

VOCs in the Printing Industry

1. BUSINESS CHALLENGE

In 2005, a major Canadian printing company came to ÉEM inc. with the challenge of reducing their environmental impact from the use of volatile organic compounds (VOCs). VOCs are typically photochemically reactive, meaning that they react with sunlight, to create smog and pollution.

This issue had been an ongoing concern for the company and became unacceptable under their new corporate strategy. The company challenged us to find a solution that could be integrated effectively into their numerous Canadian printing operations.

2. APPROACH AND STRATEGY

We identified the key issues through analytical research, personal interviews and a review of historical records. The principle sources of the VOC emissions are the inks, varnishes, fountain solution and press cleaning solvents. After a detailed study of the sources, including quantification, we targeted the solvents used in press cleaning that result in fugitive emissions of VOCs.

The problem was then divided into 3 stages:

- a. Identification of the type of VOCs in the cleaning solvent to establish if the solvent was photo-chemically reactive or not.
- b. Research into available replacements that would not be photo-chemically reactive. Each solvent was also -assessed against the following criteria: cleaning effectiveness, toxicity, odour, dilution possibility, cost, and ease of purchase.
- c. Recommendations on operational issues such as purchase contracts and targets for the transition.

3. SOLUTION

ÉEM developed a plan for the company to implement the change in an efficient manner. Two new solvents were introduced: one for manual cleaning and a second for potential use with automatic press-cleaning with a substrate.

The client set up a Preferred Supplier Agreement with the manufacturer and instructed its facilities in Canada to favour the purchase of their solvents from this source.

4. RESULTS

The client has reduced the company's contribution to ground level ozone and smog. Roughly 85% of the printing plants are now using the new solvent. Where other solvents are purchased, they are required to meet the criteria for non-photochemical reactivity. The cost of the new solvent is competitive with others on the market.