

PROJECT DESCRIPTION

Chlorine cleaning and drying
MAGNOLA METALLURGY
Valleyfield, QC

PROJECT SCOPE

The project consisted in treatment of exhaust gas emissions coming from magnesium pilot plant to test the chlorine recovery process.

Mesar / Environair was mandated to provide supply and engineering of a particulates and scrubbing system for the Magnola plant at Valleyfield in Québec.

At Valleyfield plant, the waste stream to be treated comes from the magnesium electrolysis cell. The major contaminants were inorganic salts particulates and HCl vapor.



The treatment system consists in a Venturi/quench unit followed by three packed tower scrubbers in series. The Venturi unit knocks out particulates, and the quench cools the exhaust gas and saturates it with water vapor. The first packed tower is a caustic scrubber where any HCl vapor is easily removed. The two next scrubbers were operated using concentrated sulfuric acid in order to remove any water vapor from the chlorine. From there, the chlorine was compressed and stored for further conversion into HCl byproduct used elsewhere in the plant.

Other equipment like recirculation pump, metering pump, mist eliminator and fan were supplied to insure a safe system design.

RESULTS

The system was installed in October 1996 as scheduled. Performance trials in the following months showed that the scrubbing systems consistently operates, and the pilot plant conformed to customer expectation.

The system efficiencies were 99% on particulates and of 99% in HCl removal.