Temperature Ranges)

Types of facestock			Surfaces		Metals				Painted Metals			Plastics										
					Galvanized steel	Aluminium <sup>*1</sup>	Stainless steel	Nickel-plated steel	Melamine paint	Acrylic paint	Epoxy paint	Epoxy	Phenolic	PPOX	PP	PS	PC	PVC	ABS	UP		
Polyester (PET) film based materials	FNS Bright(B), FNS Matt(M), TE, HL	PAT1, PAT1E	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	Indoor 60°C 0°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C
	White PET K24(k)•K17(k)	PAT1, PAT1E	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	60°C -29°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C
	PET (clear, matt)	NPL		100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	Indoor 60°C 0°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	Indoor 60°C -40°C
		PAT1, PAT1E		100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	Indoor 60°C 0°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C
	PETWH	PAT1, PAT1E		100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	Indoor 60°C 0°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C
		M4			Indoor 100°C -40°C	Indoor 100°C -40°C	Indoor 80°C -40°C <sup>*2</sup>					Indoor 100°C -40°C										
	PA10			Indoor 100°C -40°C	Indoor 100°C -40°C	Indoor 100°C -40°C					Indoor 100°C -40°C											
Synthetic paper based materials	Yupo UV, Yupo SG, Yupo VES	PAT1, PAT1E	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	100°C -40°C	80°C -40°C	80°C -40°C	60°C -40°C	80°C -40°C	Indoor 60°C 0°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	
	Yupo UV	M4		Indoor 100°C -40°C	Indoor 100°C -40°C						Indoor 100°C -40°C					Indoor 60°C -40°C	Indoor 60°C -40°C		Indoor 60°C -40°C			
Bubble free labelstocks	FNS Matt(M) White PET	Special Adhesive	100°C -40°C	100°C -40°C	100°C -40°C					100°C -40°C	80°C -40°C	80°C -40°C	80°C -40°C	Indoor 40°C 0°C	60°C -40°C	100°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	60°C -40°C	
Same surface material labelstock series	KES	PAT1, PAT1E		Indoor 60°C -40°C	Indoor 60°C -40°C	Indoor 60°C -40°C									Indoor 60°C -40°C	Indoor 40°C -40°C		Indoor 60°C -40°C				
		P2041		60°C -40°C												60°C -40°C	60°C -40°C		60°C -40°C			
	KEA	PAT1, PAT1E		Indoor 80°C -40°C	Indoor 80°C -40°C											Indoor 80°C -40°C	Indoor 60°C -40°C		Indoor 60°C -40°C			
		P2041		Indoor 80°C -40°C												Indoor 80°C -40°C	Indoor 60°C -40°C		Indoor 60°C -40°C			

## Approved construction for printed label

1. Without over-lamination

2. With over-lamination

3. Printing on top of over-lamination film

\* Ink: Conventional printing ink  
\* TTR: Thermal Transfer Ink

**Unapproved construction**

\*The following construction has not been approved.

● Printing over inks\*

100°C ~ -40°C    80°C ~ -40°C    60°C ~ -40°C    60°C ~ 0°C

\*1 Aluminium includes die-cast aluminium and anodized aluminium  
\*2 Approved only with 25 or 50 µm thick facestock

- Materials suitable for application to two or more plastic surfaces are considered suitable for blends of those plastics, with Conditions of Acceptability common to the individual components in the blend.
- Ask Lintec for detail information about the certified inks and ribbons, and the detailed certification conditions.
- This does not constitute a guarantee or warranty of product performance. Customers must undertake thorough testing prior to usage.