

The DANCO ANODIZING (DBA DANCO METAL SURFACING) facility in Ontario, California, has shown tremendous growth over the years by successfully implementing strategies that have reduced the untreated waste they put out and went from releasing almost 2,299 pounds of untreated production-related waste to 0. They have managed to find ways to treat 100% of the waste produced and help the communities around them.

Ontario, a city in California, is where the DANCO ANODIZING (DBA DANCO METAL SURFACING) facility is. For some background information, let's talk about the steps the city itself has been trying to take over the years. According to the City of Ontario's website, Ontario has started to make steps towards creating a more environmentally conscious city. Especially as the population increases exponentially, they've begun to make efforts to improve the conditions of the city, especially for residents that are at higher risk of exposure to pollution in the lower socioeconomic regions of the city. The city of Ontario has a program called the City's National Pollutant Discharge Elimination System. Through this program, they hope to not only educate the residents and developers in the city, but to also control the discharge to storm drains, reduce pollutants, and reduce the impacts of increased runoff.

This facility, in particular, must be careful about the emissions it releases; it works on electroplating, plating, polish anodizing, and coloring which has been known to produce toxic air pollutant emissions. But what exactly do these processes produce? To understand that, we must first understand the work the facility does. Electroplating is the process of coating a metal object with an electrolytic deposition of chromium, silver, or any other metal. Plating is similar, as it is putting a thin coating of a metal on a object. Polish anodizing is again in a similar field to electroplating and plating, as it is applying a commercial aluminum polish to an aluminum surface. Finally, coloring is the process of using chemicals to change the colors of surfaces. Almost every single one of these processes can have negative effects on the surrounding environment if not adequately treated.

Within the P2 report, we are shown how the facility was managing different chemical by-products such as sulfuric acid(acid aerosols, mists, vapors, gas, fog, or any other airborne forms), nitric acid, and nitrate compounds which are dissociable in water. If these chemicals were released into the environment, there are major environmental concerns that would arise. Nitrates and nitric acid can cause damage to rivers, lakes, and coasts and can have long-term effects on groundwater. These environmental effects could cause costs to rise, energy usage to be higher, and create more carbon emissions for drinking water. This is concerning especially considering the freshwater crisis that California is in because of the constant droughts.

However, this facility has done astoundingly well with improving leaps and bounds when looking at the number of pounds of waste either treated or recycled. Let's first look at nitric acid. In the year 2013, the total for nitric acid was almost 22709(normalized) pounds. However, in 2021, despite their production index increasing by more than one hundred, the amount of nitric acid waste produced decreased by nearly 10000 pounds to 12991(normalized). When we look at the number of nitrate compounds that are soluble in water, we see a similar trend. They were able to decrease the amount of untreated nitrate waste released from 2,299 pounds to zero pounds.

Similar to the nitric acid waste managed, the nitrates managed decreased sharply from around 20,500(normalized) pounds in 2013 to 11,664(normalized) pounds in 2021, an almost 10,000-pound difference. This is still astonishing considering production units had gone up almost 100 units in the span of the 8 years.

How did this facility manage to do this? It was a combination of different efforts trying to find ways to be more efficient. The journey starts in 2014 when the facility started to try cleaning and degreasing modifications to their machinery to be more efficient. Every year, this facility made sure to review the processes they used and see if there was room for improvement in the way they worked. They systematically made sure they had an internal pollution prevention opportunity audit. These audits are conducted using a Pollution Prevention Opportunity Assessment, or a P20A. A P20A is conducted by a team that will go through the facility and identify sources of waste, examine processes that produce waste, and come up with ways to reduce it. This thorough and yearly process may be one of the reasons why this facility was so successful in reducing the waste released.

Drag-out techniques are an important part of plating as well. In the plating industry drag-outs are the solutions used on products, racks, and barrels as the products are moved from various places. The drag-out is allowed to flow back into the process tank to be rinsed off and evaporates. This facility did multiple things; in 2019, the facility aimed to improve the source of waste. They started by first observing and documenting the drag-out techniques that were commonly used in the facility. After observing the techniques used, they noticed that the process was not as efficient as it could be. So then, in 2020 and 2021, they worked to implement more training on drag out to minimize the impact of the concentration of the bath, alongside more oversight. Since the facility was able to use better drag-out techniques and reduce the use of drag-out, there was a decrease in the need for treatment and disposal of waste.

There were multiple other efforts made, to again, increase efficiency and decrease waste. For example, in 2017, the facility decided to install a pH controller on rinses. The pH controller would have been a probe that would measure the pH of substances, and allow for the pH to be corrected, leading to less waste caused by incorrect pH. Another key factor in the process of improving the techniques to reduce waste was finding ways to better train employees. After realizing there was a need for improvement in the technique of dragging out, the facility did its best to educate employees on ideal techniques to aid in the effort to minimize waste. This facility also tried things such as implementing hang bars, to optimize the draining process.

This facility was able to do so much over the course of eight years. These efforts to keep the community clean and make sure the environment isn't destroyed by runoff is so important for companies to take seriously. Through a conscious effort and working to improve themselves, the facility has managed to perform astounding feats in regards the the amounts of treated an untreated waste released. While they still might have work to do, they have shown themselves as capable of making the changes and reflecting on themselves and the processes within the facility.