

 **PURE**
the nature of ink



**User
Handbook**

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What is PURe?

PURe is a totally new ink system. PURe inks abstain from toxic substances for the protection of employees and consumers, from fossil carbons for the protection of the atmosphere and from soy, coconut and palm oil for the protection of tropical rain forests.

PURe is mineral oil free. The binding agents are based on 100 per cent natural substances without any further chemical modifications or syntheses. We do not use palm, coconut or soy oils which are mainly responsible for deforestation of tropical rain forests. Additionally, we abstain completely from the use of photo initiators, metal dryers such as cobalt, and other metal soaps. Therefore, PURe is the purest and most sustainable ink system you can use today.

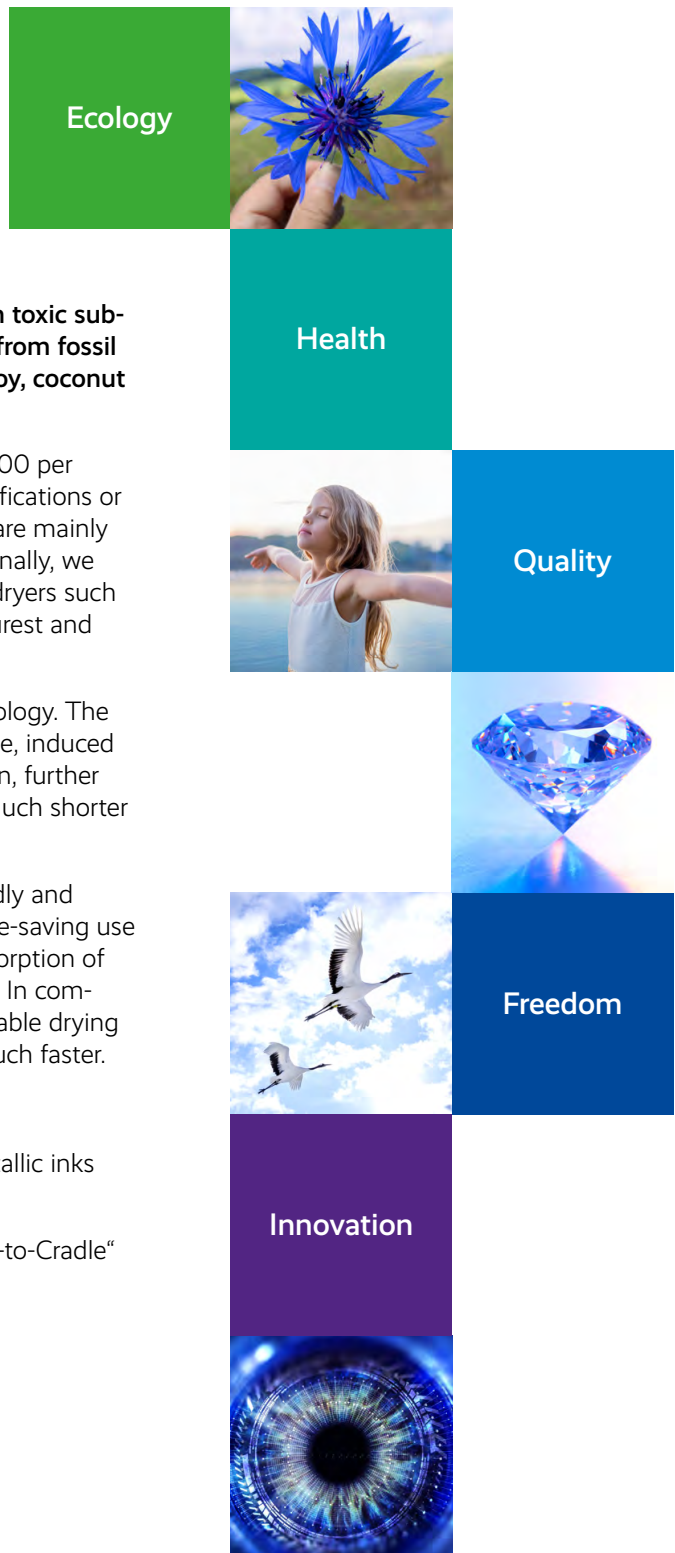
Technologically, PURe is a new, third and unique ink technology. The ink film is generated by a chemical reaction on the substrate, induced by the absorption of the liquid components. By this reaction, further processes such as folding or laminating can be done in a much shorter time.

