

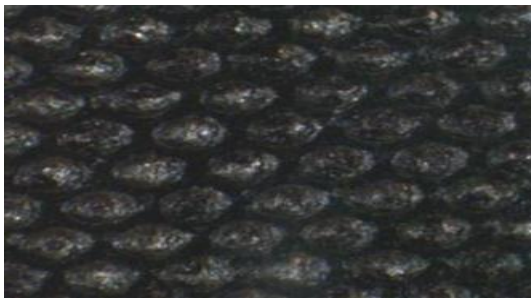
BENEFITS OF CLEAN PRINT CHEMICALS AUTOMATIC CLEANING OF ANILOX ROLLS AND INTERNALS OF CONVERTING MACHINES

Introduction:

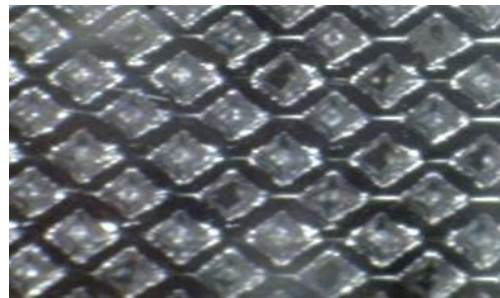
Fibre packaging manufacturing is an old established business where improvements can be achieved by going back to basics and fine tuning efficiencies in the processes

Clean Print Chemicals' system and product does this for the printing process by automatically keeping all the equipment (anilox rolls, rubber rolls, doctor blades, ink pumps, ink lines, chambers, trays, printing stereo plates and internals) clean, gaining significant efficiencies.

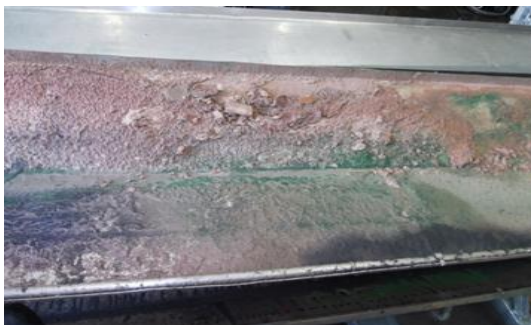
These efficiencies lead to production / engineering savings and improvements that far outweigh the small cost of installation and the consumable.



Anilox Roll before Special Blade Clean wash



Anilox roll after Special Blade Clean wash



Typical condition of ink load on tray



Tray when using Special Blade Clean

WHERE ARE THE SAVINGS AND EFFICIENCIES?

Anilox rolls being clean achieves

Full ink pick up so immediate ink transfer, reducing ink usage enabling light press printing (kiss printing), no print bleeding and reducing excessive build-up of ink on the equipment. This leads to maintenance/capital savings and reduction in product wastage.

Savings achieved :

- a. Ink wastage reduction 5 Gal per machine per month at \$20-\$100/Gal **\$400/converter/month**
 - b. Labour in cleaning up ink spills 2 hours per month per machine \$40 /hr including all over heads **\$160/converter/month**
 - c. Correct print, so no wastage of product or return of product due to incorrect colour or bar code not reading etc. Value **\$\$\$**
 - d. No increasing pressure on the machine on the printing plate, so reduced damage to printing plates and damage to equipment due to pressure applied. Value **\$\$\$**
1. Reduction to elimination of manual anilox cleaning
 - a. Reduced down time due to stoppages because of bad print results. Value cost of machine hours **\$200/converter/month**
 - b. Eliminated labour to clean the anilox rolls. Value cost of labour and materials **\$200/converter/month**
 2. Reduction of replacement of anilox rolls
 - a. Down time savings. Value **\$\$\$**
 - b. Capital cost of equipment. Value combined with replacement of chambers and lines due to corrosion. **\$800/converter/month**
 3. Reduction of ink pump repair and replacement
 - a. Downtime. Value **\$\$\$**
 - b. Capital cost and labour **\$200/converter/month**
 4. Reduction of replacement of doctor blades and rubber rolls
 - a. Ink corrodes if left on surfaces so keeping doctor blades clean of ink reduces corrosion. Value **\$\$\$**
 - b. Solid ink pieces fall between rubber rolls and anilox rolls scoring the rubber roll, this is eliminated. Value **\$\$\$**
 - c. Reduced down time – Value **\$\$\$**
 5. Clean up times reduced or eliminated
 - Trays are clean,
 - Anilox rolls are clean,
 - Chambers are clean,
 - Ink pump and lines are clean – Value, **saves 36 minutes per shift**
 6. Set up times
 - a. Due to complete rapid transfer of ink, change over from dark colours to light colours is immediate
 - b. Due to reduction of rinse cycle, quicker set up if using the same anilox roll being rinsed –Value **saves 15 minutes per shift**
 7. Much improved graphics – Value **\$\$\$**
 8. It is estimated that each plant will gain at least 1 hour production per shift once Clean Print Chemicals system and product has been installed and operators trained on the correct settings to run the machines with this system. Value **\$\$\$\$\$**

All of these savings add up to \$10 - \$20K per plant per month, plus this allows more time for engineering staff to attend to other preventative maintenance, more volume and better quality production.

Extra Production time equals a minimum of **\$20k extra revenue per day per plant**

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EXTRA PRODUCTION TIME PER SHIFT

- Ink pump break downs can take 40 mins - 1 hour as they have to get the staff and the equipment (say 8-10 pumps/month reduced to 4-5 pumps) 5 hours 40 shifts **7.5 minutes /shift**
- Reduction or replacement of doctor blades and rubber roles is very hard to estimate, down time and lost ink due to miniature fractures, time loss to replace doctor blades?? **Time saved????**
- Reduction or replacement/refurbishment of anilox rolls and chambers \$800/month **Time saves 2 minutes/shift**
- Labour in cleaning ink spills per plant 12 hours per month at \$40 per hour **Time saving 15 minutes per shift**
- Correct print immediately, so no wastage during set up value?? **Time savings 5 minutes per shift**
- Hugely reduces double rinses as it cleans first time every time **Time saving 6 minutes a shift**
- Automatic Clean-up of internals. Reduces scheduled maintenance by 1 hour per machine per week **Time savings - 36 minutes per shift**
- Sometimes set up times are dependent on the rinse cycle. (Lets estimate 5%). An average of 150 rinse cycles per shift with the average rinse time a minimum of 6 minutes. Our standard is 4 minutes - **Time saving 15 minutes per shift**

THAT IS ALREADY **86.5 MINUTES PER SHIFT** SO 1 HOUR A SHIFT IS A FAIR ESTIMATE.