



Data Center Case Study

ProMark's Total Spectrum® air purification technology significantly reduced harmful corrosion rates in this data center.

Challenge

A data center was experiencing unexplained equipment corrosion problems but suspected that air quality issues might be the cause. ProMark Associates analyzed results of air sampling tests and determined that corrosive exhaust pollution from a nearby outdoor truck dock and large intersection was leaking into the building.

Solution

Installation of ProMark's Total Spectrum® system and three RP1000 scrubbers.

Cleanup of the air entering the ventilation system required multiple technologies. Total Spectrum accomplishes this with multiple stages of filtration, starting with particulate filters. A patented UV-catalyst stage then breaks down the organic gases of the partially burned fuel exhaust. This is followed by four stages of gas-phase filtration to neutralize corrosive acid gases such as sulfur oxides and nitrogen oxides. The purified air is ducted to key areas that feed the ventilation air. Because the data center is large and growing, three of ProMark's RP 1000 scrubbers were strategically placed and installed. ProMark also recommended installing an air curtain above the loading dock door to direct truck fumes and outside air away from the loading dock.

Results

Immediately after installing Total Spectrum®, the data center saw reductions in their corrosion rates. Using ProMark's Environmental Condition Monitors in three locations, corrosion rate data was collected. The data collected allowed strategic placement of RP 1000 scrubbers to mitigate low airflows in specific areas. ProMark Associates has an ongoing relationship with the data center to maintain air quality including a local air filter service representative.

Description

The data center described is a secure, over-160,000 sq. ft complex with more than 700,000 sq. ft. of expansion space.

Although their location provides advantages in security from climate damage and criminal activity, it also presents a greater HVAC challenge requiring heightened air purification of ventilation air entering the facility. Additionally, the data center is located near the intersection of a large interstate and highway and within an industrial park, making the air in the nearby environment polluted with vehicle exhaust.

In addition, ProMark provided three RP 1000 air scrubbers with gas-phase media to remove any corrosive gases by recirculating air where corrosion was still too high. Strategically placing the RP's units reduced corrosion in those areas.

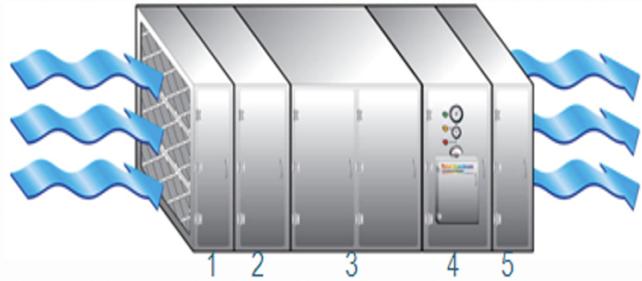
ProMark Associates local representative continues to work closely with the data center and has established a preventative maintenance routine to ensure all media and systems are performing per design specifications.

Data Center Case Study

Equipment Information

Total Spectrum® Description

Total Spectrum Air Purification has a unique sequencing of filters, UV lights, and Dynamic Chemistry® that captures and destroys airborne contaminants including pathogens. Prefilters are standard HVAC filters that are high efficiency including a MERV 14. The Dynamic Chemistry regenerates the activated carbon bed stage making it last years longer and reduces cost. The carbon is contained in patented PMA 25 media modules that minimize pressure drop and maximize residence time.



Five Stage Air Purification System



RP Series Recirculation/Pressurization Units

ProMark RP Series of air purification units also have PMA 25 modules. They hold twice the volume of media of disposable plastic 12 and 18 modules while having the same resistance as an 18 module with 1-inch beds. PMA 25 modules also have twice the residence time of other modules making them much more effective against gases.

RP Series are complete air purification systems for industrial, commercial, and medical applications. The RP is modular and scalable to enable design and application changes to meet application needs. They come in airflows from 400 cfm to 6,000 cfm. They come with industrial castors with brakes for easy placement where needed.

The main use of the RP is to ensure no dirt or corrosive gases remain in the rooms served. Recirculation air is scrubbed multiple times per hour. This arrangement ensures all air entering the space will meet ISA standards in the low ppb range and prevent corrosion. RP1000s are easy to service, quiet operating, and relatively compact in size making the RP Series stand out as compared to the competition.