PURe is free of labelling, proving the environmentally friendly and health-protecting character of the ink. The fast and resource-saving use of the natural ink saves the printer time and costs. The absorption of the odour-free ink adds to the quality assurance in printing. In comparison with conventional printing, which requires considerable drying times before finishing is possible, jobs can be processed much faster.

PURe has a high abrasion resistance.

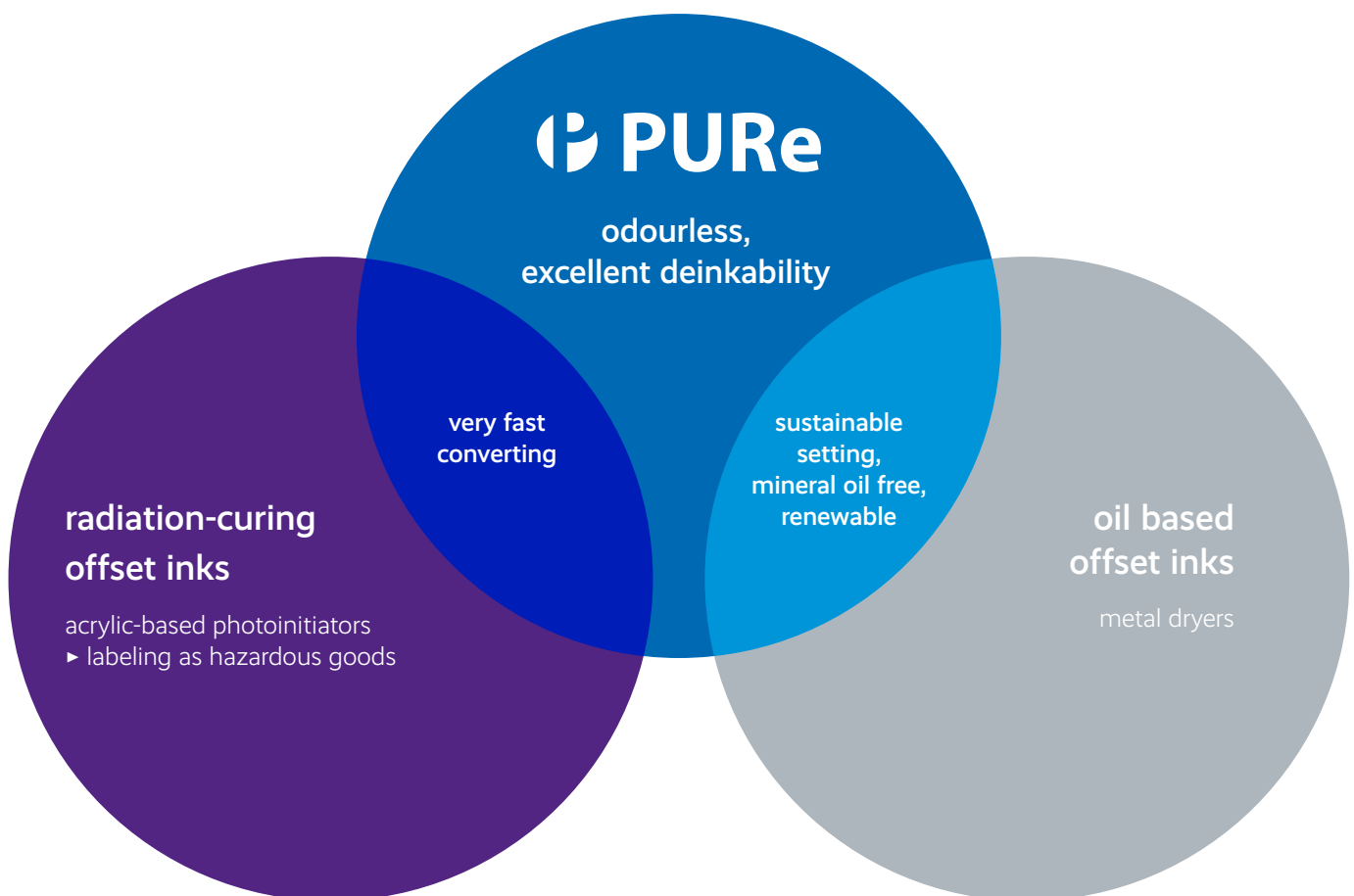
PURe comprises the complete colour palette including metallic inks and varnishes.

