

CASE STUDY

CAMPBELL'S/ SNYDER'S LANCE



SITUATION

- The wastewater pre-treatment plant processes effluent from the manufacturing facility prior to discharging into the sanitary sewer system for treatment at the municipal wastewater facility.
- Investments in additional product lines and other forecasted growth, combined with anticipated regulatory changes, warranted upgrades to the wastewater treatment facility.
- Manual chemical applications of sulphuric acid (H_2SO_4) were used to control the pH of wastewater entering the DAF.



COMPLICATION

- Use of sulphuric acid to manage the pH of the wastewater in the buffering reactor tank prior to entering the DAF for solids and oil removal was considered to be an unnecessary risk requiring significant safety protocols.
 - Objective: Increase treatment capacity by more than one-third.
 - Objective: Precisely control pH without the health + safety risks associated with the inventory and handling of a strong acid.



RESOLUTION

- CDOX[®] and CO₂-based system replaced manual chemical dosing of strong-acids, increasing workplace safety while reducing operating costs.



BENEFITS



- Precision maintenance of optimal pH enhanced the use of flocculant polymer, reducing operating costs and increasing treatment capacity.
 - Per unit treatment cost reduced by 70% compared to the costs of using sulfuric acid.
- Streamlined safety protocols and automation of pH control enabled wastewater operators to focus on other operational needs, increasing productivity.
 - Reduced downtime and changeover time.



- Enhanced worker safety from eliminating the inventory, handling and use of strong acids.



“A YEAR IN, WE’RE VERY PLEASED WITH THE NEW SET-UP AND THE ENTIRE PROCESS. SENSORS ON THE GAS STORAGE TANK NOTIFY OUR GAS SUPPLIER WHEN WE NEED MORE CARBON DIOXIDE AND THEY COME AND FILL UP THE TANK. THE CDOX[®] SYSTEM DOES THE REST. NOW, OUR OPERATORS SPEND MORE TIME MANAGING THE REST OF THE OPERATIONS. A LOT MORE PRECISE TREATMENT MEANS LESS VARIABILITY IN PH; SO, WE’RE AT STEADY-STATE A LOT MORE AND THE DOWNSTREAM TREATMENT PROCESSES ARE RUNNING BETTER.”

WESLEY MCGHEE
CORPORATE ENVIRONMENTAL ENGINEER | CAMPBELL'S

“BASED ON NUMBERS I HAVE SEEN SO FAR, WE ARE EFFECTIVELY SPENDING ABOUT 30% PER UNIT OF TREATMENT COMPARED TO THE COSTS OF USING SULFURIC ACID. EVEN WITH THE RECENT INCREASE IN PRODUCTION VOLUME AND TREATMENT DEMANDS (+50% AND GROWING), WE ARE STILL SAVING TENS OF THOUSANDS ANNUALLY ON TREATMENT COSTS. THIS IS STRAIGHT PURCHASE COST, AND DOES NOT EVEN ACCOUNT FOR REDUCED DOWNTIME, REDUCED CHANGEOVER TIME, OR THE REDUCED RISK OF MANUALLY HANDLING ACID FEEDS. WHEREAS NOW, EVERYTHING IS AUTOMATED.”

WESLEY MCGHEE
CORPORATE ENVIRONMENTAL ENGINEER | CAMPBELL'S

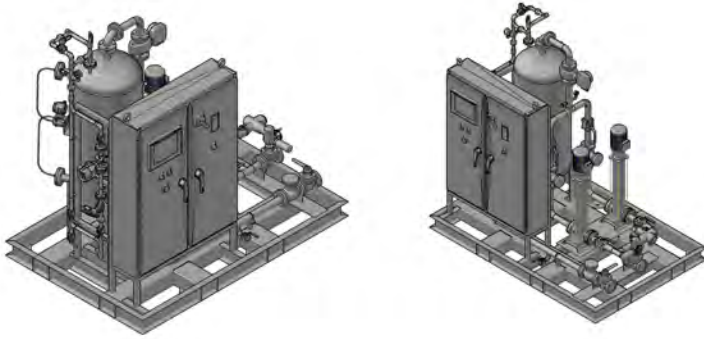


Figure: The skid-mounted CDOX[®] 200 CO₂ gas dissolution system used at the Snyder's Lance facility precisely controls the pH of the wastewater, optimizing the use of critical polymers to remove fats, oils and grease.

- **Design CO₂ Feed Rate:** 180 lbs. (81.65 kg)/hr.
- **Side Stream Flow Rate at Design:** 65 gallons (246 L)/minute
- **Pump HP at Design Feed Rate:** 8 HP



ECONOMIC/OPERATIONAL

- Increased capacity
- Improved treatment
- Superior process control
- Reduced chemical costs



SOCIAL/COMMUNITY

- Enhanced worker health + safety
 - Eliminate the inventory, handling and use of strong acids

