

creating for tomorrow



AFP™-TSP

premium plate with CleanPrint



Asahi's AFP™-TSP digital flexo plates feature CleanPrint, which allows a kiss touch printing pressure setting with constant repeatability of printing quality during the production run.



Description

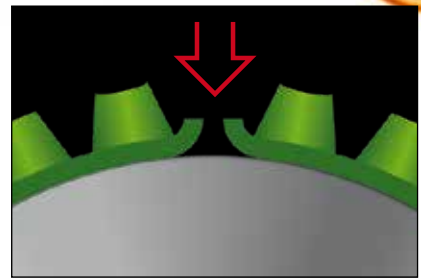
Asahi's AFP™-TSP is a medium hardness digital flexo plate, optimized for a wide range of printing materials. From absorbent paper substrates such as pre-printed liner, paper, carton and corrugated board to non-absorbent film and label materials. The AFP™-TSP plate was developed to achieve a firm homogeneous ink density on printed lines and solids and staying clean and open over the printing run in halftone screens. The AFP™-TSP plate can be used in combination with the AFP™-TOP plate for soft tonal gradations down to zero. This combination makes it possible to transfer jobs to flexography from other printing technologies.

An additional feature of the AFP™-TSP plate is its superb plate flexibility. The more malleable polymer structure allows the plate edges to drape down (Image 2) and for that reason significantly reduces the occurrence of the plate lift problem (Image 1). A higher plate drape decreases the number of press stops significantly and therefore improves the total machine OEE.

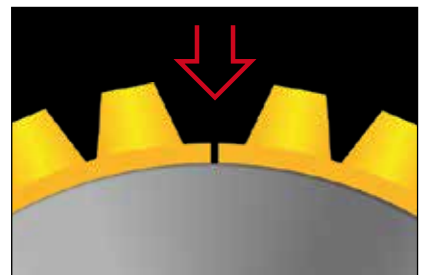
The AFP™-TSP is manufactured from a slightly softer polymer compared to its harder AFP™-TOP also in this product group. Softer plates typically print with improved ink homogeneity vs. harder plate types. At the same time softer plates show the tendency to accumulate ink on the plate surface over the printing run. The AFP™-TSP plate is building a bridge between the printing performance and improved production efficiency. A key feature of CleanPrint is the smooth homogeneous ink transfer characteristic vs. conventional plates. The ink transfer looks particularly good with regard to the trapping behaviour when different colour inks are printed on top of each other (Image 3 + 4). AFP™-TSP also has the capability to improve the printer's profitability by minimizing the machine ink cleaning stops which usually happens with a conventional polymer plate.

The product advantages in detail:

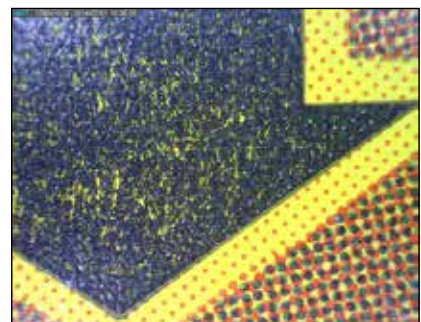
- Good ink transfer and coverage in halftones and solids
- CleanPrint facilitates a superior ink transfer
- High printing performance with solvent, water and most UV based ink on film and paper substrates
- Strong plate abrasion resistance with good base film lamination strength
- High performance plate in aggressive printing condition
- Reduced inkfilling-in mid-tone printing leading to less press cleaning stops
- Kiss touch printing pressure setup giving increased plate longevity
- Consistent printing quality over the production run due to CleanPrint
- System compatibility with recent screening and microcell technologies



