Case Study

Catalytic Oxidizer Solves Manufacturer's Local Odor Control Issue

The Air Issue

A manufacturing company produces scented products in their facilities around the US. The company has received numerous complaints regarding the odors emitted from the manufacture of these scented products which they wanted to proactively address. After a detailed engineering study, various hydrocarbon VOCs (Volatile Organic Compounds) were determined to be the root cause of the odor. Although the concentrations were low, the compounds exhausted were odoriferous.

Our Solution

Pollution Systems engaged with the manufacturer to determine the most practical solution to safely treat their exhaust. In addition to overall cost effectiveness, important considerations were high reliability, good turn down capability, minimal downtime and achieving 95% DRE (destruction efficiency) of VOCs. Another major concern was to devise a solution that did not affect the manufacturing process due to sensitivity to backpressure fluctuations on their production lines. They also expressed concerns regarding the footprint and weight of the system as their preference was to install the equipment on the roof.

Due to the low VOC concentration, it was determined that a catalytic oxidizer was the most suitable approach for this waste stream compared to other technologies. Catalytic oxidizers are capable of continuous steady state operating conditions for nearly indefinite periods and accomplish VOC destruction at lower temperatures compared to other oxidizer technologies including regenerative thermal oxidizers. With few moving parts and constant stable operating pressures and temperatures, a professionally designed oxidizer easily achieves more than 99% destruction efficiency. Lower operating temperatures in conjunction with heat recovery, yield favorable operating expenses.

Since catalytic oxidizers are smaller and weigh less than a regenerative thermal oxidizer it is easier to install on industrial roofs or platforms, meeting the manufacturer's desire for a smaller footprint and roof installation. Additionally, a regenerative thermal oxidizer can negatively impact the process backpressure due to frequent valve action.

Our solution included the duct collection system design, a properly sized catalytic oxidizer with modern controls and incorporated flow meters and actuators on the lines to control flow and ensure minimal impact on production.

Project Benefit

The odor issue has been solved and the manufacturer continues to produce their important products with local jobs and minimal impact on the surrounding community. Third party test results demonstrate that the equipment achieves a 99.7% DRE, which is far above the goal of DRE 95%. Due to the careful planning of the oxidizer controls the equipment is operating effectively with minimal impact on the manufacturing process.

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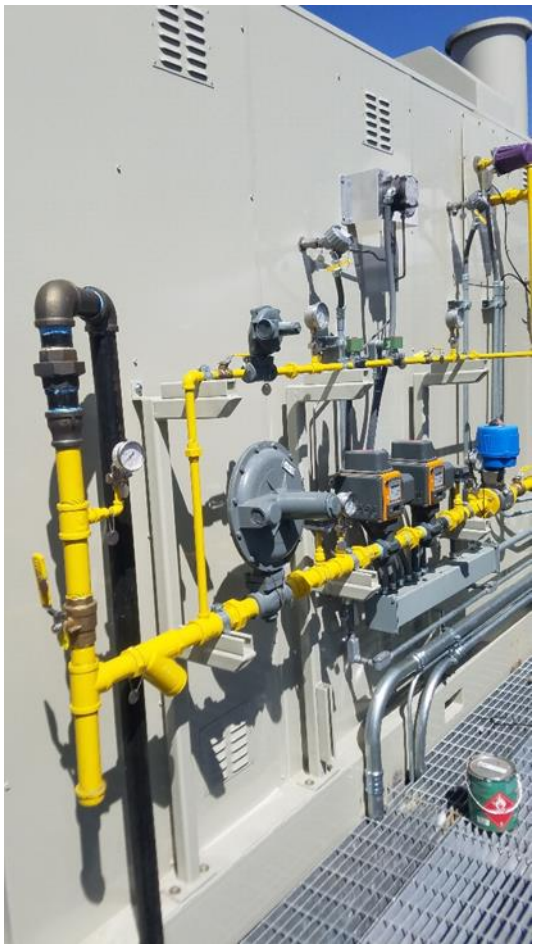

Side Views of the Catalytic Oxidizer NFPA Gas Train

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