UGN
UMWELTTECHNIK

UGN® Systems

www.ugn-umwelttechnik.de

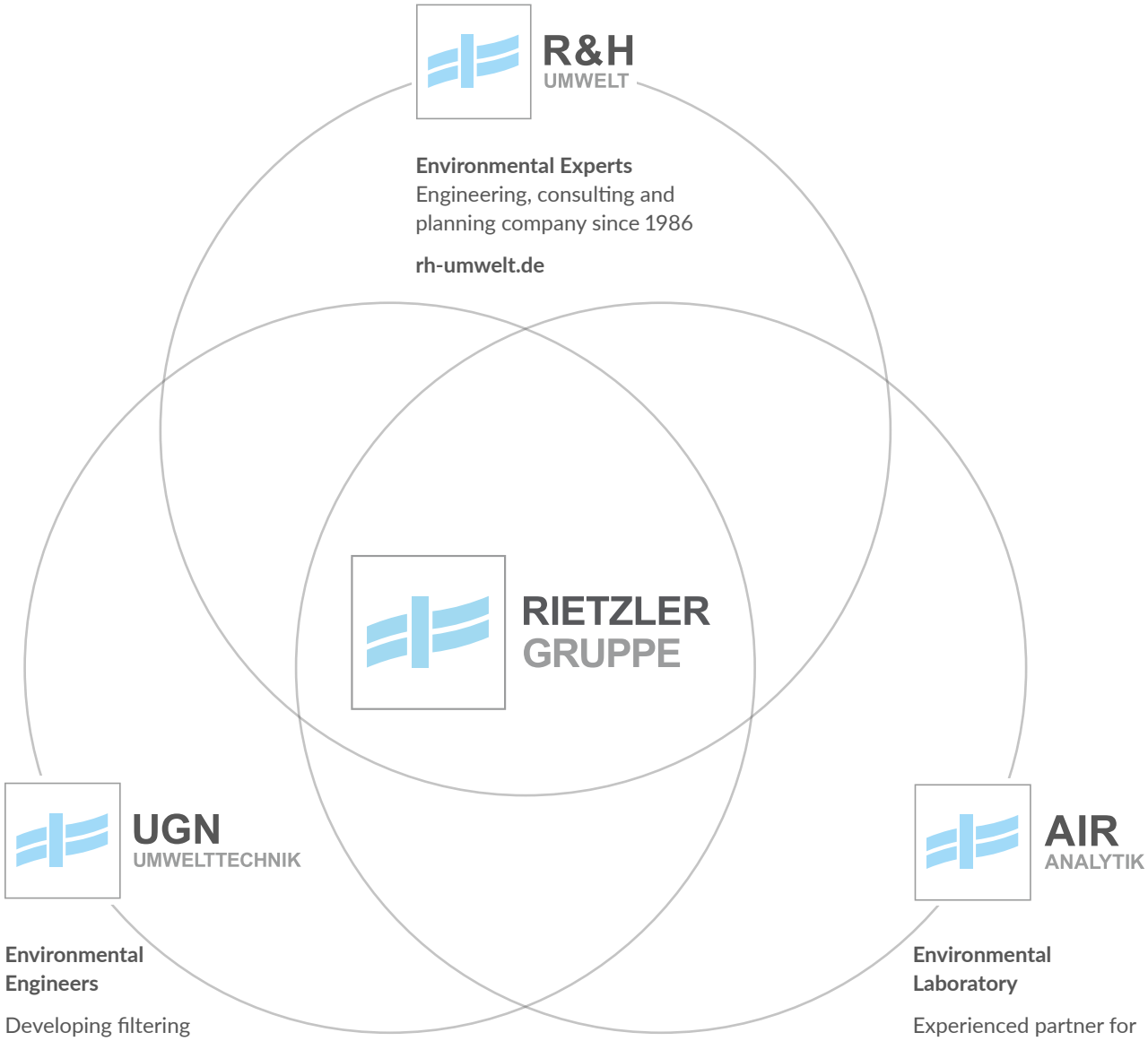
Joint core competencies

Rietzler Gruppe –
Synergies and Cooperation

The Rietzler Gruppe is a group of proprietor-run family businesses with about 300 highly skilled staff members. The areas of competence include environmental consulting, analytics, and environmental engineering.