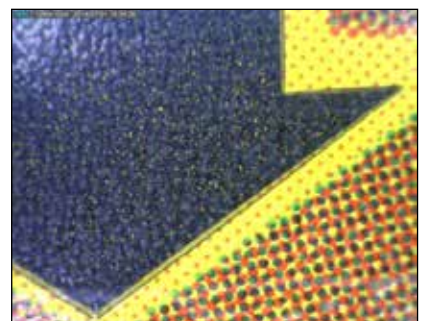
1 Conventional Plate: plate lifting



2 AFP™-TSP: no lifting



3 Trapping problems with conventional plates



4 Good trapping of overprint colours with AFP™-TSP

Plate specification and processing recommendation

	AFP™-TSP Digital Plate			
Plate specifications	1,14 mm	1,7 mm	2,54 mm	2,84 mm
Shore A Hardness (Teclock)	69	58	49	48
Applications	Paper- and Plastic Bags, Flexible Packaging, Preprint, Labels, Aluminium Foil, Flat Carton			
Ink recommendation	Water based, Solvent based and UV based Inks			
Resolution digital	175 lpi	175 lpi	175 lpi	175 lpi
Tonal range	1-95%	1-95%	1-95%	1-95%
Isolated line	80 µm	80 µm	80 µm	80 µm
Isolated dot	150 µm	150 µm	150 µm	150 µm
Dispro K-factor	5,98	9,89	15,17	17,05
Plate colour	yellow	yellow	orange	orange

① The mj intensity is measured by ORC. To calculate the equivalent exposure time in sec. The following formula can be used:

$$\frac{\text{ORC target exposure mj}}{\text{measured light output mW/cm}^2} = \text{sec}$$

② The mentioned plate making conditions are particular to the Asahi Photoproducts technical centre equipment and cannot be transferred. The values should be used with caution and understood to be a best practice start-up values for testing the plate making condition as explained in the Asahi Photoproducts AFP™-TSP training manual.

③ In case the light intensity is not measured with ORC, but with Kuehnast, the following conversion can be used:

$$\text{UVA: } \frac{\text{Kuehnast mW/cm}^2 \text{ measurement}}{1,43} - 0,63 = \text{ORC mW/cm}^2$$

$$\text{UVC: } \frac{\text{Kuehnast mW/cm}^2 \text{ measurement}}{2,1} - 1,1 = \text{ORC mW/cm}^2$$

	AFP™-TSP Digital Plate			
Plate processing parameters ① ② ③	1,14 mm	1,7 mm	2,54 mm	2,84 mm
Plate bump-up at 133 lpi (54 l/cm)	4%	4%	5%	5%
Plate bump-up at 150 lpi (60 l/cm)	4,5%	4,5%	6%	6%
Plate bump-up at 175 lpi (70 l/cm)	5,5%	5,5%	7%	7%
Back flash	1400 mj	900 mj	900 mj	1300 mj
Relief depth (test target)	0,6 mm	0,6 mm	0,8 mm	0,8 mm
Laser imaging	3,4 J	3,4 J	3,4 J	3,4 J
Front exposure	8000 mj	8000 mj	8000 mj	8000 mj
Wash-out speed/minute	170 mm	160 mm	130 mm	120 mm
UVA post exposure	1000 mj	1000 mj	1000 mj	1000 mj
UVC light finishing (max.)	2000 mj	2000 mj	2000 mj	2000 mj

Full HD Setting 1,14; 1,7														
Plate Back Exposure	UV Diode					Laser Power	Screen set/ Bump-up HD screen/ Bump-up Circular FTD					Pixel Boost		
	mJ (0,5 mm P)	RPM	Exp. Sec	Dot Fail	UV mW		Mask mJ	124 dpi screen	136 dpi screen	149 dpi screen	174 dpi screen	198 dpi screen	WSI	MG45
Customer C		5	840		26	3,8			C31TPH DO7/0,8/3,0			230	240	

Full HD Setting 2,84														
Plate Back Exposure	UV Diode					Laser Power	Screen set/ Bump-up HD screen/ Bump-up Circular FTD					Pixel Boost		
	mJ (0,5 mm P)	RPM	Exp. Sec	Dot Fail	UV mW		Mask mJ	124 dpi screen	136 dpi screen	149 dpi screen	174 dpi screen	198 dpi screen	WSI	MG45
Customer D		1	900		25	3,8	C31TPH SD10					230	240	

AFP™-TSP Summary

- Medium type hardness photopolymer plate
- Firm homogeneous ink transfer
- Good combination plate of screens and solids due to the pinning technology.
- Excellent ink trapping behaviour
- Good abrasion resistance on a variety of substrates
- Good base film lamination strength in severe printing conditions
- Excellent drape capabilities reducing plate lift off in the printed edge
- Can be used on a variety of paper and foil based substrates
- Capability to improve printers profitability due to less plate press cleaning stops
- Works well in combination with AFP™-TOP for excellent highlight screens and homogenous line and solid printing



