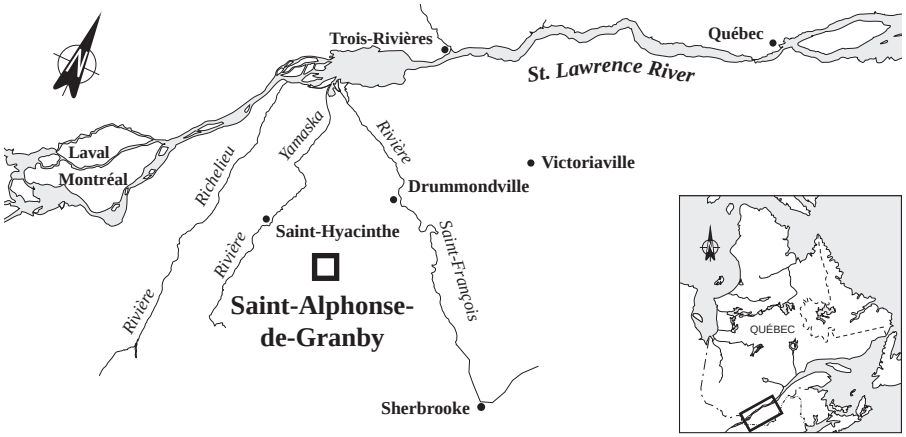
*FACT SHEET 73*

# Le Manufacturier Granford inc.

*127 rang Parent*

*Saint-Alphonse-de-Granby, Quebec*

*J0E 2A0*




***A** list of 106 industrial plants has been established under St. Lawrence Vision 2000 (SLV 2000), the second phase of the St. Lawrence Action Plan, launched in 1988. The overall objective is to reduce toxic effluent and virtually eliminate discharges of persistent toxic substances.*

***The 106 industrial plants designated under SLV 2000 are divided into four groups, each with a specific objective. The LE MANUFACTURIER GRANFORD INC. plant in Saint-Alphonse-de-Granby is in Group 2, comprising plants that have already implemented treatment programs but whose effluent may contain toxic substances.***

***The objective for Group 2 is maximum reduction of toxic effluent of targeted plants.***

## INDUSTRIAL PLANT

*Manufactures rubber hose*

The LE MANUFACTURIER GRANFORD INC. plant in Saint-Alphonse-de-Granby manufactures rubber hose of different diameters. The raw materials are prepared and then sent to the production unit. The products are inspected before packaging and shipping. In 1995, the plant operates at 100% design capacity and employs a work force of 215.

## PRODUCTION

### PRINCIPAL RAW MATERIALS

- Unvulcanized rubber
- Fabric reinforcement
- Steel wire
- Zinc stearate powder
- Mineral oil
- Nylon curing tape

### FINISHED PRODUCT

- Rubber hose (3/8 to 20 in. in diameter)

# TREATMENT MEASURES

## INITIAL EFFLUENT VALUES

### *Small loads*

According to company data, in 1993 the plant discharged 70 $m^3$/d of effluent containing notably:

- 1.33 kg/d of oil and grease (O&G)
- 0.91 kg/d of suspended solids (SS)
- 0.56 kg/d of biochemical oxygen demand ($BOD_5$)
- 0.01 kg/d of zinc

## RESOURCES AND USES TO PRESERVE

### *Centre of industrial activity*

The LE MANUFACTURIER GRANFORD INC. plant in Saint-Alphonse-de-Granby empties its effluent into the upstream part of the Yamaska drainage basin. The plant is several kilometres south of Granby, a major industrial centre close to the west bank of the Yamaska Nord River that is home to a large percentage of the region's population and much of its industry. There has been no recent study of fish inhabiting this stretch of the Yamaska Nord, long recognized as one of the most polluted rivers in Quebec. In the 1970s, some twenty fish species were inventoried in the Yamaska Nord as a whole. Water quality has improved since the Granby, Warden and Waterloo wastewater treatment plants were commissioned and the Choinière reservoir was built. The main channel of the Yamaska downstream of the discharge point, around Farnham, attracts anglers and is used for water sports. The town of Farnham draws its drinking water from the Yamaska.

## ENVIRONMENTAL DISCHARGE OBJECTIVES

### *Environmental protection*

Environmental discharge objectives are established to preserve local resources and uses. These guidelines, expressed as maximum permissible loads and concentrations for effluent released into the environment, are used in choosing treatment methods which best promote environmental protection. Environmental discharge objectives for LE MANUFACTURIER GRANFORD INC. will be available by 1997.

## EFFLUENT TREATMENT

### *Filtration and recirculation*

Industrial effluent is channeled to three storage pits. The treatment consists of filtration followed by removal, by conveyor, of oil and grease. An ultrafiltration unit is available for future use. Water used in the manufacturing process is partly recirculated. Sanitary sewage is treated in septic tanks with tile drainage and then released into the Yamaska Nord.

## PREVENTION AND CLEANUP MEASURES IMPLEMENTED

### *Oil and grease recovery*

In 1991, as part of a water cleanup program, the company introduced a system to recover oil and grease. No major modifications to the manufacturing process or the wastewater treatment system have been made recently.

## REGULATORY COMPLIANCE - WATER COMPONENT

### *Application for a certificate of authorization*

LE MANUFACTURIER GRANFORD INC. has applied for a certificate of authorization. The company will have to comply with standards stipulated in the certificate of authorization, which should be issued in 1997.

# POLLUTION ABATEMENT

## CHIMIOTOX INDEX ABATEMENT OF TOXIC POLLUTION

*Mainly total oil and grease*

The Chimiotox index gauges the load of all toxic substances in industrial effluent using toxicity factors assigned to each contaminant. It is used, among other things, to monitor discharge trends over the years (Figure 1) and determine the toxic contribution of each pollutant (Table 1).

