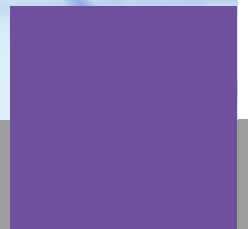




UGN
UMWELTTECHNIK

UGN COMPACT



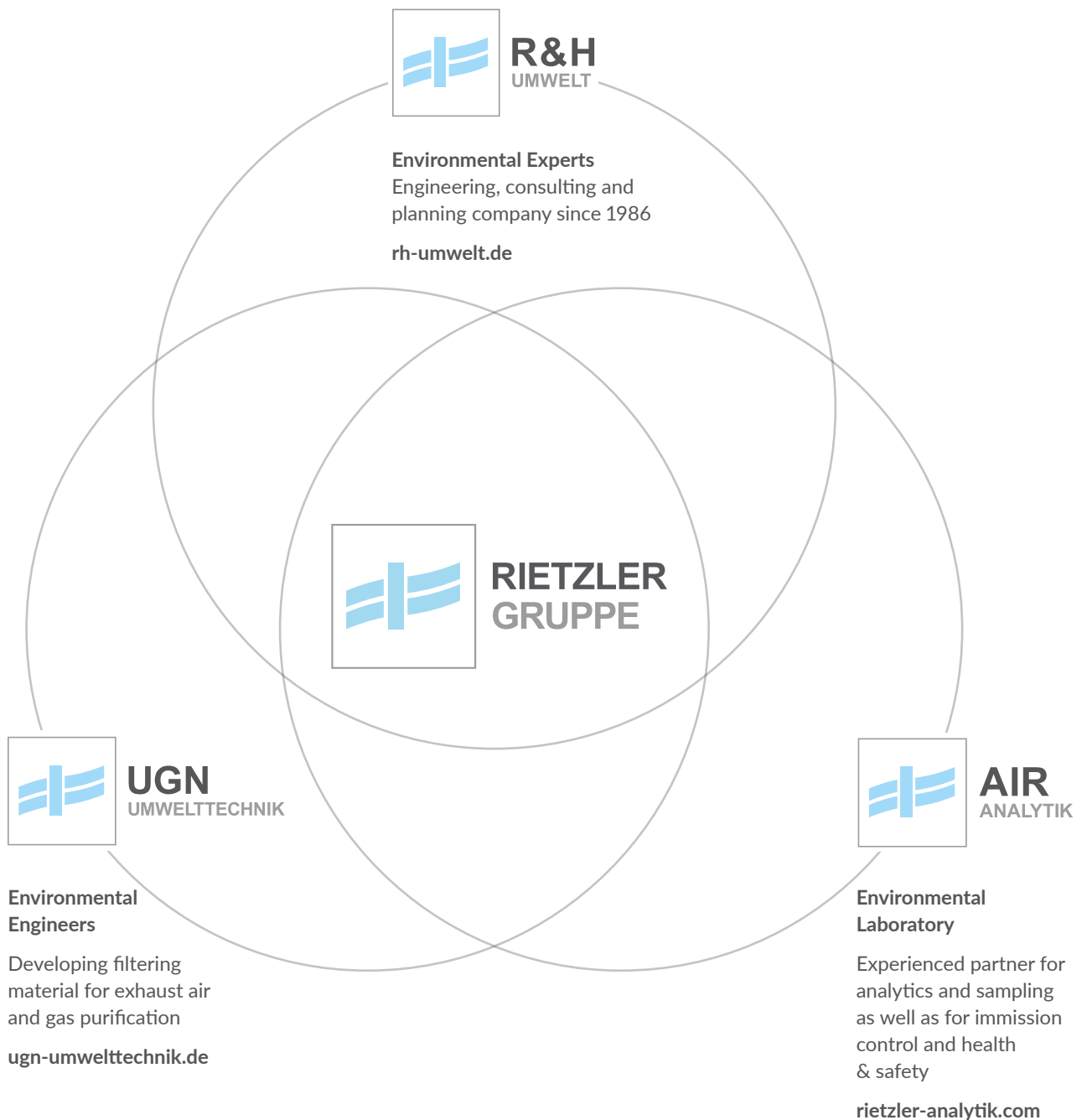
Joint core competencies

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.



Motivated. Ambitious. Visionary.

Our idea

In a time where clean biogas and odourless exhaust air are a matter of course, the question of finding efficient processes becomes increasingly important. The concept of sustainability is often put aside.