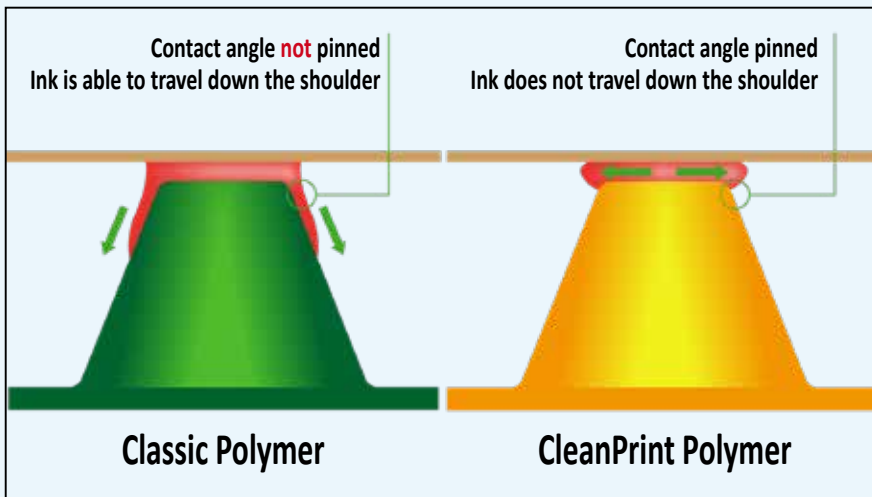
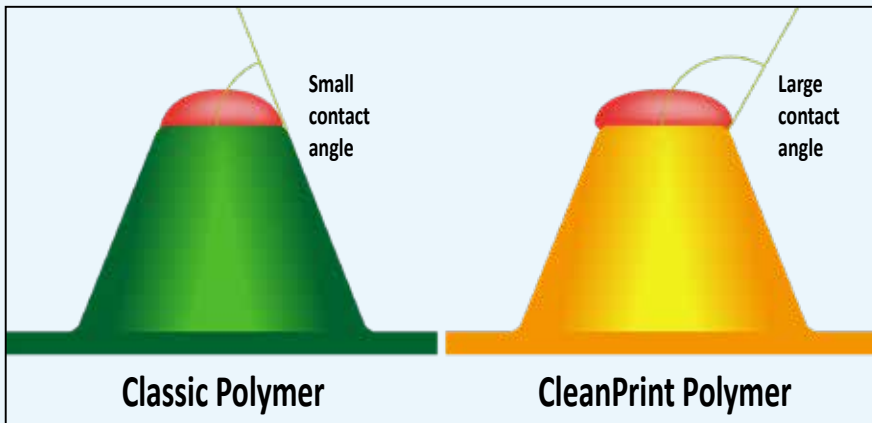
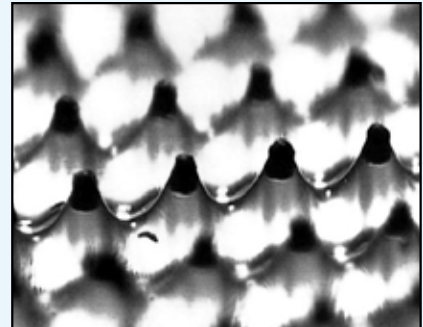
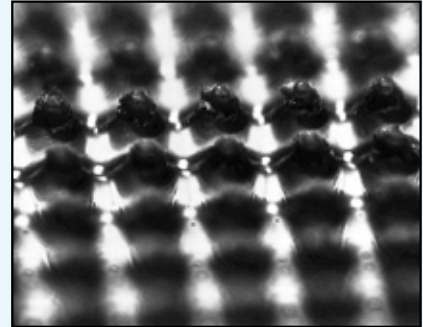
CleanPrint and its advantages

The features of CleanPrint

Asahi's AFP™-TSP plates feature CleanPrint, which is designed to facilitate kiss-touch printing pressure. Lighter printing impression produces constant repeatability of printing quality during the production run. This characteristic is achieved, by engineered photopolymer chemistry, reducing the surface energy of the printing plate.

CleanPrint has the beneficial effect of reducing the ink filling in at the mid-tone area during the printing run leading to fewer cleaning intervals and downtime for the printer.

