



## GENERAL GUIDE TO ALCOHOL-FREE PRINTING

### Cleaning and Maintenance

#### Fountain Solution Recirculation System

Alcohol substitutes work well but require a cleaner environment than isopropyl alcohol. Before attempting to reduce or eliminate the use of alcohol, the fountain solution recirculator must be thoroughly cleaned to ensure removal of contaminants. Waste paper, dust anti repaint, ink and solvents contaminate emulsified fountain solution and reduce its effectiveness.

**Tower Products** recommends the use of a **Dampening Systems Cleaner** to completely remove the contamination of the recirculation system, the supply and return lines and water trays in the press. Regular use of a **Dampening Systems Cleaner** ensures that the system is clean, balanced and free of contaminants.

#### Roller Maintenance

The rollers are the most critical element in the conversion of alcohol to substitutes or zero alcohol. Water hardness range, press settings and rubber composition must conform to strict specifications to print truly free of alcohol. In a perfect world the ideal would be to replace all out-of-spec rollers, but that is usually impractical from an economic standpoint.

Ink rollers should be as ink receptive as possible. Coating and pollution will create overhead ink stains on the sheets and water / ink balance problems. Most contaminants have accumulated over time. Layers upon layers of calcium, surfactants, anti set-off powder, gum and other elements are deposited on the surface of the rollers. We recommend printers remove these contaminants over time with a routine maintenance program and not to attempt to remove them at one time.

**Tower Products** recommends cleaning steps using the following products:

**Tower Roller Paste or Super Roller Cleaner** will help to loosen the deposits in the micro perforation of the rollers due to its high tack and provide deep cleaning of the same, reduce the overhead of old ink on the rollers thus eventually reduce A hardness range.

**Deluxe Calcium Rinse** will remove the accumulation of calcium carbonate from ink rollers and thus improve ink transfer. You can use rubber rollers humidification system of the press.

**Restorkleen** rejuvenates, deglazes and conditions buna-nitrile, and EPDM rollers and blankets. Used as part of a regular maintenance program to increase roller ink and water transfer and to extend roller and blanket life. This product will remove the most stubborn glaze deposits and penetrates deep into the rubber surface and removes or dislodges the various types of glaze buildup.



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**Tower Chrome Roller Cleaner** is used to clean and maintain desensitize metal roller and rubber roller dampening systems. Proper ink/water balance is more easily maintained if the dampening system is free of contaminants, such as paper particles and /or emulsified ink or varnish.

### **Before Alcohol-Free Printing:**

\* Set up a work plan with a trusted supplier, provide detailed information as possible, make and model of the press, the dampening system settings, plates, inks, blankets and substrates to be printed. If possible, they must involve suppliers of rollers, inks and printing plates. Everything has to be compatible. \* Before making a test print, ensure the recirculation system has been thoroughly cleaned.

\* Check and replace or adjust any roll that is out of specifications.

\* Follow the manufacturer's instructions regarding dosage and product implementation. Measure by container marks for consistency. Do not add by "eye".

\* Log pH and conductivity, date and time of reading on a log sheet or book for future reference.

**Calibrate pH meter regularly. Replace probe every 24-36 months for accurate readings.**

\* After a reasonable period of pH and conductivity data collection, we will be able to determine a flush and recharge time for your press. **During this time, do not add fountain solution concentrate to recirculation system.**

\* As a minimum requirement, drain and clean the fountain solution recirculation system **weekly**.

### **Mechanical Adjustments**

\*After maintenance, run rollers for two week to allow crystallization removal and reduce water hardness. \* A recommended hardness range:

**Metering/Crown Rollers 20-22**

**Water Forms 20-22**

**Ink Forms 22-26**

\* If you replace rollers that are Butyl or Buna-N \* Adjust rollers or roller stripping

**Ink / form / water oscillator vibrator** 3 / 16 "to ¼" in rolls up to 4 "diameter ¼ "to 5 / 16" in rolls of 4 "in diameter and up.

**Ink and water forms on the grill** 1 / 8 "to 3 / 16" for all diameters.

\* Reduce the "nip" between the roller and the metering chromium / crown.

A. The "nip" normal is 5 / 16 "to 3 / 8" with alcohol.

B. With alcohol substitutes do a 1 / 8 "to 3 / 16" to increase the flow of radio-source solution. \* The temperature of fountain solution in the reservoir of the fountain solution must be between 50-55 degrees



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Fahrenheit. Alcohol substitutes do not increase the viscosity as does alcohol, so to compensate for this, the solution **MUST** be refrigerated. \* In presses having 3 shifts daily, we suggest that the recirculator be drained, cleaned and recharged **TWICE A WEEK**. \* To maintain roller hardness and control crystallization, clean rollers with certified Graphic Arts press solvents.

Switching from alcohol can be difficult but the rewards are immense. Printers who persevere may struggle at first because of a narrowed operating window, but will eventually be rewarded in cleaner printing and lower ink usage. In the dampening rollers must be set to a gap minimum of 1-2 mm, this solution will allow more flow to the plate without having to increase the percentage rate of the rollers. It is possible to increase the effectiveness to decrease contact ink form roller to the plate in 1-2 mm. Check with your supplier of rollers for adjustment recommendations, water hardness and rubber composition for hassle-free printing. In some cases the ink must be replaced to adjust the emulsifying, transfer and "water pick up rate. Involve your suppliers from the outset, it is a team effort. This will reduce the potential for problems in the press.

**THERE ARE MANY WAYS TO REDUCE OR ELIMINATE ALCOHOL IN PRINTING. THE FIRST STEPS ARE DESIRE, TIME AND COMMITMENT.**

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