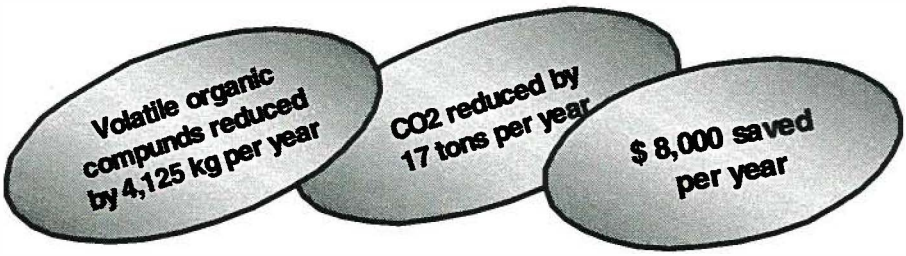
ENVIROCLUB[MD]

CAN-LAK

GREENHOUSE GASES AND VOLATILE ORGANIC COMPOUNDS REDUCED THROUGH OPERATIONAL IMPROVEMENTS

Industrial Sector	**Products**
Manufacturing of chemical products, paints and coatings	Chemical products, paint, and coatings
Region: Bois-Francs (Quebec)	**Number of employees:** 60

POSITIVE OUTCOME



THE PROCESS

CAN-LAK Inc. manufactures paints, stains, and lacquers from basic ingredients. This includes six types of activities, depending on the sequence of operations: storage of solvents, filling of mixing tanks, mixing of the product, quality control, packaging of the finished products in various formats and, finally, washing of the mixing tanks.

All of the operations are performed in the plant, although the basic solvents are stored in outside tanks. The filling, mixing and washing of the tanks are all done in the same area. Quality control and the packaging of the finished products are done in another area.

THE CHALLENGE

When paints, stains and lacquers are manufactured, organic solvents evaporate in the plant. As a result of the dangers these fumes represent for the health and safety of the workers, the company must ventilate the work area, expelling and replacing air at a rate of approximately 400m^3/min. (12,000 CFM).

In cold weather, oil must be burned to heat the replacement air. Moreover, the evaporated solvents represent a loss of raw materials for the company and release volatile organic compounds (VOC) into the air. Since the basic solvents are stored outside, a certain quantity is released into the air through the contraction and expansion of the gaseous portions in the tanks as the temperature varies.

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THE ENVIROCLUB SOLUTION

The vapours of the solvents that are stored in tanks outside are subjected to expansion and contraction cycles that vary with daily temperature changes. As a result, Enviroclub recommended that the tanks be filled more frequently during the summer. Maintaining high levels in the storage tanks reduces the space where the evaporation and release of the solvents takes place during the expansion and contraction cycles of the gases.

Operating procedures were also modified so as to isolate the tank washing activities, minimize evaporation and optimize the collection of solvent vapours during the mixing and packaging of finished products. Since organic solvent fumes are generally heavier than air, the intake nozzles were re-positioned to allow for the natural flow of the vapours towards the floor, thereby optimizing ventilation.

The employees were informed about the new measures and trained to integrate the new practices in their work procedures.

RESULTS FOR THE ENVIRONMENT

All of these changes reduced the quantity of solvents lost through evaporation. As a result, 2 ml of solvent were gained per litre of product manufactured. By reducing both the amounts lost from the storage tanks located outside and the amounts lost inside the plant, VOC emissions were decreased by 4,125 kg/yr. The new measures also reduced the volume of air that is expelled and replaced by 25%, thereby decreasing the amount of oil used to heat the work areas by 6,000 litres per year. All of these measures had an impact on the company's atmospheric emissions. The reduction in the amount of oil used for heating reduced the volume of greenhouse gases by 17 tons of CO_2 equivalent per year.

Finally, the prevention methods made the employees aware of the environmental issues pertaining to their employer's activities. The economic, environmental and social concerns of the company's management became more concrete for the employees of the plant.

RESULTS FOR THE COMPANY

It cost approximately $4,500 to implement the preventive measures and reduce both the amount of solvents lost through evaporation and the volume of air expelled. These costs were quickly recovered through savings of $5,000 per year for raw materials and of $3,000 per year in heating oil. Therefore, Can-Lak Inc. of Daveluyville received a return on its investment in less than seven months.

GREENHOUSE GAS INVENTORY

The reduction in greenhouse gas emissions corresponds to the 6000-litre reduction in the amount of heating oil used per year, namely 17 tons of CO_2 equivalent per year.