The graphical printing performance, and the improvement of the printers profitability was at the focus of Asahi's CleanPrint plate development. The plate Technology, of AFP™-TSP improves press uptime during the printing process. That way, CleanPrint becomes a synonym for performance and profitability in one. The AFP™-TSP plates are a product solution, which can easily fit into existing customer environments without the need of additional machine investment. This flexibility enables the customer to react to changing market demands and trends whilst ensuring that the business efficiency improvement is sustainable. Furthermore AFP™-TSP can be used with the high definition screening and microcell patterning technologies.



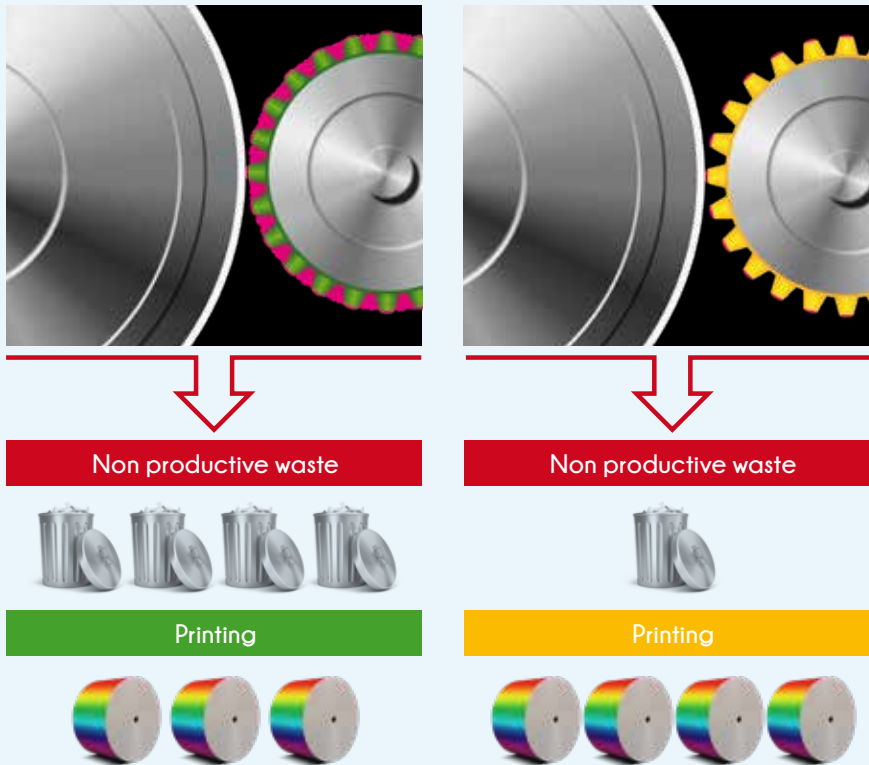
The CleanPrint polymer plate features a reduced surface energy and thus enables a better ink transfer to the substrate



CleanPrint and its advantages

Press profitability based on printer cleaning stop reduction

CleanPrint plates have been specifically engineered to transfer all remaining ink to the printed substrate. This is due to the plate's lower surface energy. CleanPrint plates do not need to be cleaned as often as the conventional digital solvent plate. The reduction of press cleaning stops creates a significant profitability improvement to the printer as explained in the calculation example below.



Summary of CleanPrint

- The Pinning technology allows for a low printing pressure, the plates last longer in the printing press
- Dot gain is reduced because of less pressure and CleanPrint
- Improves the printer profitability
- Is working well with fixed colour palette solution as it requires constant printing result
- New way plate surface energy reduction by plate solution
- Can fit easily into repro house existing digital work flow

Summary of the OEE Advantage

	Printer	Sample Case: Film printer with CI press and NC solvent based inks. Anilox volume 3,5 cm ³ /m ² at 470 l/cm. Press Speed 180 m/min.	Insert your Parameters:
	Printers Shifts	3/24 hours	
	Working days per Year	240 days	
	Machine cost per hour	① 350 Euro	
	Total operating cost	€ 2.016.000	
	OEE AFP™-TSP plate	②	58%
	Machine uptime cost	€ 1.169.280	
	Non production cost	€ 846.720	
	OEE Solvent plate	②	49%
	Machine uptime cost	€ 987.840	
	Non production cost	€ 1.028.160	
	OEE Advantage TSP vs. solvent: 18% = € 181.440		

① labour cost, machine depreciation, overheads such as electricity, water and gas, storage, machine space etc.

② OEE data may vary from customer to customer. This example is a sample calculation experienced at a customer.



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