The Rietzler Gruppe has always taken a holistic approach in the environmental sector, following a strategy that is based on synergies and versatility.

You too are invited to make use of this know-how.



UGN-Umwelttechnik introduces itself

Performing. Dynamic. Made in Germany.

UGN Umwelttechnik is a globally active company that specialises in the sale of exhaust air purification and gas desulphurisation systems, as well as developing proprietary filtering material.

All our products are designed, developed, and manufactured using state-of-the-art technology at our site in Gera, Germany.

We specialise in designing, projecting, making and installing systems and equipment for the removal of malodorous substances and pollutants and we enjoy an excellent reputation both at home and abroad.

Successful collaboration with the client is based on professional specialist advice from our experienced team members. We have always relied on the same approach: Listen – Understand – Act. In this way, we can guarantee individual solutions that are tailor-made for our customers.

In the last two decades, UGN-Umwelttechnik has proven itself as a specialist for exhaust air purification in the municipal and industrial sectors and biogas desulphurisation.

In the last 15 years, we have set ourselves the task of providing new solutions for effective and cost-efficient exhaust air purification and biogas desulphurisation. The core element of the UGN® technology is the proprietary UgnCleanPellets® filtering material, which is produced at the company site and has been patented.

Our company was founded in Gera in 2003. Today we employ over 20 highly qualified engineers, technicians, and project managers. In addition, we are supported by a comprehensive worldwide dealer network. Central to our success are the striving for quality and the customising of project processing to customer needs.

MADE IN GERMANY

TOP 100

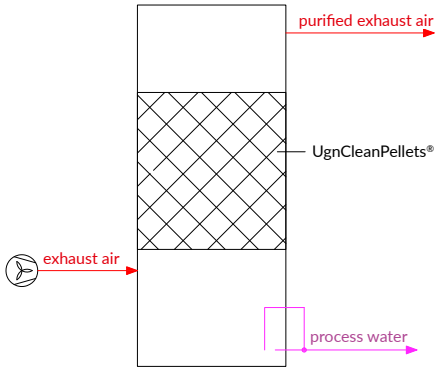
UGN® exhaust air filter module systems

UGN® exhaust air filter modules

More often than not, industrial production processes involve harmful and polluting exhaust air. Most of these processes also generate odour emissions. This means that an efficient exhaust air treatment is necessary to protect people and the environment.

Our reliable processes have been setting standards since 2003. Over the years, we have continuously developed and optimised these processes. This puts us in a position to provide you with tried and tested individual exhaust air treatment solutions.

All systems comply with the strict emission regulations and can also be adapted to existing processes.



Application of UGN® exhaust air filter modules

UGN® exhaust air filter modules are pollutant and odour filters and are installed in sewage pumping stations, pressure pipe end sumps, inlet structures, screening units, sewer systems, and many other sources of malodorous exhaust air. Designed for the effective treatment of exhaust air from sewage and industrial plants, the exhaust air filter modules immediately remove odours and pollutants. Exhaust air filter modules come in different sizes and designs, allowing for flexible application with a variety of odour and contaminant loads at different flow rates.