Table 1 gives SLV 2000 characterization data collected in December 1995 along with the Chimiotox values calculated from them assuming an effluent flowrate of 93 $m^3$/d. Eleven substances were selected in testing for more than 120. According to these data, total oil and grease dominate the treated effluent, accounting for 86% of the Chimiotox index.

Figure 1 is plotted from the 1995 SLV 2000 characterization data. The Chimiotox index calculated from these data was applied to the entire period between 1993 and 1998. No major modifications to the manufacturing process or the wastewater cleanup system were made between 1993 and 1995.

*Table 1* ***Chimiotox Index (1995) - Le Manufacturier Granford inc.****

| Substance | Load (kg/d) | Toxic Weighting Factor | Chimiotox Units (CU) |
|---|---|---|---|
| Total oil and grease | 3.099 | 100 | 310 |
| Dimethylphthalate | 0.008 | 5 000 | 40 |
| Total phosphorus | 0.144 | 50 | 7 |
| Total copper | 0.004 ** | 451 | 2 |
| Total mercury | $5.9 \times 10^{-6}$ ** | 166 667 | 1 |
| Ammoniacal nitrogen | 0.235 | 0.8 | <1 |
| Total sulphates | 0.001 ** | 500 | <1 |
| Total aluminum | 0.007 | 11 | <1 |
| Total iron | 0.086 | 3.3 | <1 |
| Total manganese | 0.043 | 10 | <1 |
| Total zinc | 0.024 | 9.4 | <1 |
| **CHIMIOTOX INDEX** | | | **360** |

* Assuming a flowrate of 93 $m^3$/d (11 substances selected in testing for more than 120)

** Load calculation based on analytical data which are near methodological detection limits

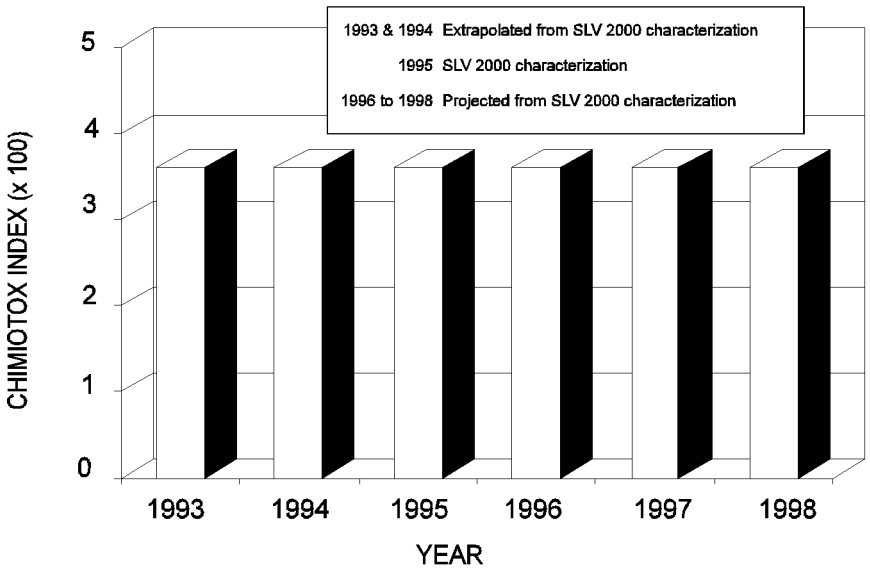



*Figure 1* ***Chimiotox Index Trends (1993 to 1998) Le Manufacturier Granford inc.***

## VIRTUAL ELIMINATION OF PERSISTENT TOXIC SUBSTANCES

One long-range objective of SLV 2000 is the virtual elimination of eleven persistent and bioaccumulative toxic substances from the effluent of the 106 targeted plants along the St. Lawrence and its tributaries. The targeted substances are those designated by the International Joint Commission in August 1993: PCBs, DDT, dieldrin, toxaphene, dioxins, furans, mirex, mercury, lead alkyls, benzo(*a*)pyrene and hexachlorobenzene. To reach this objective, Protection has fixed the environmental discharge objectives set for applicable substances as its target by the end of SLV 2000 in 1998, thereby ensuring that all uses of the receiving environment are protected.

Mercury was detected during the 1995 SLV 2000 characterization; its concentration was near methodological detection limit. Mercury in the water discharge is already present in low concentration at the supply source of water.

## PEEP TOXICITY REDUCTION

*Low PEEP*

The Potential Ecotoxic Effects Probe (PEEP) combines the results of six standardized bioassays measuring the toxic effects of effluent. Results are expressed on a logarithmic scale (1 to 10) of increasing toxicity and are used to monitor discharge trends over the years. A series of bioassays of effluent from the LE MANUFACTURIER GRANFORD INC. plant was conducted in 1995; a PEEP index of 2 was obtained, which is low.

## REDUCTION IN SUBSTANCES MONITORED

*No major changes*

According to company data, in 1995 the plant discharged 86 $m^3$/d of effluent containing notably:

- 3 kg/d of oil and grease (O&G)
- 3 kg/d of suspended solids (SS)
- 3 kg/d of biochemical oxygen demand ($BOD_5$)
- 0.03 kg/d of zinc

There were no major changes in effluent flowrate and loads between 1993 and 1995. No major modifications to the treatment system have been made recently.

## KEY POINTS

- **As part of a water cleanup program, a system for recovering oil and grease was introduced in 1991**

Based on December 1995 inventory

## ADDITIONAL INFORMATION

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