PURe is certified for printing of food packages, and „Cradle-to-Cradle“ Gold certified.

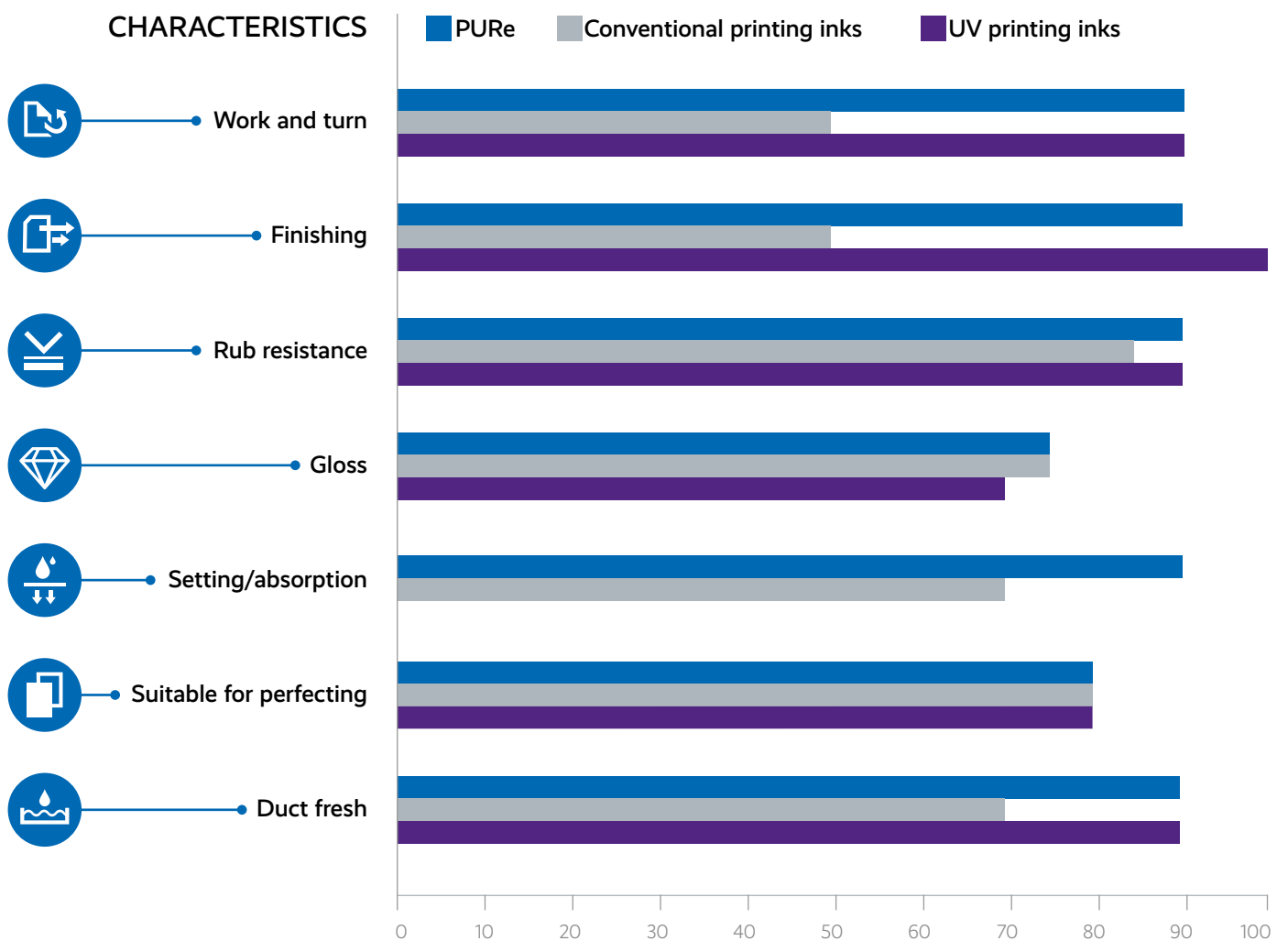


Comparison of PURe with other ink systems

PURe unites the advantages of radiation-curing offset inks (fast drying) and conventional mineral-oil free offset inks (sustainability). Moreover, it sets a new benchmark in the use of sustainable raw materials in offset inks.



