



CHARLES CITY



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COMPANY PROFILE

Zoetis is a global animal health company that delivers quality medicines and vaccines, complemented by diagnostic product and genetics tests and supported by a range of services. The company sells its vaccines for a variety of animals, including poultry, cattle, swine, dogs, and cats. Production at its Charles City, Iowa, plant began in 1946. There are more than 400 employees at the plant, staffing the 24-hour operation of the facility five days a week.

PROJECT BACKGROUND

Compressed air is an important component of production at Zoetis in Charles City. Increasingly high production demands require that compressed air be available at all times and with reliability. To ensure the company operates at the highest efficiency possible, and to reduce energy usage, a comprehensive analysis of this key operational system was conducted. Through the analysis, potential air leaks were identified as the greatest opportunity to increase efficiencies and reduce waste.



INCENTIVES TO CHANGE

In a competitive animal health market, Zoetis strives to deliver a high quality product while reducing operating costs and environmental impact. A major focus of assessment is the compressor system, which makes up a major portion of electrical costs and includes multiple air compressors throughout the facility. The largest air compressor system has components that are past their mean lifespan. Minimizing air leaks and optimizing the system performance will provide a more accurate measure of the actual demand and allow replacements to be sized properly. These factors could validate the purchase of smaller, more efficient compressors. Changes to the air compressor system would result in a significant economic impact and improved environmental performance for Zoetis.

RESULTS

Compressed Air Leaks: Elimination of potential air leaks in the compressed air system could significantly reduce energy usage. Repairing air leaks in the system would reduce artificial load to the compressor, which can impact lifespan and efficiency. Nearly 40 percent of the annual cost to operate the compressor system could be saved with this change, for a financial impact of \$20,000.

Leak Management Plan: A more robust plan to regularly monitor and repair air leaks would provide significant cost savings for Zoetis. Employing a structured leak detection path throughout the facility reduces the time required for assessment, thus reducing labor costs. Additionally, the aid of an energy savings calculator shows the immediate potential impact of leak repair, and can help prioritize which leaks to fix first.

Reducing System Pressure: The correct pressure for the compressed air system helps save on electricity and increases the compressor lifespan. After a comprehensive review of the compressed air pressure, one of the systems was identified as a candidate for reduced pressure. By reducing the pressure to one unit, as much as ten pounds per square inch of air pressure could be alleviated without disrupting the manufacturing process.

Zero-Loss Condensate Drains: To ensure successful end use of compressed air and to maintain the health of the distribution network, condensate must be removed regularly. Installing zero-loss condensate drains in areas without the most efficient drainage is a low cost way to help reduce compressed air loss while ensuring condensate removal. The drains have no operating cost and can be installed in remote areas due to their small size.

High-Efficiency Fixtures: Costs to operate the compressed air system could be reduced with the installation of high efficiency nozzles and air amplifiers, used for product packaging and drying applications. High-efficiency fixtures combine compressed air and ambient air to produce a high force, high velocity flow without the use of any moving parts. Compressed air use could be reduced by as much as 85 percent in some segments of production with the installation of high-efficiency fixtures.



CONVENTIONAL AIR POLLUTANTS AND GREENHOUSE GASES DIVERTED IN METRIC TONS
From Implemented and In Progress recommendations

TOTAL FOR ALL SECTORS								
CO ₂	SO ₂	CH ₄	N ₂ O	CFC	NO _x	VOC	PM ₁₀	MTCO ₂ e
19.14	0.10	0.70	0.01	0.20	0.00	0.00	0.00	20.09

CONVENTIONAL AIR POLLUTANTS AND GREENHOUSE GASES DIVERTED IN METRIC TONS
From Recommendations in Recommended Status

TOTAL FOR ALL SECTORS								
CO ₂	SO ₂	CH ₄	N ₂ O	CFC	NO _x	VOC	PM ₁₀	MTCO ₂ e
280.00	1.51	10.50	0.14	3.43	0.72	0.02	0.04	293.87

PROJECT	ANNUAL COST SAVINGS	ENVIRONMENTAL RESULTS	STATUS
COMPRESSED AIR LEAKS	\$20,805	466,477 KWH	RECOMMENDED
LEAK MANAGEMENT PLAN	\$6,954	155,492 KWH	RECOMMENDED
REDUCING SYSTEM PRESSURE	\$157	3,374 KWH	RECOMMENDED
ZERO-LOSS CONDENSATE DRAINS	\$243	5,214 KWH	IN PROGRESS
HIGH-EFFICIENCY FIXTURES	\$1,665	37,339 KWH	IN PROGRESS

