

odoreXile® Improves Rendering Plant Scrubber Operation and Odor Control



- ✓ **Industry:** Meat Rendering
- ✓ **Application:** Wet Air Scrubbers
- ✓ **Problem:** Fouling in air scrubbers forcing overtime for weekend cleanouts. Unregulated water consumption in scrubber systems.
- ✓ **Solution:** Convert air scrubbers to non-oxidizing odoreXile program with upgraded application and control system
- ✓ **Result:** Eliminated fouling buildup in the scrubber media and control equipment probes while maintaining good odor control
 - \$7,500/year savings by eliminating weekend cleanings
 - \$65,000/year savings in overtime costs
 - 600,000 gallons/year in water savings

Problem

A rendering facility of a large multi-national meat processing corporation was experiencing fouling in the packing media of their wet air scrubbers. This fouling caused capacity limitations through the scrubbers which resulted in weekly overtime and increased production costs.

Due to the complex equipment requirements and safety concerns associated with chlorine dioxide (ClO_2), this facility prefers a non-oxidizing technology for odor control. Due to the limited cleaning capability of oxidizing programs, media fouling can be a significant problem in chlorine dioxide treated scrubbers. After switching from chlorine dioxide, facility personnel expected the cleaners in the non-oxidizing program would show more effectiveness in controlling media fouling. However, fouled packing was still restricting the off-gas flow rate, forcing the cooker production rate to be throttled. This resulted in weekend overtime operations to meet production levels.

Facility management wanted to continue using a non-oxidizing technology, but with a simpler application that kept the scrubber cleaner and maintained proper air flow.

Analysis

The original non-oxidizing program used a two-product approach, with one-product for off-gas odor capture and the second for media fouling control.

While this solution was achieving the odor control goals satisfactorily, the fouling control was only marginally better than a conventional chlorine dioxide program. The two-part approach required trial and error in this dynamic scrubber system to determine the correct ratio of the two parts and was not forgiving of upset conditions.

Operational data also showed that water usage was not being well controlled and could be optimized.



Scrubber media after operation with original odor control products



Scrubber media after 3 months operation with odoreXile

Chem-Aqua® Solution

A next generation odor control product called odoreXile® was recommended to replace the two-product program currently in use. This new, non-oxidizing product greatly simplifies application by combining proven odor capture technologies with high performance cleaners specifically selected to remove and control typical rendering plant air scrubber fouling deposits. By keeping the scrubber media clean, odoreXile helps mitigate pressure loss and secondary odor generation problems. For enhanced odor control during upset conditions, it also includes an additive for hydrogen sulfide removal.

The odoreXile application and control platform was developed based on Chem-Aqua's experience and expertise in rendering plant odor control. It monitors and controls the chemical feed, makeup, and overflow rates to assure sufficient odoreXile is always in the system, and that the recirculating water is not overloaded with foulants. An industrial grade pH sensor is used to adjust the citric acid dosage so that the pH is maintained in the target range for maximum odor control.



Before OdoreXile



After OdoreXile

Application test trial

A handheld off-gas monitor was used to manually test and confirm acceptable control of ammonia and hydrogen sulfide emissions before and after the conversion to odoreXile. In all cases, this monitoring showed that odoreXile performed as good or better than the previous two product odor control program.

Note that during the first week of the odoreXile addition, the overflow discharge became cloudy due to the cleaning effect on the fouled scrubber media. After about a week of operation, the scrubber discharge became relatively clear, suggesting the media was substantially clean. This was supported by routinely accessing the controller sensors, which remained clean through the initial trial period. .

After the 3-month trial, the air scrubber media was removed and compared to photos of the same media prior to the trial. The media was completely clear of fouling without any additional cleaning steps necessary.

Results and Impact

Conversion to the odoreXile program was simple. After several months of operation

- Continued to successfully meet odor emission requirements with no area odor complaints
- Eliminated scrubber media fouling
- 600,000 gallons/year reduction in water consumption
- Over \$70,000 in annual cost savings