Advantages of PURe



Properties in printing

- PURE enters the market after extensive tests, with printing information and recommendations for printing materials. This bundle comprises roller coatings, blankets, washing agents and fountain solutions. In this fine-tuned environment, the unique drying mechanism of PURE can fully unfold.
- Swelling tests with roller materials show the best results with mixed roller qualities. We have positive experiences with roller materials from well-known manufacturers. Tests and productive use of conventional roller materials should normally be successful. UV roller coatings may not be used as they tend to strong swelling in combination with the PURE ink system.
- The PURE series is duct stable and suitable for straight and perfecting printing. It dries quickly and enables fast finishing.
- As a modern ink series, PURE enables the printer to meet the requirements of ISO 12647-2 and a neutral grey balance. Due to its fast drying, images appear very plastic, especially on absorbing substrates.
- In its properties with regard to work-and-turn, finishing and duct stability, the PURE series outmatches conventional oil-based systems by far.
- Finishing of PURE printed products is versatile and flexible due to its excellent carbonating behaviour. Options are manifold: hot and cold foil embossing, laminating and coating are possible in very high qualities.
- Due to the reactivity of PURE, it has to be secured that PURE is not mixed with other ink systems and non-recommended additives (washing agents, dilutors etc.) as this could lead to spontaneous hardening, also inside the press.



Inventory

Questions regarding rollers, blankets and inking units:

Better running and staying clean of plates is ensured, time-consuming readjustments during implementation is not necessary, and performance can be judged easily.

- Register your roller type: conventional, hybrid or UV rollers (EPDM)
- Control the condition and adjustment of inking and damping rollers, readjust if necessary
- Register your type of blanket
- Use new blankets
- Do you use a blanket washer, if so, which type?
- Do you have a Delta (Vario), if so, can it be switched off?
- Is inking unit reversing possible, with or without contact between inking and damping unit?

Questions regarding plates and image setters:

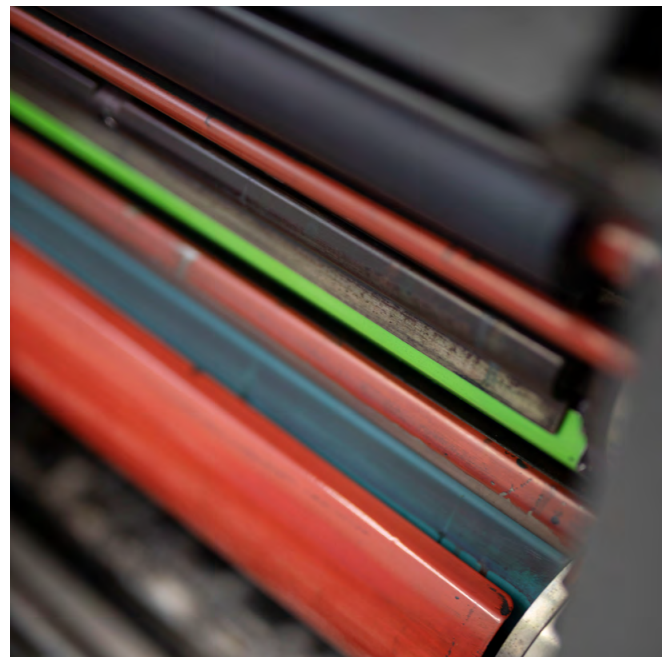
These criteria enable faster conclusions in case of problems with running clean or wetting.

- Type of plates, manufacturer, name, positive/negative?
- Type of image setter?
- Which chemistry? Processless?

Questions regarding adaptations of ink zones to presets:

This is an important evaluation criterion; it enables faster ink run-up, less start-up waste, less time.

- Can the presetting values be adapted quickly to the PURE values?
- Is someone on site who can adapt the presetting values?



Checklist before the change to PURE

Before beginning with the conversion to PURE, it has to be ensured that the printing press is in a proper state, and that all components are adjusted correctly.