Removed pollutants include:

- Hydrogen sulphide (H_2S)
- Volatile organic hydrocarbons (VOC)
- Mercaptans
- Ammonia (NH_3)
- Odorous substances
- And many more

Areas of application for UGN® exhaust air filter modules include

- Extraction from pressure pipe end sumps
- Extraction at pumping stations
- Extraction at rake systems and grit chambers
- Extraction at machines

Benefits of UGN® exhaust air filter modules

- Low costs of purchase
- Easy installation
- Connection in all normal pipe sizes possible
- Effective immediately after installation
- Minimum maintenance
- Low need for filtering material
- Made of corrosion resistant, UV-proof plastic material
- Long service life of filter and filtering material

Our portfolio also includes the following exhaust air purification systems that can be customized to your specific exhaust air situation:

- UGN® Hybrid filter module (HFM)
- UGN® Biofilter module (BFM)
- UGN® BEGA system
- UGN® Exhaust air scrubber

The mode of action of the respective HFM and BFM filter types is defined by the type of the UGN® filtering material used.

UGN® hybrid filter module (HFM)

UGN® hybrid filter module (HFM) operating principle

The malodorous and polluted exhaust air is conveyed through the hybrid filter and flows through the chemo-biologically active **UgnCleanPellets® S 1.0** or **UgnCleanPellets® C 3.5** filtering material.

In this filtering material, the chemical binding and biological degradation processes run in parallel. The special filtering material buffers the pollutants and malodorous substances which are broken down by microorganisms afterwards. The non-smelling, clean air is released into the atmosphere. The continuous regeneration of the filtering material means that the filter module maintains its take up capacity for many years.

UgnCleanPellets® S 1.0 and C 3.5 filtering material

The hybrid filter modules (HFM) are filled with the **UgnCleanPellets® S 1.0** and/or **UgnCleanPellets® C 3.5** filtering materials. These are particularly suitable **for exhaust air containing high, variable, and discontinuous loads of malodorous substances and pollutants.**

Filter modules with other filtering materials or combinations for specific application are available on request.

Used-up UgnCleanPellets® can generally be disposed of with municipal waste or commercial waste.

Made of plastic material or stainless steel at customer's request

UGN® biofilter module (BFM)

UGN® biofilter module (BFM) operating principle

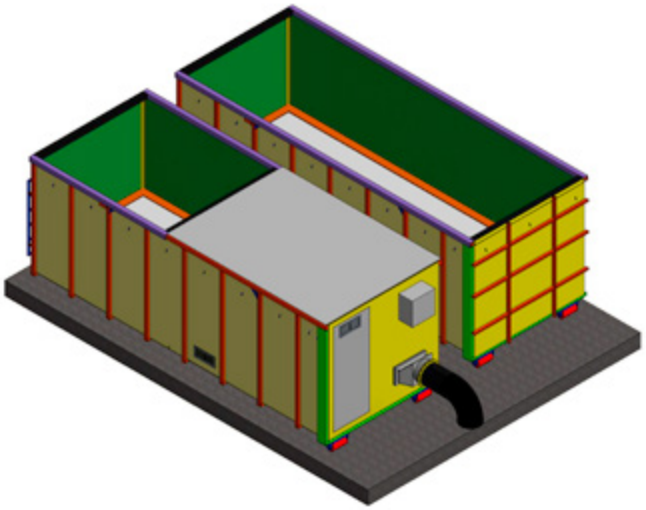
The malodorous and polluted exhaust air is conveyed through the biofilter and flows through the biologically active **UgnCleanPellets® Basis** filtering material. In this process the filtering material absorbs the pollutants and malodorous substances contained in the exhaust air, which are broken down by microorganisms afterwards. The clean, non-smelling and pollutant-free air is then released into the atmosphere.

UgnCleanPellets® Basis filtering material

The biofilter modules (BFM) are filled with the Ugn**CleanPellets® Basis** filtering material, and are suitable for exhaust air **with low and continuous loads of malodorous substances and pollutants**, as well as for **manholes that are checked on a regular basis**.

Filter modules with other filtering materials or combinations for specific application are available on request.

Used-up UgnCleanPellets® can generally be disposed of with municipal waste or commercial waste.



