

## Solar Panel Manufacturing Facility Treats VOC Emissions with Catalytic Oxidizer

### Initial Operating Issue

A solar panel manufacturer in California was ready to commercially produce a groundbreaking product that had taken many years to develop. Pollution Systems (PSI) was initially contacted as a consultant to determine what air pollution control technology was most appropriate for the new product line used in their solar panel production. PSI worked closely with the company to understand its processes and the anticipated air emission characteristics that required treatment.



### Proposed Solution

After carefully reviewing the process application, operating requirements, and initial investment relative to ongoing operating cost, PSI recommended the installation of a Recuperative Catalytic Oxidizer. Air pollution control using this technology is most appropriate in applications where high destruction efficiency is required, particulate and catalyst poisons are not present, and

Volatile Organic Compounds (VOCs) concentrations are below 25% LEL.

### The Technology: How it Works

Recuperative Catalytic Oxidizers incorporate a heat exchanger and precious metal catalyst on a monolith substrate. The process air is heated and passes through a catalyst, converting the VOCs into carbon dioxide, water vapor, and thermal energy. This conversion is achieved at much lower temperatures than other thermal oxidizers. The exhaust passes through the heat exchanger, which preheats the VOC-laden air prior to entering the heating chamber.



## Implementation and Results

After conducting their research and calculating the numbers, PSI met with the company's key operating and technical staff to carefully review each of the oxidizer technologies available, along with each one's advantages and disadvantages. PSI explained that a Recuperative Catalytic Oxidizer was recommended based on the expected exhaust flow rate, requirements for high destruction efficiency, and low impurities in the exhaust. In this application, a Recuperative Catalytic Oxidizer offered lower overall operating costs in relation to the alternative systems. Satisfied with the data and recommendation presented, the customer made the decision to integrate a Recuperative Catalytic Oxidizer in their manufacturing process. As was guaranteed, the selected system achieved the customer's operational and financial goals and continues to perform as required and intended.

