Case study: Air purifying unit particle generation TOMBO™ No. 8803-ZAE2 (Honeycle™ ZAE2)

Industry

Contamination control in medical sector

Customer

Air purifier systems manufacturer

Background

Customer was experiencing issues with one of their large air volume purification units for use in hospitals. These units were using plasma to eliminate bacteria, viruses, and other contaminants from air. However, at times, aside from purified air, the unit also began releasing fine, dark particles. First noticed and complained about by one of their end users, customer halted production until they were able to resolve the issue. This not only affected their sales but also the safety of all the other machines and future production. The customer needed to identify the source of the particle generation, find a solution that would cause minimal disruptions and finish the works in as quick time as possible in order to minimize losses.

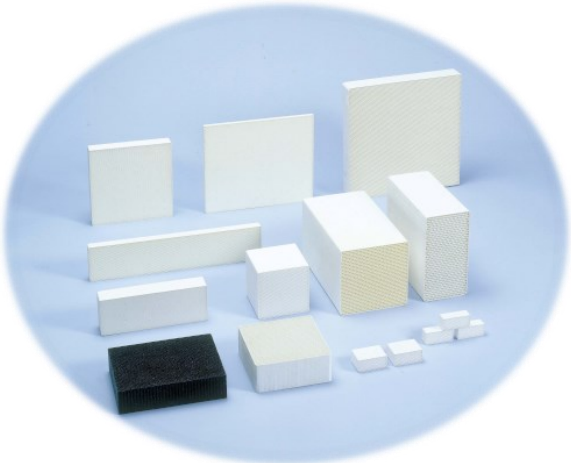
Challenges faced

The main challenge was to find the source of the particle generation. There were no particles entering the system on the process inlet air side which meant that the particle generation occurred inside the machine. After further review and analysis, the source was identified as the activated carbon filter used in the unit. This discovery presented more challenges. Customer preferred a catalyst with odour removing abilities. So, they had to find a new filter supplier with material that eliminated particle generation and maintained the performance of the unit.

Solution and benefits

The technical team in NICHIAS analysed the unit's filter and identified that the catalyst was not properly impregnated into the substrate which meant that the catalyst was detaching from the substrate and releasing into the air. Customer wanted to keep the same catalyst as part of the functional material for ozone removal. Thankfully, NICHIAS had already invested in the development of a better catalyst-binder technique which resulted in the manufacture of TOMBO No. 8803-ZAE2. This filter is made from MnO_2 and catalyst on aluminium honeycomb core. After series of tests in customer's application, it was confirmed that no defect particle generation occurred. Adopting TOMBO No. 8803-ZAE2 also offered a lower pressure drop and high removal efficiency which improved the unit's overall performance. As a result, customer was able to install NICHIAS' filter into all the unit and relaunch the systems on the market.

For more information, please visit:
https://www.nichias.co.jp



Honeycle™ filter substrates