Made of plastic material or stainless steel at customer's request

UGN® BEGA system

Application of the UGN® BEGA system

The UGN® BEGA system is an active ventilation system for directed ventilation with built-in exhaust air purification that was specifically designed for wastewater systems.

UGN® BEGA system, services

1. Engineering analysis and documentation of the actual state on site
2. Elaboration of measures for individual/ customised process optimisation such as optimisation of ambient air, dosing, flow rate and pumping cycles
3. Design and sizing of the exhaust air purification system including all air ducts and regulating facilities
4. Delivery, installation and commissioning
5. Engineering support with (optional) dynamic adjustment

Areas of application include

- Sewage systems
- Sludge storage tanks
- Wastewater reservoirs
- Pneumatic pumping stations
- Bar screen systems
- Force main connecting structures

System components (Basis)

- Engineering analysis, design and support
- UgnCleanPellets® filtering material

System components – customized to your needs

- UGN® Hybrid filter module system
- Manhole filter, pipe filter, pipe filter cartridge
- Odour and emission barrier, flexible segment valve
- Air trap

UGN® exhaust air scrubber

Classic spray tower

- For moistening and separation of easily water-soluble exhaust air components

Chemical scrubber

- For separation of poorly water-soluble exhaust air components
- Use of the scrubbing liquid for neutralisation in the same process

Bio-chemical UGN® scrubbers

- Scrubber system developed by UGN®
- For eliminating hydrogen cyanide (HCN) from the exhaust air flow
- Complies with limit values as confirmed by authorities

We can design, build, and operate these exhaust air scrubbers in combination with our module systems or as a standalone unit.

UGN® gas desulphurisation systems

UGN® gas desulphurisation systems

Every biogas plant requires a customised desulphurisation concept to ensure efficient operation. Our desulphurisation systems provide an efficient and cost-reducing alternative to activated carbon.

Our systems are instead made for external biochemical final desulphurisation which has proven a reliable process for reducing high hydrogen sulphide loads to less than 5 ppm. The desulphurisation system is set up outside the digester to facilitate regulating and maintenance, without interfering with the processes running inside the digester.

Another advantage: The biogas requires no drying before being fed into the desulphurisation system, which cuts down on operating costs.

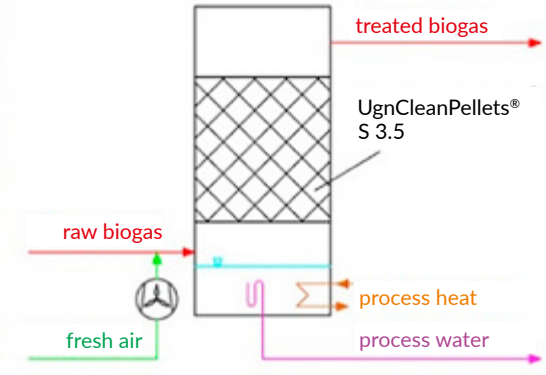
Areas of application
UGN® gas desulphurisation systems

- Desulphurisation of biogenic fuel gas
- Desulphurisation of gas from agricultural and industrial biogas plants
- Desulphurisation of sewer gas, landfill gas, and pyrolysis gas

Operating principle of UGN® gas desulphurisation systems

The untreated, hot, and moist biogas flows through the gas desulphurisation system that is filled with **UgnCleanPellets® S 3.5**. The hydrogen sulphide is targeted and completely removed from the raw gas and transformed to elemental sulphur. Atmospheric oxygen is fed in to allow the filtering material to self-regenerate, while the desulphurisation process is running at the same time.

The desulphurising capacity is maintained for a long time. When the pellets reach their maximum take-up capacity, the hydrogen sulphide content in the clean gas increases gradually.



