Riedel FILTERTECHNIK

J. MÜLLER WESER

Odour & VOC Control for Fishmeal Drying

Drying fishmeal releases high odour & amine concentrations that require customer-specific treatment.

REQUIREMENTS

Our customer J. Müller Weser thermally sterilizes/dries fishmeal at its facility in Bremen, Germany. The exhaust from the drying process is characterized by a significant VOC and odour load, caused by high amine concentrations. Since the company is located close to the city, it was essential to install an effective exhaust treatment system capable of treating these emissions properly. The existing treatment system had not been able to reduce the VOC / odour concentrations below the regulatory limits and caused significant maintenance / operational cost for the customer.

As a specialist in exhaust air purification, Riedel was selected to replace the installed system with a modern odour reduction technology while keeping the maintenance efforts at a minimum. J. Müller set the goal of reducing the odour concentration from >300,000 OU/m³ to <500 OU/m³.

CHALLENGES

- treating high VOC & odour load (>300,000 OU/m³)
- reducing odours below 500 OU/m³
- preventing the occurrence of the typical raw gas smell
- smooth operation within a discontinuous production

Given these requirements and challenges, Riedel was supposed to develop a customized, high performing solution that is space-saving and flexible to react on production changes.

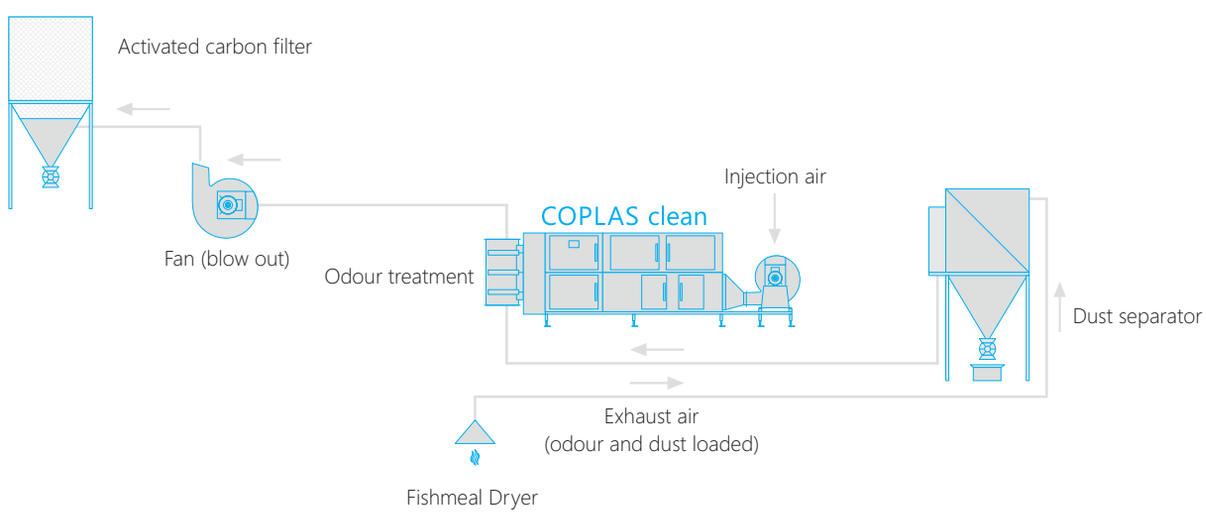
APPROACH

After assessing the underlying process data, a customization with our COPLAS clean mobile unit was conducted directly at J. Müller in Bremen.

During the customization process, we treated 100 m^3/h of exhaust air using various power settings of our COPLAS clean system. Samples were taken before and after plasma treatment and analyzed by an independent laboratory following DIN EN 13725 standards. Comparing the results across different power settings did not only confirm the overall effectiveness of the system but also helped determine the optimal size for the full-scale COPLAS clean system.

Due to the high concentration of amines, an additional activated carbon filter was designed as a second treatment step. For this purpose, the Riedel R&D team determined the adsorption characteristics of the activated carbon in combination with a preceding cold plasma treatment.

SOLUTION



COPLAS clean & Activated Carbon

Using the results from the customization and the specified adsorption characteristics, we designed an exhaust treatment system based on a combination of our cold plasma technology, COPLAS clean, and a packed bed activated carbon filter. The compact and modular design allowed the retention of the customer's existing infrastructure. The system's inherent capability of regulation in 1% steps enables efficient operation despite fluctuations in the production process. Acceptance measurements have verified that the customer now meets regulatory limits. The system, installed in 2020, is expected to have an activated carbon lifetime of at least three years.

BENEFITS

- high odour & VOC reduction to fulfill regulatory requirements
- maintenance-friendly design to ease and reduce maintenance efforts
- control system to adjust performance in 1% steps according to specific needs
- energy savings >90% by replacing the old system
- enhanced lifetime of activated carbon due to plasma pre-treatment
- cold plasma technology without use of water or chemicals and no generation of waste

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»COPLAS eliminates odours like nature - only faster .«
Lars Kükenshöner