



Toronto Region Sustainability Program St. Joseph Thorn Press

Lithographic
Printing
Sector

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COMPANY OVERVIEW

St. Joseph Thorn Press is a full service, commercial lithographic printing company employing 91 full time employees. St. Joseph Thorn Press management is committed to producing high quality offset lithographic printing with minimal impact on the environment.

The company is also committed to compliance with all applicable laws and regulations and wishes to apply for Ecologo certification under the ECP-58-94 standard for lithographic printing. The company is also pursuing ISO 9000:2000 and possibly 14001 certification.



Paul DeRocher, VP Production & Operations in front of plant

P2 ASSESSMENT PROCESS

As part of the Toronto Region Sustainability Program, St. Joseph Thorn contracted EcoSoft environmental management (John Piggott) to assess their facility for pollution prevention opportunities. As well as identifying cost saving opportunities in the company, this pollution prevention assessment aides in the pursuance of Ecologo certification, ISO 9000:2000 and ISO 14001.

A full site assessment was conducted and multiple cost saving and pollution prevention opportunities were identified, with many short-term returns on investments (ROI).

SUMMARY OF FINDINGS

St. Joseph Thorn has two main processes: Pre-press (computer imaging, film, computer to plate) and Pressroom (sheet fed and web press). The most dramatic cost saving and pollution prevention opportunities were identified in the pressroom.

In the pre-press, design and data for customer job requirements are normally handled by electronic means. Direct digital imaging goes to a Kodak/Polychrome CTP (Computer To Plate) plate maker and processor. The CTP processor uses approximately 2 gallons per minute of fresh wash water or 7.5 litres per plate processed. This is controlled by a solenoid so that the water runs when plates are being processed. The rinse bath removes the developer and emulsified plate by-products. It is estimated that this use of water accounts for 40% of St. Joseph Thorn's water bill.

Fountain solution is used on all of St. Joseph Thorn's 5 presses. A spent fountain solution sample was analyzed and was found to contain subject pollutants including chromium, copper, nickel, arsenic and zinc.

There is also high BOD levels and other contaminants, including Isopropyl Alcohol (IPA). IPA is used to reduce ink/water balance problems associated with fluctuating water quality and unstable conductivity. It is, however, a smog precursor (100% VOC) and listed in the NPRI list of substances. All lithographic printing inks contain subject pollutants, depending on the colour. For example green, gold and blues contain copper, silver contains zinc, and violets and purples contain molybdenum. Although inks are not discharged directly to drain they will migrate and contaminate the fountain solution. Inks also contain up to 40% VOC's.

"This is an excellent program. With the help of EcoSoft and OCETA, we have been able to efficiently identify ways to improve our pollution prevention, and at the same time, have a positive impact on the bottom line!"

-Paul DeRocher, VP Production and Operations

P2 SOLUTIONS, ENVIRONMENTAL RESULTS, AND RELATED COST SAVINGS

P 2 C A S E S T U D Y

To correct the excessive amount of water used in the CTP plate maker and processor, the possibility of installing a wash water-recirculating unit on the plate processor will be investigated. The chosen unit should also filter the recycled water, add periodic fresh water and have the ability to introduce a non-toxic biocide to keep the water free of algae and bacteria. This will save 70% of the wash water currently used.

The most significant pollutant used at St. Joseph Thorn Press Inc. is Isopropyl Alcohol (IPA). To eliminate the use of this substance the installation of a 300-Gallon Per Day Reverse Osmosis System has been suggested. Reverse osmosis water eliminates dissolved minerals and other contaminants from city water. This allows an alcohol substitute to be utilized in the plant to eliminate IPA. As the potential costs savings are in the region of \$98,000 per year, the short-term return on investment (one month) means this is an initial low cost option with a big pay back.

Fountain solution treatment and recycling through membrane technology was investigated to remove all ink and other contaminants. A recommendation was made to install an Ultra-Filtration Membrane unit to treat the spent fountain solution and bucket wash water etc. on site prior to discharge or re-use. This will be an initial medium cost option; if the savings on waste haulage is factored in this will soon bring a return on the investment. If the average is one drum per week at \$165 then the ROI will be approximately 8-10 months.

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