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weyer special | Exhaust Air Cleaning



EXHAUST AIR CLEANING

When developing modern exhaust air cleaning concepts, a large number of criteria have to be taken into account. On the one hand, the applicable limit values have been tightened by the legislator; on the other hand, production must not be disturbed by the installation and operation of the exhaust air cleaning system.

Finally, today - more than ever - the focus is on the economic efficiency of the processes used. In the past, the weyer group has worked on a large number of exhaust air projects in which the requirements profile outlined above had to be taken into account. We would like to present the essential steps for the technically and economically efficient installation of an exhaust air cleaning system here.

Exhaust air flow determination and primary measures

One secret to identifying an optimal concept lies in determining the design basis. Computer-aided simulation models are used for this purpose, especially for multi-purpose plants. With their help, the calculation of simultaneous emissions, taking into account a multitude of sources, becomes manageable for the process engineer. A typical procedure is as follows:

- Determination of the boundary conditions
- Measurements based on an individual measurement programme
- Computer-aided simulation of the simultaneities and the resulting exhaust air volumes
- Determination of the design basis for the exhaust air

Our offer

Exhaust air flow determination and primary measures

Concept development and cost estimation

Safety engineering and realisation



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cleaning system

At the same time, our experts are on the lookout for ways to detect the problem at its source. It is not uncommon for possibilities to come to light here to reduce the volume flows in advance by means of primary measures that limit exhaust air in a way that is suitable for production. Our guiding principle here is:

At which step in the process chain can emissions be treated or even avoided most economically?

- Before production, i.e. with the input materials?
- During production, through limiting primary measures?
- After production?

Concept development and cost estimation

Over the past four decades, the weyer gruppe has accumulated extensive specialist knowledge of common exhaust air treatment processes.

This has crystallised the optimal boundary conditions for implementing the appropriate process. Knowing the advantages and disadvantages is important because the range of processes is large. The following processes, among others, are available for selection:

- Condensation
- Adsorption
- Absorption
- Thermal afterburning
- Regenerative afterburning
- Catalytic afterburning
- Membrane separation
- Mechanical processes
- Biological processes

When selecting a process, the first priority is always to reuse the exhaust air constituents for material or energy purposes. Of course, the site- and process-specific boundary conditions must be taken into account.

Safety engineering and realisation

In addition to the purely procedural task, the question of a mature safety concept arises at the same time. The problems of explosion protection must be solved. Corresponding solution concepts have been developed and implemented by our experts in accordance with § 29b BImSchG. Special attention is paid to the handling of reactive multi-substance mixtures.

The close connection and scientific cooperation with IBExU Institut für Sicherheitstechnik GmbH in Freiberg has proven to be particularly advantageous. As a „Notified Body“, IBExU performs sovereign and statutory tasks in the field of equipment and protective systems for use in potentially explosive atmospheres.



You will look in vain for „infatuation with technology“ with us: It's the result that counts! Above all, we look for the optimal relationship between cost and benefit in an economic sense. For your benefit, this ratio is put to the test by means of detailed cost calculations and forms the basis of your budgeting.

Based on the exhaust air cleaning concept determined in this way, all subsequent planning steps up to the realisation of the project can also be provided by the weyer gruppe. This also includes the provision of the necessary expert services, such as the preparation of the permit application and the required expert reports.



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Our Services

- Determination of exhaust air flow data and design basis
- Process selection
- Process and safety planning of the connection to the exhaust air cleaning plant
- Accompanying preparation of the required expert opinions and the application for approval
- Tendering and support in awarding contracts for all required trades
- Supervision of installation and commissioning

Your benefit

Reproducible determination of exhaust air flow data with the use of statistical models

Development of the best commercial point of view exhaust air cleaning concept

Support of the project from concept to realisation

Planning independent of supply interests

Minimisation of interfaces between planning and experts





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Referenzen (Auszug):

- TOKAI Erftcarbon GmbH (Grevenbroich, GER): Creation of an exhaust air purification concept, graphite production
- Shell Deutschland Oil GmbH (Hamburg, GER): Exhaust air concept
- Oiltanking Deutschland GmbH & Co. KG (Hamburg, GER): Concept for exhaust air treatment of seagoing ship loading
- BP Gelsenkirchen GmbH (Gelsenkirchen, GER): Simulation of piping network, optimisation of exhaust air system
- Roche Diagnostics GmbH (Penzberg, GER): Planning, tendering and construction supervision Exhaust air treatment of hybrid mixtures

The weyer group is an independent group of engineering and consulting companies in Germany, Austria, Switzerland and Poland.

Always based on the expectations and wishes of our customers, the weyer gruppe has developed a wide range of competences since 1976.

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