



CASE STUDY
ODOR
REMOVAL

The odors from the charcoal grill no longer disturb the offices

THE RENA PRO OZONE SYSTEM ENABLES UP TO 91.5 % ODOR REMOVAL

 **ozonetech.**

Nordstan is the main shopping mall in Gothenburg, Sweden's second largest city. Its central location, easy parking and variety of restaurants, cafes, shops and boutiques makes it one of the most visited malls in Sweden. In the mall and nearby there are also plenty of offices. When tenants complained that they were disturbed by odors, the mall management reacted swiftly and contacted us.

THE PROBLEM

One of the restaurants in the mall had been rebuilt recently to make place for a charcoal grill. The fumes had an intense odor and high grease content, disturbing the nearby offices when the wind was blowing towards them. With a ventilation flow rate of 1100 L/s, the odor problem became significant, causing frequent complaints from the office workers.

In most kitchens, the air entering the ventilation contains odor compounds with low amounts of particles. Charcoal grills are a different story. The charcoal produces a lot of smoke and soot particles that protect the odor compounds from being treated. For this reason, charcoal grills are a very challenging task.



Odors from charcoal grills are hard to remove.

THE SOLUTION

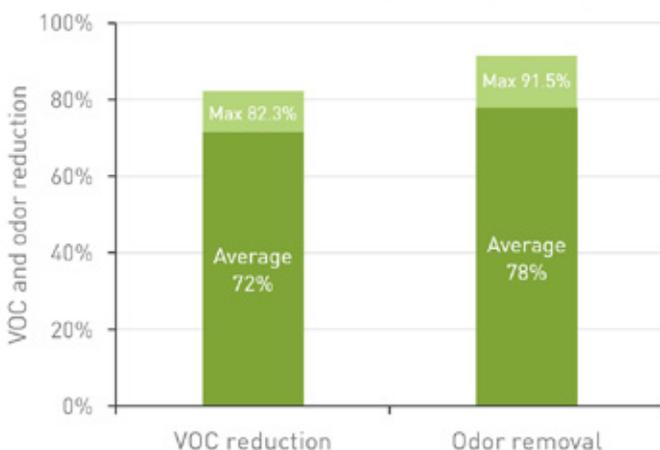
To minimize the odor emissions, a RENA Pro™ ozone system was chosen. The plug-and-play installation was done in the back of the restaurant next to the ventilation ducts, out of sight from customers. The RENA system is mounted on a skid fitting half EUR pallet standard. The ozone is injected directly into the ventilation.

The high-performance and remote monitored RENA system is oxygen-fed and liquid cooled. This is the only way to produce large quantities of concentrated ozone stable over time – which in turn is the only way to continuously and automatically remove grease from kitchen ducts with an absolute minimum of maintenance. The HELS™ technology, our electrode-less technology for ozone generation, produces up to 30 % more ozone compared to traditional Corona Discharge techniques. In addition, RENA produces no dangerous by-products such as NO_x and HNO₃. The safety is high. In case of an ozone leak or low duct air pressure the ozone generator is automatically shut off.

EVALUATION

The RENA Pro delivered as promised, showing an average VOC (Volatile Organic Compounds) reduction of 72 % and an average odor reduction of 78 %, with a maximum of 91.5 %. The performance was stable under various kitchen loads. Performance tests were done during both peak hours and low kitchen activity, ensuring reliable test results.

Thanks to the RENA Pro, people in the surrounding offices are not disturb by odors, even during high kitchen activity. Nordstan and the restaurant owner can trust that the investment for a long time will keep the surroundings free from odors coming from the popular charcoal grill restaurant.



The installation at Nordstan

The RENA Pro is skid-mounted and installed close to the ventilation duct where the ozone is injected. The operation is automatic and the installation includes closed-loop cooling system, oxygen concentrator, ozone sensors and remote monitoring.

The RENA Pro is our premium solution for ozone air treatment. The applications range is broad, from air disinfection to H₂S removal and odor control in both industrial and commercial environments. The system is turn-key, plug-and-play, easy to place and install. No need for daily handling, the operation is automatic. RENA Pro comes in five series, A to E, categorized according to their air treatment capacity.

FACTS

Name	Nordstan shopping mall, Gothenburg, Sweden
Industry	Restaurant, kitchen exhaust
Purpose	Odor control
Performance	72 % VOC reduction and 78 % odor removal
Air flow rate	1100 L/s
System solution	RENA Pro B4
Dimensions (LxWxH)	800 x 600 x 1800 mm
Input power	2.3 kW
Noise level	55 dB

About Ozonotech

Ozonotech is an award-winning cleantech company that has offered premium products for air and water treatment since 1993.

Our unique technology and extensive expertise has made us a rapidly growing global company with installations on six continents. All development and manufacturing is located in Sweden. In addition, we have in-house specialists for consultation, planning, installation and service.

As a Center of Excellence within air and water treatment, we also collaborate in international efforts to develop global standards for purification solutions.

At Ozonotech, we have a strong incentive to reduce energy consumption, health risks and the impact on the environment. Our current solutions provide a multitude of benefits in the processing and food industry, real estate, commercial kitchens as well as in the retail market.

For additional information, visit our website at www.ozonotech.com

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