

FACT SHEET 72

Infasco Division of Ifastgroupe and Company, Limited Partnership

700 Ouellette Street

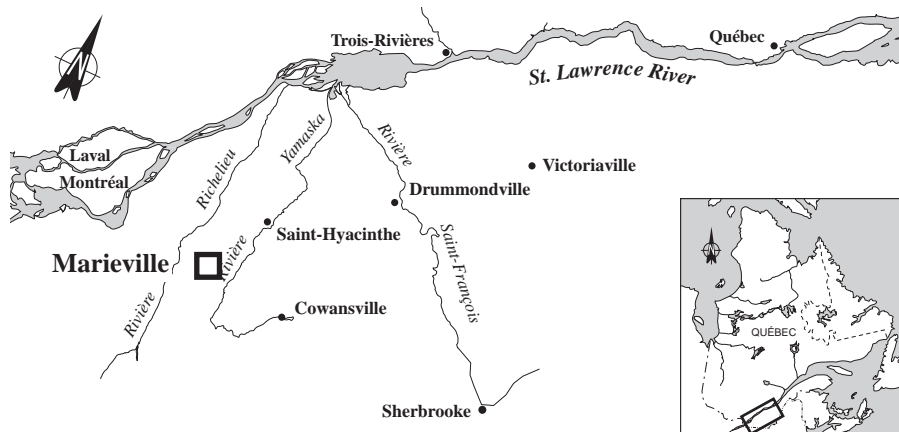
Marieville, Quebec

J3M 1P6

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 INFASCO DIVISION OF IFASTGROUPE AND COMPANY, LIMITED PARTNERSHIP plant in Marieville 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

Manufacture of bolts, nuts and specialty screws

The INFASCO plant in Marieville became a division of IFASTGROUPE AND COMPANY, LIMITED PARTNERSHIP in the fall of 1993; it was previously a division of IVACO INC. The plant makes nuts, bolts and specialty screws from steel wire. The wire is annealed, stripped using sulphuric acid, and then covered with phosphate and occasionally soap. The sulphuric acid used for stripping is regenerated by crystallization (Keramchemie process). The nuts are produced by hot forging. The finished products that require no additional heat treatment or coating are washed and stored awaiting shipment. The remaining nuts and bolts may undergo stress-relief, quenching in water or oil, and tempering. The quenched products are coated with rust inhibitor before being shipped. In 1994, the company ceased cold-forging of nuts; this operation was transferred to Ontario. Annual production capacity of the plant is 120 000 t. In 1997, the plant operated at 85% capacity and employed a work force of 530.

PRODUCTION

PRINCIPAL RAW MATERIALS

- Steel wire in coils (low-carbon)
- Steel bars in coils (low-alloy, medium-carbon)
- Straight steel bars (low alloy, low-carbon)

FINISHED PRODUCTS

- Bolts
- Nuts
- Specialty screws

TREATMENT MEASURES

INITIAL EFFLUENT VALUES

Low loads

In 1993, based on company data, the plant discharged an average of 395 m³/d of effluent, containing notably:

- 5.04 kg/d of chemical oxygen demand (COD)
- 3.25 kg/d of suspended solids (SS)
- 1.01 kg/d of iron
- 0.27 kg/d of total phosphorus
- 0.17 kg/d of zinc

RESOURCES AND USES TO PRESERVE

Intensive farming area

Effluent from the INFASCO DIVISION OF IFASTGROUPE AND COMPANY, LIMITED PARTNERSHIP plant is discharged into Barré creek, a tributary of the Saint-Louis creek which flows into the Hurons River which joins the right bank of the Richelieu at Chambly Basin. Cattle regularly drink in the Saint-Louis and Barré creeks. There is a spawning ground used by northern pike, perch and carp at the mouth of the Hurons River. This river drains an area of intensive farming, where water quality is judged mediocre. Between the plant and Chambly Basin, the only recreational area identified is a campground on the north shore of the Hurons River, at the mouth of Saint-Louis creek. The main focus of recreational activities is the Richelieu. Chambly Basin is also used for many activities such as fishing, swimming and various other water sports. The first drinking water intake downstream from the plant is in Chambly Basin near the left bank of the Richelieu, used by Goyer, Lièvres and Demers islands.

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 INFASCO DIVISION OF IFASTGROUPE AND COMPANY, LIMITED PARTNERSHIP are available on request.

EFFLUENT TREATMENT

Physico-chemical treatment

Industrial wastewater from the stripping shop receives physico-chemical treatment in three stages: pH stabilization, settling and filtration. Water from the hot-forging and quenching shops is re-used in the manufacturing process. Depending on the discharge point in the plant, rainwater, boiler purge water and compressor cooling water are discharged either untreated into the Barré creek or into the municipal storm sewer system. Domestic sewage is sent to the Marieville sanitary sewer system.

