

UMS21 vs Latex : Ink Fixation & Drying Temperatures

UMS21 : Fixed and dried at regular heating temperatures

Mutoh XpertJet 1641SR-P



UMS21 ink fixation at temperatures of 35°C

→ No cockling, outputs on heat sensitive media, ...

HP Latex 800



Evaporating water is energy intensive!
High temperatures required above 80°C !!

→ Risk of cockling, adapted media required,
no use of heat sensitive media, ...

Mutoh – No Excessive Energy Usage

Mutoh XpertJet 1641SR-P



UMS21 ink fixation at temperatures of 35°C

Standby	45 W
Printing	Max. 1.1 kW
Heater	Max. 1.2 kW
Average	0.243 kW

HP Latex 800



Evaporating water is energy intensive!
High temperatures required !!

Standby	105 W
Printing	Max. 2.5 kW
Heater	Max. 2.5 kW
Average	1.49 kW

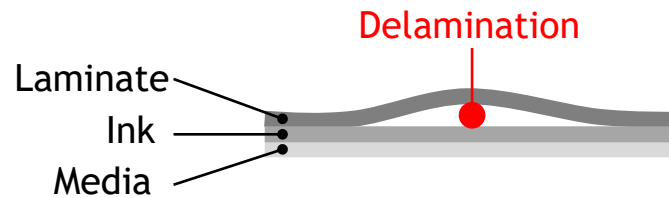
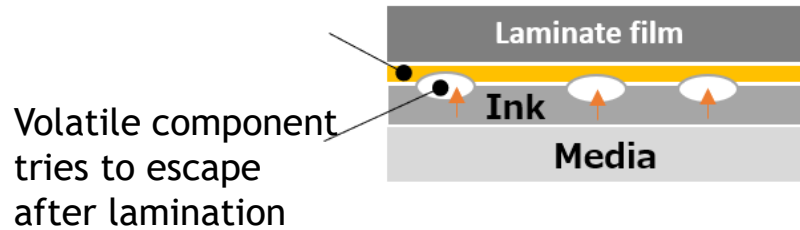
x 6,1



Optimized Drying

Reduced waiting time before Lamination

When are lamination issues likely to occur?



- Volatile and/or wet components in the ink are trying to escape after lamination
- For example:
 - When the output is not cured
 - When the output is exposed to increased temperatures (sunlight)
- The adhesion of the laminate to the ink layer is below expectations causing it to release under stress or at the time temporary over-posting graphics are removed

Ref. slide 'Extracts from the links of Avery®/3M® for Latex inks'

UMS21 – Lamination

How to know if a print is ready for issue-free lamination?

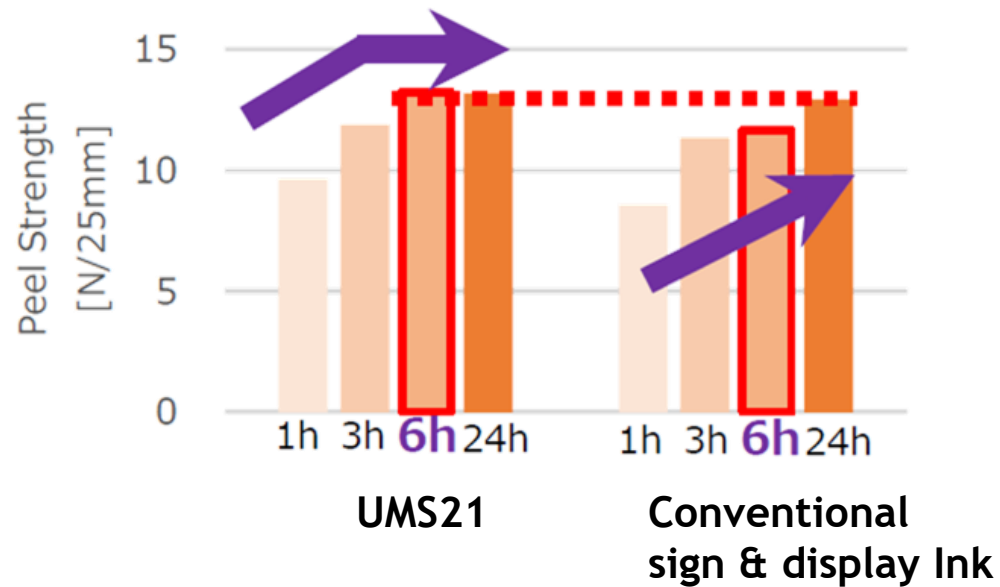
Important Notes:

1. The results presented hereafter were performed in combination with an industry leading polymeric cast self-adhesive PVC and a matching laminate intended for 3D wrapping applications.
2. Obviously these results may differ in function of the media selection made by the printer operator.
3. To ensure maximum peace of mind, Mutoh will pursue to obtain results with different manufacturers and follow-up mutual communication about the do's and don'ts together with the different industry partners.

UMS21 – Ready for issue-free lamination

How to know if a print is ready for issue-free lamination?

1. Verify how long it takes to reach the maximum adhesive strength of the laminate to the printed film.

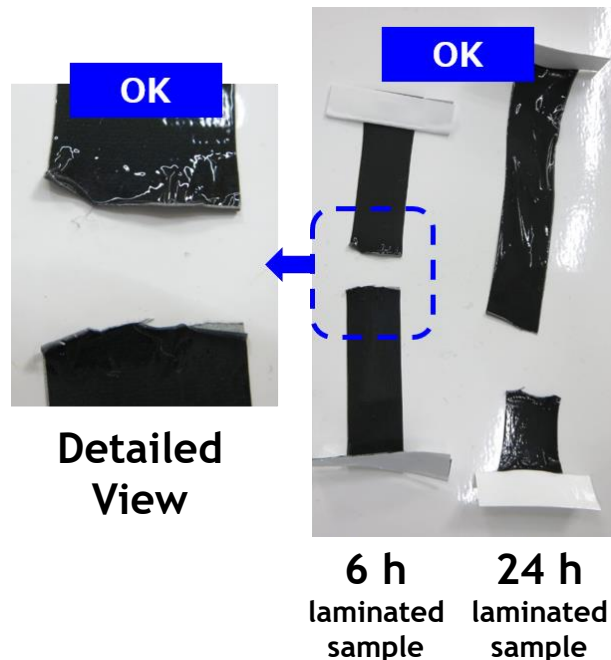


- Using conventional sign & display inks, it takes typically 24 h but also sometimes 48 or even 72 hours before the full adhesive strength is reached
- Using UMS21 the maximum adhesive strength is reached already after as little as **6 hours**

UMS21 – Ready for issue-free lamination

How to know if a print is ready for issue-free lamination?

2. Ensure that the printed film, ink layer and laminate are not separated when the output is put under stress. Even when conducting a tensile strength test (pull until break occurs), UMS21 ink does not separate from the film/laminate. They break together.



Example of a failing combination



- The Ink film releases from the media before the breaking point
- The breaking time of the media and the laminate are different.

UMS21 – Ready for issue-free lamination

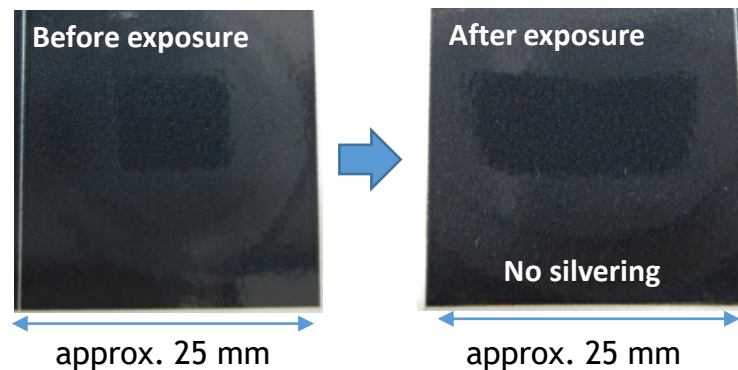
How to know if a print is ready for issue-free lamination?

3. Inspect if there are signs of silvering, shrinkage, peeling when exposed to increased temperature & cross cutting.

Observation when laminated UMS21 prints are exposed to increased temperature for a long period of time:

- No release of micro gas bubbles (No silvering)
- No shrink behaviour when cross-cutting
- No peeling of the laminate when cross-cutting

6 hours delay between printing & lamination



No film shrinkage or peeling from cut