Pollution System Solutions

Media Replacement Restores Plant Capacity & Improves Flow

Reduced air flow capacity, large temperature imbalances in chambers, long start-up times, energy inefficiencies, and visual cracks and voids in the media bed are all indicators of an unhealthy Regenerative Thermal Oxidizer (RTO) that should be evaluated for media replacement.

A recycling facility that processes waste bakery products was experiencing significant reductions in air flow capacity, thereby impacting production rates. The bottle neck was a 2 Chamber RTO system. Multiple bake-outs and even pressurized water washes of the media beds did not alleviate the high pressure drop issues.

Factors that caused the media beds to clog were particulate load in the airstream, ceramic media selections, and finally media installation arrangement. The original media used in the RTO was a combination of Lantec's MLM structured media and random ceramic saddles. A layer of random saddles was placed at the bottom of the chamber (cold face) followed by 5 feet of the MLM structured media and finally finished with top layer of random saddles.

Structured media are designed to handle high performance low pressure drops. However, introducing random saddles on the cold face subjects the incoming air stream to a high pressure drop layer before seeing the structured media. The impact of this random layer on the bottom is more severe than the layer at the top because the cold face is the lowest temperature region of the media chamber bed and is where most condensation and particulate clogging occurs. It is also the most difficult area to bake-out and clean. The top layer of random saddles is located near the very hot combustion chamber and therefore doesn't have the same concerns.

Upon removal of the layers of media, shards of the fractured MLM media could be found imbedded and trapped in the bottom layer of random saddles. This further aggravated the clogging issues and helps explain why bake-outs were so unsuccessful.

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Pollution System Solutions Inc. (PSSI) resolved the air flow capacity issue by eliminating the bottom layer of random saddles and implementing 5 feet of a new high grade structured media directly on the cold face. The new media has larger void openings and is more resistant to clogging. Air flow through the RTO no longer hinders the upstream manufacturing process.

PSSI worked around the clock in 12 hour shifts for media removal and replacement to minimize impact of down time. Additionally, PSSI's experienced field service staff were able to address the customer's concern of extremely long start-up times, historically on the order of 20+ hours.

Previously, the manufacturer of the RTO stated to the customer that the long start-up times were due to a limitation of the burner in the unit. PSSI reviewed the current start-up procedure, made quick adjustments to some process parameters and controls, and the RTO came up to temperature within 3 hrs.

Well-functioning RTOs support on-going manufacturing by maintaining environmental compliance. Improperly operating RTOs can also negatively impact production volume and increase operating costs. PSSI has extensive knowledge of and experience with all types of oxidizer equipment. We are able to identify problems and quickly implement a corrective solution.

Pollution System Solutions is committed to all aspects of industrial air pollution control technologies and services. Our goal is to be the preferred supplier for industrial and environmental air pollution control requirements. We are determined to provide the most cost effective, reliable solution to meet your regulatory and production needs.

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