We have taken on the task of confronting this very situation and providing our customers with a filtering material that is both sustainable and effective. In this regard, UgnCleanPellets®, our cellulose-based filtering material has proven a great success. It is more than just an alternative to activated carbon filters and the savings in costs are quantifiable.

Our competencies

- > Methodical analysis and finding solutions for pollutant and odour problems
- > Our specialist and comprehensive know-how enables close cooperation with institutes and universities to continuously develop and enhance our products
- > Use of the last procedures in exhaust and biogas purification
- > Development of sustainable products, for example, functionalised cellulose filter materials for hybrid and biofilters, as well as systems for the reduction of biogenic corrosion



“More beautiful than having visions is realising them.”

*Lisz Hirn, *1984*

Our goals

- > With our products and services we hope to provide efficient, economic and sustainable solutions that are based on laws / legal standards and customised to our customer's specific problem.
- > We strive for trusting customer relationships, solid market presence, economic stability and independence.
- > We would like to be a motivated, reliable and fair business partner that acts ecologically.



UgnCleanPellets®

Filtering material

Reliable. Performing. Effective straight away.

The UgnCleanPellets® filtering materials are the core element of all UGN® pollutant and odour filters, making up the basis of system optimisation.

They effectively purify polluted exhaust air from industrial processes and wastewater treatment plants as well as biogenic fuel gases.

Our engineers choose and customise the filtering material depending on the pollutant load given in your individual query.

The UgnCleanPellets® were developed inhouse in cooperation with national and international research teams. In choosing this filtering material, you opt for a sustainable product made of recycled materials.

Beyond that we guarantee highest quality and maximum flexibility during delivery. Moreover, the UgnCleanPellets® can be defined and customised to customer needs and applications with special filter properties.



UgnCleanPellets® for exhaust air treatment

These materials are available as biofilter or hybrid filter customised to your specific requirements.

The mode of action of the respective filter is defined by the type of filtering material.

The UgnCleanPellets® reliably remove the following substances from the exhaust air:

- > Hydrogen sulphide
- > Volatile organic hydrocarbons
- > Mercaptans
- > Ammonia
- > Odorous substances from wastewater

UgnCleanPellets® for gas desulphurisation

These filter pellets are a highly efficient filtering material that is based on biological-chemical reactions and that completely removes hydrogen sulphide from the raw biogas, efficiently transforming it to elemental sulphur.

The UgnCleanPellets® are perfectly suitable for desulphurisation for:

- > Biogas
- > Landfill gas
- > Sewer gas
- > Pyrolysis gas
- > Fermentation gas

An existing gas treatment system (e.g. activated carbon or ferric chloride) can be retrofitted with UgnCleanPellets®. This is a good way to cut operating costs. We are happy to evaluate the potential for using filtering material in your specific case.





Exhaust air treatment

Exhaust air treatment

Individual. Efficient. Sustainable.

More often than not, industrial production processes involve harmful and polluting exhaust air. Furthermore, most of these processes also generate odour emissions.

This means that an efficient exhaust air treatment is necessary to protect people and the environment.

By means of UGN® filtration technology, pollutants and odorous substances are safely and effectively removed from exhaust air and gas flows. The range of products and services we offer stretches from standard components through system modules to complex solutions. Our field of expertise is the application of biological, chemical and physical processes.

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

Benefit from our many years of experience. Our team of experienced experts is ready to assist you when it comes to detecting emission sources, measuring process parameters and opting for the perfect air treatment process.

Our services to solve your problem comprise:

- > **Measurement & Situation Analysis**
exhaust air measurements, extraction experiments, process recording, data analysis
- > **Design & Engineering**
process concept/construction, profitability analysis, permissions, plant engineering
- > **Exhaust air treatment (systems, filtering material)**
conditioning, exhaust air collection, treatment processes, process control
- > **Service & Optimisation**
maintenance, process monitoring, system optimisation, energy management



Exhaust air treatment systems

Since 2003, our reliable processes have been setting standards. We have been continuously developing and optimising these processes over the years. This puts us in a position to provide you with tried and tested individual exhaust air treatment solutions.

