

Water Contamination Problems Solved at Automobile Air Bag Manufacturing Plant

The Facility

Based in a Rocky Mountain state, this facility produces the sodium azide pellets contained inside the air bags for automobiles produced throughout the world.

The Problem

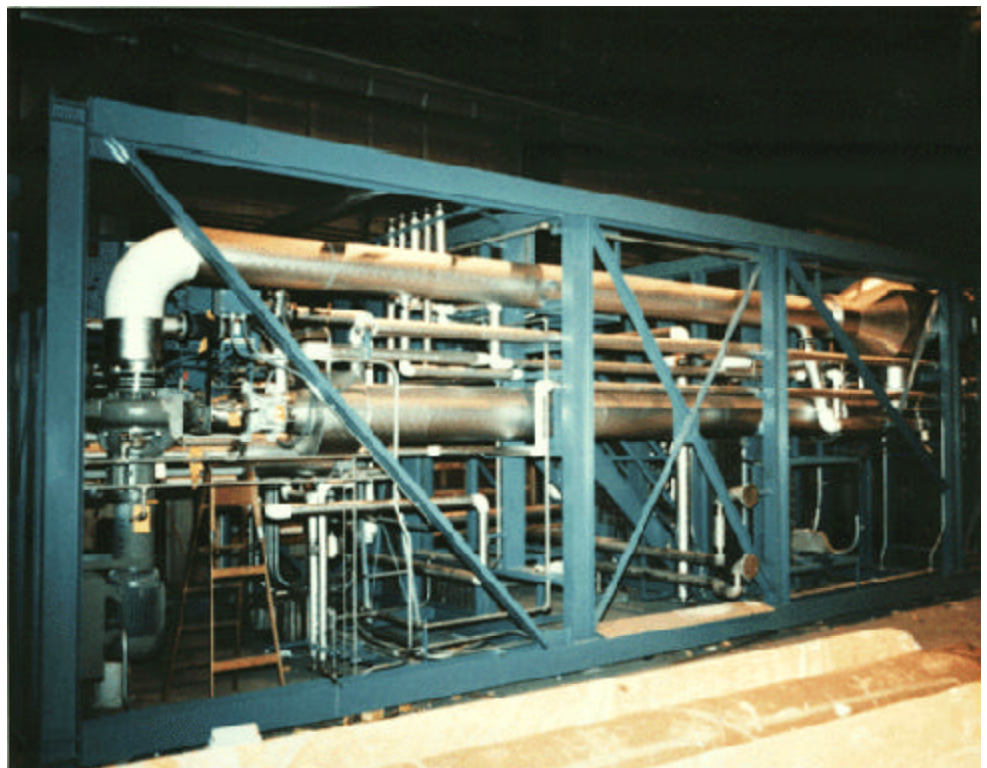
During the manufacturing of the air bag propellant, frequent equipment washdowns produce large volumes of wastewater that contain sodium azide and metal sulfide salts. Sodium azide is a highly explosive and toxic chemical compound. Safety and environmental concerns mandate careful wastewater treatment and disposal. The only alternative is to transport the wastewater to a hazardous waste facility.

The Solution

After a thorough research and evaluation effort, the customer found that an evaporator was the most cost effective and technically reliable solution for their volatile wastewater problem. Aqua-Chem ICD was selected to design, manufacture and consult on the installation of a skid-mounted four-effect evaporator. The system design incorporates low temperatures and falling film evaporation, minimizing azide entrainment in the recovered distilled water.

The wastewater feed contains about 0.3% total solids. Filtered before feeding to the evaporator, the wastewater is reduced to an economic concentration in the evaporator. The system was designed for future possible conversion to a crystallizer system. Aqua-Chem ICD furnished a gas fired boiler, which

provides the energy source for the evaporator, and an air cooled condenser, necessary because of a shortage of cooling water. The system also includes water storage tanks with a total capacity of 155,000 gallons and complete feed and product filtering systems. The automated evaporator system is controlled by a Programmable Logic Controller de-



signed by Aqua-Chem ICD.

The Results

Facility start-up occurred in November 1991. Due to a significant increase in the demand for automobile air bags, the customer required a 12-fold expansion of wastewater evaporation capacity over a similar system on a turnkey basis. The expansion is easily met by the new Aqua-Chem ICD evaporator.

PROJECT PROFILE SERIES # 9

Technical Data Wastewater Chemistries

Feed	0.3%	Waste rate	0.5 gpm
Concentrate	36%	Recovered water	59.5 gpm
Feed rate	60 gpm	Recovered water quality	< 10mg/l

Flow Diagram

The system is a straight backwards feed 4-3-2-1 to provide for the highest temperatures to be available in the most concentrated effect (#1).