PREVENTION AND CLEANUP MEASURES IMPLEMENTED

No special measures

No additional cleanup measures have been taken since 1993.

REGULATORY COMPLIANCE - WATER COMPONENT

Standards met

The INFASCO DIVISION OF IFASTGROUPE AND COMPANY, LIMITED PARTNERSHIP plant is subject to the standards of a certificate of authorization on effluent which the company has met.

POLLUTION ABATEMENT

CHIMIOTOX INDEX ABATEMENT OF TOXIC POLLUTION

Mainly anthracene

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 and determine the toxic contribution of each pollutant

Table 1 gives data from the March 1996 SLV 2000 characterization along with the Chimiotox values calculated from them, assuming an effluent flowrate of 342 m³/d. Nine substances were selected in testing for more than 120. Based on these data, anthracene accounts for 92% of the Chimiotox index.

Figure 1 is plotted from 1996 SLV 2000 characterization data. The Chimiotox index calculated from the 1996 data was applied to the years 1993 to 1998. No additional cleanup measures have been taken since 1993.

Table 1 *Chimiotox Index - Infasco Division of Ilastgroupe and Company, Limited Partnership**

Substance	Load (kg/d)	Toxic Weighting Factor	Chimiotox Units (CU)
Anthracene	0.013	32 154	426
Nitrites-nitrates	4.711	5	24
Total phosphorus	0.152	50	8
Total aluminium	0.143	11	2
Ammonia nitrogen	0.795	0.8	1
Total cyanides	0.003	200	1
Total iron	0.417	3.3	1
Total manganese	0.107	10	1
Total molybdenum	0.532	1	1
CHIMIOTOX INDEX			465

*Assuming an effluent flowrate of 342 m³/d (9substances selected in testing for more than 120).

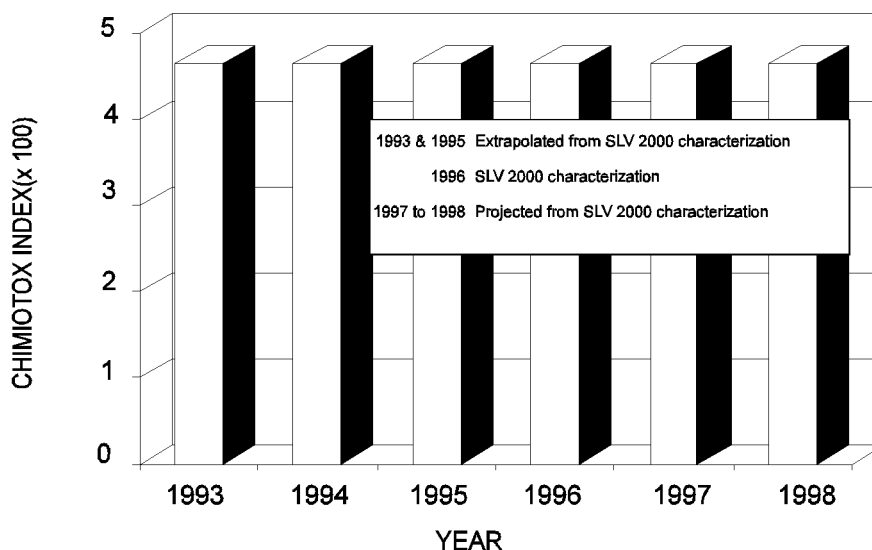


Figure 1: *Chimiotox Index Trends (1993 to 1998)*

Infasco Division of Ilastgroupe and Company, Limited Partnership

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.

Based on SLV 2000 characterization data for March 1996, none of the eleven persistent and bioaccumulative substances were detected in the company's effluent.

PEEP TOXICITY REDUCTION

Low toxicity

The Potential Ecotoxic Effects Probe, or PEEP, combines the results of six standardized bioassays measuring the toxic effects of effluent. The results are expressed on a logarithmic scale of increasing toxicity ranging from 1 to 10 and are used to monitor discharge trends over the years. In the case of INFASCO DIVISION OF IFASTGROUPE AND COMPANY, LIMITED PARTNERSHIP, a series of bioassays was conducted in March 1996, yielding a PEEP of 3 and showing a low toxicity for the organisms tested.

REDUCTION IN SUBSTANCES MONITORED

Stability of discharge

Based on company data for ten months of 1997, the plant discharged an average of 350 m³/d of effluent, containing notably:

- 3.66 kg/d of chemical oxygen demand (COD)
- 2.16 kg/ of suspended solids (ss)
- 0.60 kg/d of iron
- 0.16 kg/d of total phosphorus
- 0.06 kg/d of zinc

Effluent loads and flowrate between 1993 and 1997 were stable owing to the lack of any major changes to the process or water treatment system.

KEY POINTS

- Physico-chemical treatment system in place since 1985

Information revised January 1998

ADDITIONAL INFORMATION

Chimiotox Index and PEEP:

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