By working off the following checklist, smooth and successful use of PURE inks can be ensured. In case of occurring challenges, communication with our technicians will be easier.

We recommend to complete the checklist 4 weeks before the planned PURE introduction so that there will be enough time to adjust the printing press, exchange damaged parts or adjust components.

PURE was conceived for printing according to PSO 12647-2. Deviant "house standards" can lead to problems.

CHECKLIST

Tap water, or water from the processing installation

- Register your pH value
- Register your conductance value
- Register your water hardness, adjust dosage if necessary

If the quality of the process water conforms to the standards of printing, the technical equipment works correctly.

Fountain solution

- Register your pH value, adjust if necessary
- Register your conductance value
- Hand dosage with 3% admixture, register pH and conductance values (important for zeroing the IPA tester; basis for FountControl).
- Compare display of admixture doser with determined dosage according to FountControl
- IPA measurement with testing device, comparison with Alcosmart
- Registration of additional devices such as external Logotec filters etc

If the quality of the fountain solution conforms to the standards of printing, the technical equipment works correctly.

Steps of the change to PURE

Inking and damping units have to be checked and adjusted completely before starting the change, good adjustment of the press is a must!

- 01.** Doctor and wash the complete press.
- 02.** Change washing agent, use PURE Wash 9001W/9005W instead (especially in presses with brush-type washing system, e.g. manroland 700). Washing systems/spray bars have to be in immaculate condition. Any spraying or dripping of washing agent into the inking rollers leads to a destabilisation of the print process. We recommend a planned maintenance before the change to PURE.
- 03.** Completely empty the fountain water, clean all containers, also the intermediate container.
- 04.** Then fill up with rinsing agent and let circulate for 1 to 2 hours.
- 05.** Then again completely empty, and again clean all containers.
- 06.** Now fill up with the fountain solution PURE Fount 9023F with 4% and let circulate in the system for approx. 30 minutes. (If the damping water fountain is polluted, also clean it thoroughly.)
- 07.** Repeat this process 4 to 6 times until the fountain water shows no more pollution.
- 08.** Let PURE RollerClean run into the inking unit for approx. 10 minutes, then doctor again. Repeat this process 3 to 4 times.
- 09.** Saturate rollers with Printing Oil PURE Protect 9081P: let PURE Protect 9081P run into rollers for min. 15 minutes. Repeat this process 2 to 3 times.
- 10.** Now the rollers are saturated with PURE ink for the first time.
- 11.** Apply ink on the rollers and let run in for 15 minutes. Repeat this process 2 to 3 times.
- 12.** Before the first job is loaded in the press, all blankets have to be changed. (We need this because the old blankets are contaminated with conventional inks.)
- 13.** After these steps the first test job can be loaded in the press. This job has to have high ink coverage on the sheet, and you need to print min. 4,000 to 5,000 sheets in order to achieve a good ink/water balance and roller ink saturation.
- 14.** After this you can start production.

Washing instructions

Rollers and blankets must be cleaned from any ink residuals of conventional inks. The contact between conventional ink systems and the PURe system can lead to a polymerisation-like reaction. The cleaner the rollers, the smoother the introduction of the PURe system.

In order to prohibit contacts of any inappropriate cleaning agents with the PURe system, we recommend to exchange the conventional washing agent with PURe Wash 9001W/9005W already a few days before the introduction of PURe. After the change of washing agents, normally the wash-up program has to be adjusted: more water, possibly more washing agent and longer wash-up intervals.

Remove from the press any washing and cleaning agents that are not recommended for the contact with PURe!



Approved agents for cleaning the PURe system:

Washing agent PURe Wash 9001W/9005W

Roller decalcifier PURe Decalc 2227

Roller cleaning paste PURe RollerClean

Rinsing concentrate PURe Rinse

Isopropanol

Water

Washing instructions

Process: cleaning the damping system

- Empty the old fountain solution
- Rinse the system with rinsing agent PURe Rinse
- Replace all filters
- Clean all containers
- Fill up with damping solution
- Empty
- Fill up with damping solution.
-



Process: cleaning the printing units

- Thoroughly clean the ink ducts and change the ink duct foils
- Apply roller cleaning paste PURe RollerClean
- Let run in for 15 to 20 minutes
- Doctor with PURe Wash 9001W/9005W and water
- Apply roller cleaning paste PURe RollerClean
- Let run in for 15 to 20 minutes
- Doctor with PURe Wash 9001W/9005W and water
- Apply roller decalcifier
- Let run in for 15 to 20 minutes
- Doctor with water
- Let PURe ink run in for 15 to 20 minutes
- Doctor with PURe Wash 9001W/9005W and water
- Clean dosage rollers with IPA
- Visual check

Should there still be any visible ink residuals on the rollers, we recommend to clean the rollers by hand and run another washing interval with the roller cleaning paste.