The complete desulphurisation of biogas is essential for…

- Protection of the engine, catalytic converter, and exhaust gas heat exchanger
- Safe compliance with emission standards
- Stable fermentation and biogas formation processes

Benefits of UGN® gas desulphurisation systems

- Maximum efficiency due to conditioning
- No upstream gas cooling and drying necessary
- Low investment and running costs
- Minimum maintenance
- Reliability and high system availability
- Long service life of filter/filtering material
- Filter made of corrosion resistant material
- Very easy installation, effective immediately
- Carbon neutral filtering material

Our portfolio includes the following proven UGN® gas desulphurisation systems:

- UGN® BEKOM H
- UGN® Biogas filter module (BGM)

We are happy to give you individual advice.

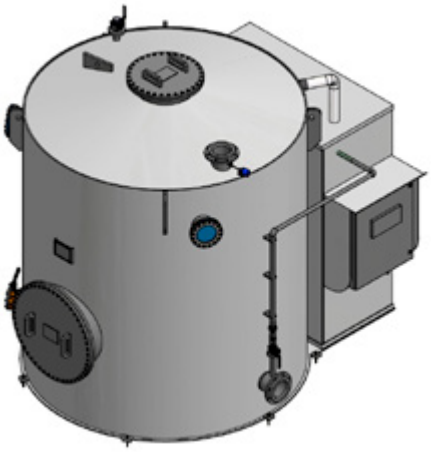
UGN® BEKOM H system

Application of the UGN® BEKOM H system

The UGN® BEKOM H is a compact gas desulphurisation system comprising a reactor (BGM), a meter cabinet, and a switching cabinet.

As a compact sulphur filter system, it selectively removes hydrogen sulphide from biogenic fuel gases (such as biogas, sewer gas, and landfill gas). During this process, the moist and hot raw gas is directed through the **UgnCleanPellets® S 3.5 filtering material** where the sulphur is removed immediately. The BEKOM H system can be used for both coarse and fine desulphurisation.

In a UGN® BEKOM H system, the gas is conditioned automatically (air dosing, heating, moistening) so that system always run at its optimal working point.



UgnCleanPellets® S 3.5 filtering material

The UGN® BEKOM H systems are filled with the **UgnCleanPellets® S 3.5 filtering material** that is made for separation of compounds with high and very high sulphur content.

Made of plastic material or stainless steel at customer's request

UGN® biogas filter modules (BGM)

Application of UGN® biogas filter modules (BGM)

The UGN® biogas filter module (BGM) is a compact gas desulphurisation system comprising a reactor (BGM).

As a compact sulphur filter, the BGM selectively removes hydrogen sulphide from biogenic fuel gases (such as biogas, sewer gas, and landfill gas). In this process, the moist and hot raw gas is directed through the **UgnCleanPellets® S 3.5 filtering material** where the sulphur is removed immediately. The BGM can be used for both coarse and fine desulphurisation.

UgnCleanPellets® S 3.5 filtering material

The UGN® BEKOM H systems are filled with the **UgnCleanPellets® S 3.5 filtering material** that is made for separation of compounds with high and very high sulphur content.

