

## Secondary Lead Production (Pyrometallurgical Treatment) **CX<sup>®</sup> Process**

**Title:** Innovative Process for Treatment of Sulphuric Acid Waste Liquids with Recovery of Anhydrous Sodium Sulphate

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**Abstract:** Tonolli Canada Limited is a lead recovery and refinery plant located in the city of Mississauga, Ontario, Canada. Approximately 80 % of the feedstock for the plant comes from batteries purchased from scrap dealers and battery manufacturers within 600 km of Mississauga.

Electrolyte drained from the batteries is 17 weight percent sulphuric acid. This operation generates approximately 9 million litres per year of sulphuric acid waste liquids.

In 1985, Tonolli was requested by the Regional Municipality of Peel to investigate options available for acid recycling or waste treatment to reduce the concentration of soluble sulphate in the discharge to the sewer from the plant. After evaluating a number of options in detail, including lime neutralization, caustic neutralization, waste acid upgrading, and the sale of waste acid without treatment, Tonolli selected the CX Process to satisfy the Region's new waste management request. This process was developed by Tonolli's affiliate company, Engitec Impianti, Milan, Italy.

The process, which has been proven in two commercial facilities in Europe, is based on neutralization and reaction of the acid waste with sodium carbonate followed by evaporative crystallization. In addition to overcoming the liquid waste disposal problem, the process benefit of recovering detergent-grade sodium sulphate as a byproduct for sale. The process also dramatically reduces the volume of solid waste(slag) that is normally generated in the lead recovery operation. Thus the process has the double benefit of byproduct recovery and waste minimization. Design and construction of this innovative waste management process is underway at Tonolli Canada Limited