The complete washing procedure is accompanied by PURe technicians.

Start of printing

PURe is a unique ink technology. Therefore the whole printing company should be prepared to engage in the new technology, and to internalise the new experiences. It is very important to record and evaluate all new insights within the first weeks.

We recommend to print the first jobs at the threshold to smearing, in order to develop a feeling for the ink and ink/water balance. Corrections should be applied slowly so the system is not over-regulated and the printer has the possibility to control the results of his corrections. Ink rollers should be cleaned in the evening in case of non-three-shift operation. The PURe ink in the ink duct must never be sprayed with an anti-skinning agent!

Before printing the first job:

- Load the job, run up the ink and start with slightly reduced damping.
- Print min. 5,000 sheets with a high-ink-coverage test form. Switch off inline control or adjust slowly.
- If necessary, doctor the ink from time to time.
- After the first test print, doctor the ink ducts, wash the blankets and damping roller with IPA.
- Now the first job can be started with PURe.

Start of printing and calibration of PURe are accompanied by PURe technicians.



Additives for the best printing results

For use with PURE inks you must only use the following additives:

Fountain solution

PURe Fount	4% dosage without alcohol
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Washing and cleaning agents

PURe Wash	Washing agent, VOC-free for Switzerland and for EU available
PURe RollerClean	Roller cleaning paste
PURe Decalc	Roller decalcifier
PURe Rinse	Damping system cleaner

Other additives

PURe Protect	Roller protection oil
Hybrid blankets	

All products not on this list are **NOT** compatible with the PURE ink system and can lead to unwanted reactions of the ink.

PURE inks Europe GmbH and Epple Druckfarben Schweiz GmbH assume no liability if other additives are used.

We recommend to completely remove all unnecessary additives (sprays etc.) from the printing press.

Problem solving

Problem	Phenomenon	Reason	Solution
Cording	Strips in direction of circumference (normally from a certain speed)	Fountain water is not well spread out <ul style="list-style-type: none"> • Change speed 	Check fountain ramp-up curve <ul style="list-style-type: none"> • Test a different fountain solution • Change fountain roller distribution
Emulsifying	Instable inking units <ul style="list-style-type: none"> • Furry printout • Ink build-up at plate edges and blankets 	Too much water in the ink	Reduce fountain water <ul style="list-style-type: none"> • Adjust ink and damping rollers
Inking fluctuations	Ink density values fluctuate during run-up or print run	Contamination by previous ink	Keep on printing, regulate slowly <ul style="list-style-type: none"> • Wash inking rollers with PURE RollerClean
Framing	Ink build-up on the plate at non-printing places	Bad imaging or development of the plate <ul style="list-style-type: none"> • Chemistry in printing process does not harmonize • Contaminated roller frame • Bad adjustment of inking and fountain rollers 	Check plate making <ul style="list-style-type: none"> • Fine-tune chemistry • Adjust rollers
Residues after washing	Ink residues on rollers after washing	Washing process not careful enough <ul style="list-style-type: none"> • Not enough washing agent or water • Residence time too short 	Prolong washing time <ul style="list-style-type: none"> • Use more washing agent • Use more water • Prolong residence time
Ghosting	Ghosting in rolling direction	Reverse type is transferred by repeated rollover of forme rollers	Adjust forme rollers <ul style="list-style-type: none"> • Change lateral distribution • Adjust oscillating rollers
Streaking	Horizontal stripes in solids and screened areas	Wrong adjustment of inking roller	Adjust inking rollers
Scumming	Ink fog across the whole sheet	Wrong ink/water balance <ul style="list-style-type: none"> • Residues from developer on the plate 	Adjust fountain solution to the smearing threshold <ul style="list-style-type: none"> • Adjust inking and fountain units • Check plate development