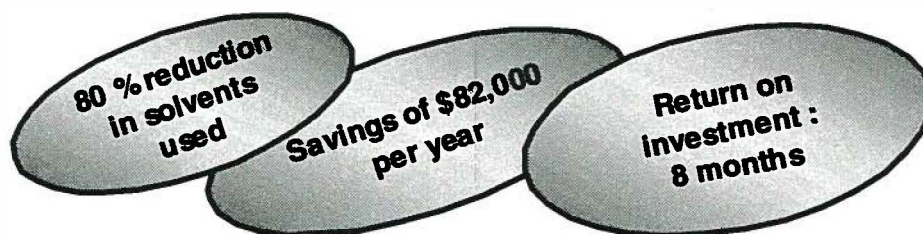


# CYCLES DEVINCI

## REDUCTION IN THE USE OF SOLVENTS THROUGH THE ELECTROSTATIC APPLICATION OF PAINT

<b>Industrial sector</b> Manufacture of metal products (aluminum) Machining shop	<b>Products</b> High-quality, aluminum bicycles and bicycle frames
<b>Region:</b> Saguenay-Lac Saint-Jean (Quebec)	<b>Number of employees:</b> 55

### POSITIVE OUTCOME



### THE PROCESS

Cycles Devinci specializes in the manufacture of aluminum bicycles and bicycle frames. The numerous manufacturing stages include: cutting aluminum tubes, machining parts, cleaning, assembling parts through welding, thermal treatment, finish machining, filing, surface treatment, painting, assembling and packaging. One step, painting parts with liquid, acrylic urethane-based paint, using an HVLP, provided a good opportunity for improvement, in environmental and economic terms. This finishing technique involves spraying paint that has been diluted by 50% with a solvent onto bicycle frames.

### THE CHALLENGE

There were two aspects of the finishing technique used by Cycles Devinci for which a better approach could have a positive impact in environmental and economic terms:

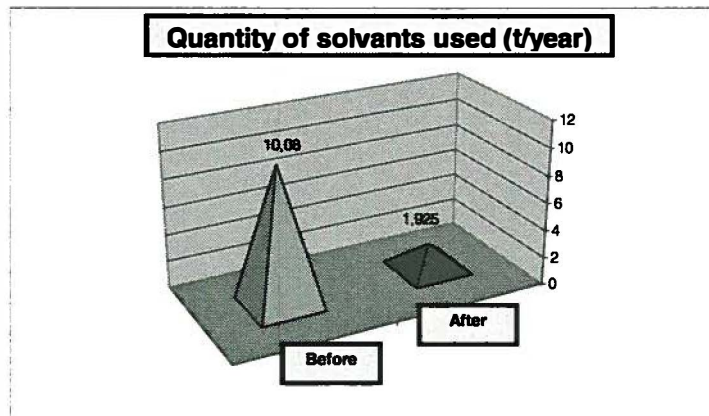
- 1) Paint loss and waste: during the application process, the company lost a significant portion of the paint, which did not get sprayed onto the surfaces to be finished. In addition to the cost of unused raw materials, this problem also resulted in significant releases for the company.
- 2) Volatile organic compound fumes: during the application and the drying stages, the solvents evaporate, releasing volatile organic compounds (VOC) into the atmosphere. A reduction in these fumes would improve employee health and safety.

### THE ENVIROCLUB SOLUTION

Following a meticulous analysis of the manner in which the work was organized, production data, and the technique used to spray the paint, Enviroclub<sup>OM</sup> suggested replacing the current HVLP paint application system with an electrostatic application system. This involved modifying the paint nozzles and the paint chamber, as well as purchasing and installing a natural gas oven for drying the parts. As a result of these changes, the company was able to reduce its production costs and its VOC emissions, in addition to increasing production.

## RESULTS FOR THE ENVIRONMENT

In environmental terms, the new spray application procedure enabled Cycles Devinci to reduce the quantities of paint and solvent used. Prior to the implementation of the proposed solutions, 33.5 grams of solvent were needed to apply paint to a bicycle frame. The spray process now requires only 6.4 grams of solvent, for a reduction of 80 percent. The quantity of paint required for a bicycle frame was also reduced by 32 percent. As a result, the quantity of volatile organic compounds released into the atmosphere was reduced by four tons.



## RESULTS FOR THE COMPANY

In economic terms, the sums invested to modify the paint process resulted in significant reductions in the amounts spent on raw materials, as well as savings in terms of human resources. Despite a 157 percent increase in energy expenditures, the entire cost for painting bicycles was reduced by 48 percent. The change in the process enabled the company to reduce the costs of paint by 16 percent, solvents by 20 percent, the finishing coat by 79 percent, and human resources by 63 percent.

The savings achieved during the course of the year largely compensated for the initial investment. The return on the investment was eight months and recurring savings total \$82,000.

The savings achieved also served to increase production by 33 percent, without any need to hire additional personnel or increase the size of work areas. Cycles Devinci is now planning to expand its facilities and hire additional employees to increase its production by 88 percent compared to its production figures prior to the Enviroclub<sup>OM</sup> intervention.

**Important notice:**

*The purpose of this information sheet is to make the public aware of the accomplishments achieved in terms of pollution prevention as part of the Enviroclub<sup>OM</sup> programme. This publication does not imply any endorsement of the activities of the company mentioned by Environment Canada.*

*Enviroclub<sup>OM</sup> is a programme intended to help small and medium manufacturing companies better integrate environmental considerations in their production and to promote sound environmental management. For more information about Enviroclub<sup>OM</sup>, please contact Environment Canada at (514) 283-4670.*