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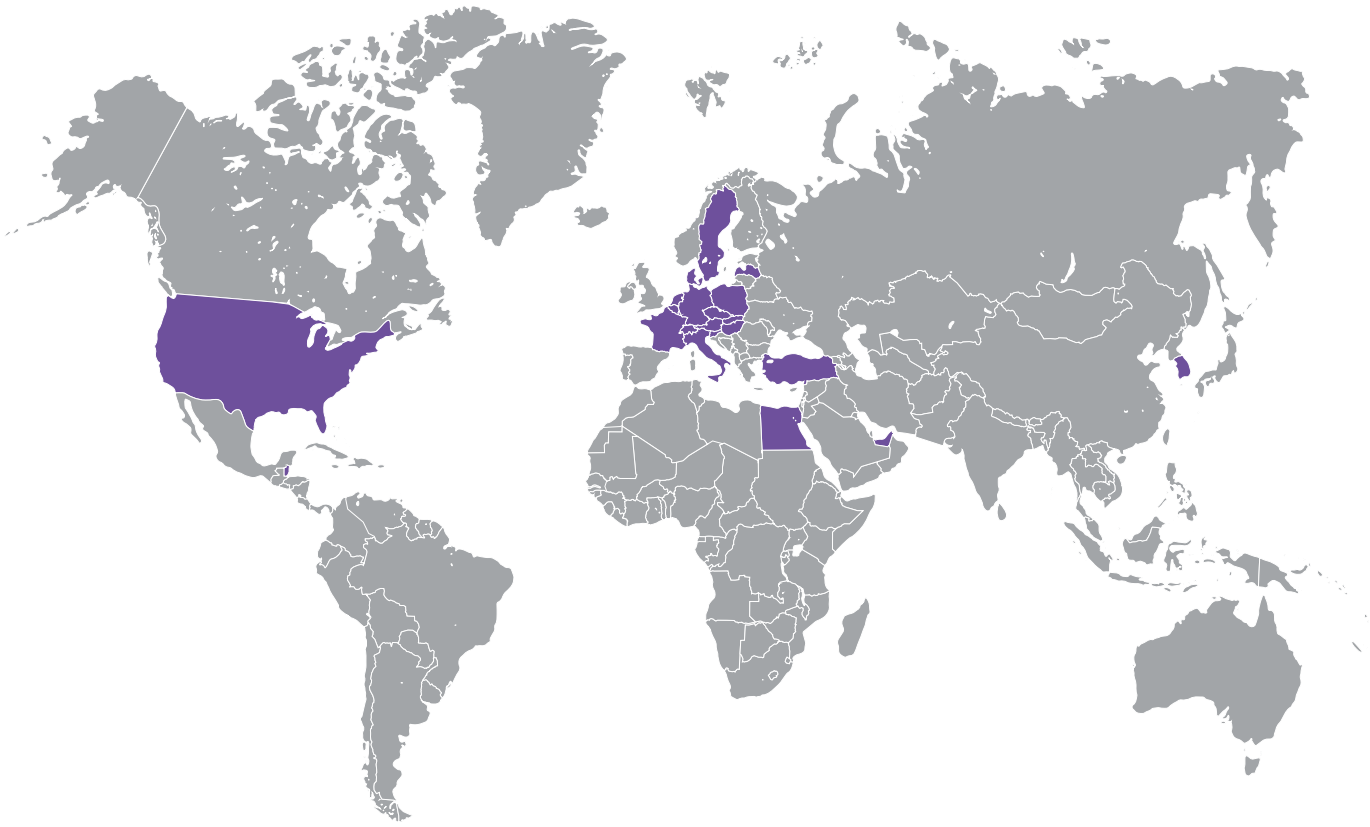
Globally connected and customer-oriented

Active for you all over the world

UGN-Umwelttechnik is active in 21 countries worldwide, exploring new markets every year.



Our dealers

Alongside our dealers we ensure worldwide availability of our filtering material and our systems.

Just scan the QR code and get a detailed overview of our dealer network.

Detlef Hasse

Agricultural Chemistry Team Leader,
Peter W. Thielemann GmbH (Germany)

For biogas desulphurisation, we trust a concept of coarse desulphurisation by way of Iron(II) chloride in the digester and fine desulphurisation using the innovative UgnCleanPellets® process. We see major benefits in desulphurising the hot and moist gas.

Andreas Böttcher

Engineering department at Gönnatal-agrar e.G. (Germany)

In 2014, we put our UGN desulphurisation system into operation after being unhappy with the hydrogen sulphide values in our digester, which were too high despite additional air injection. We trust the UGN concept as it works perfectly.

Hunhoi Jung

CEO at ATE Corporation (Seoul, Korea)

We have been successfully cooperating with UGN for quite a few years. As a dealer, we can rely on UGN and access the entire portfolio quickly and easily.

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Your dealer

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