For this purpose, we offer the following exhaust air treatment systems:

- > **UGN®-Module filter** – can be adapted to different flow rates and malodour and pollutant concentrations
- > **UGN®-BEGA-System** – developed specifically for wastewater treatment systems
- > **Exhaust air scrubber** for eliminating hydrogen cyanide (HCN) from the exhaust air flows

Benefits

- > Perfect degree of purification
- > Low need for filtering material and long service life
- > Flexible adjustment to process modifications
- > Low maintenance
- > Odour control

Filters & Tools

The fouling process of wastewater often starts as early as in the sewer or the force main. Causes for this include low flow rate, long residence time, high temperatures and low pH value. This results in the formation of hydrogen sulphide (H₂S) – a toxic gas that causes unpleasant odours. On top of that, even low H₂S concentrations can lead to concrete degradation. Sewage structures are thus destroyed which results in high investment costs.

We have the product you need for immediate and effective pollutant, malodour and corrosion control – choose from a wide range of filters and tools to find the solution that fits your application.

- > Corrosion protection
- > Guaranteed compliance with pollutant emission levels
- > No need for chemical dosing agents
- > Reduction of repair, rehabilitation and maintenance costs
- > High degree of profitability and operational reliability





Gas desulphurisation

Gas desulphurisation

Performing. Customized. Cost effective.

Biogas is a gas mixture which is formed during the fermentation of organic materials. As a major component of biogas, hydrogen sulphide is a disturbing element and therefore needs to be removed.

Complete desulphurisation is essential for the protection of the engine and the catalytic converter, for compliance with emission standards, for receiving public subsidies (including bonuses for low formaldehyde and emissions) and for ensuring stable fermentation and biogas formation processes.

Furthermore, the decision in favour of a cost and energy optimised desulphurisation system affects the overall income and revenue situation of your plant.

UGN-Umwelttechnik offers tried and tested products for the removal of hydrogen sulphide (H₂S) from biogenic fuel gases. These systems are used successfully and economically all over the globe. We offer individual advice and one-stop solutions.

Benefit from our innovative products and individual customer consultation now and in the future.

We are happy to give you the best possible support and to guide you through the early stages such as application advice, pollutant measurement and process parameters measurement.

More about our services:

> Measurement & Analysis

Biogas measurement prior to designing a desulphurisation system, analysis of the biogas formation process, data analysis

> Design & Engineering

Customized design and sizing of desulphurisation systems, control concept, profitability analysis, construction, choice of customisation of filtering material, creation of explosion protection documents

> Gas desulphurisation

Plant engineering, process control, commissioning

> Service & Optimisation

Construction surveillance, transport and in-situ assembly, operator and staff training, maintenance, filtering material exchange, process monitoring, system optimisation

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.

Instead, our systems are made for external biological-chemical final desulphurisation which has proven a reliable process for reducing high hydrogen sulphide loads to less than 1 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 does not have to be dried before being fed into the desulphurisation system which cuts down on operation costs.

All the benefits at a glance

| | Activated carbon | UgnCleanPellets® |
|---------------------------------------|------------------|------------------|
| External purification process | + | + |
| No corrosion | + | + |
| Hot and moist gas | - | + |
| Selective removal of H ₂ S | - | + |
| Carbon footprint | - | + |
| Low operating costs | - | + |





Service / Engineering

Service / Engineering

Design. Execution. Optimisation.

Our customers are free to focus on their core business while we take care of their problems. We guide the customer through the entire process from analysis to optimising and maintaining existing plants.

Design & Engineering



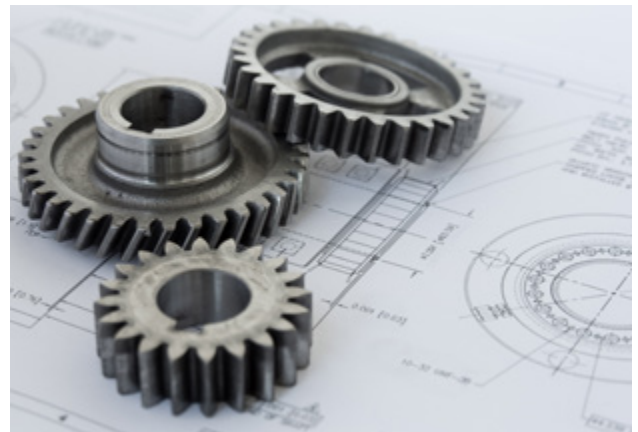
Measurement & Analysis



Installation & Commissioning



Maintenance & Service



Plant optimisation



Plastics: Cutting & welding



UGN® filtering material



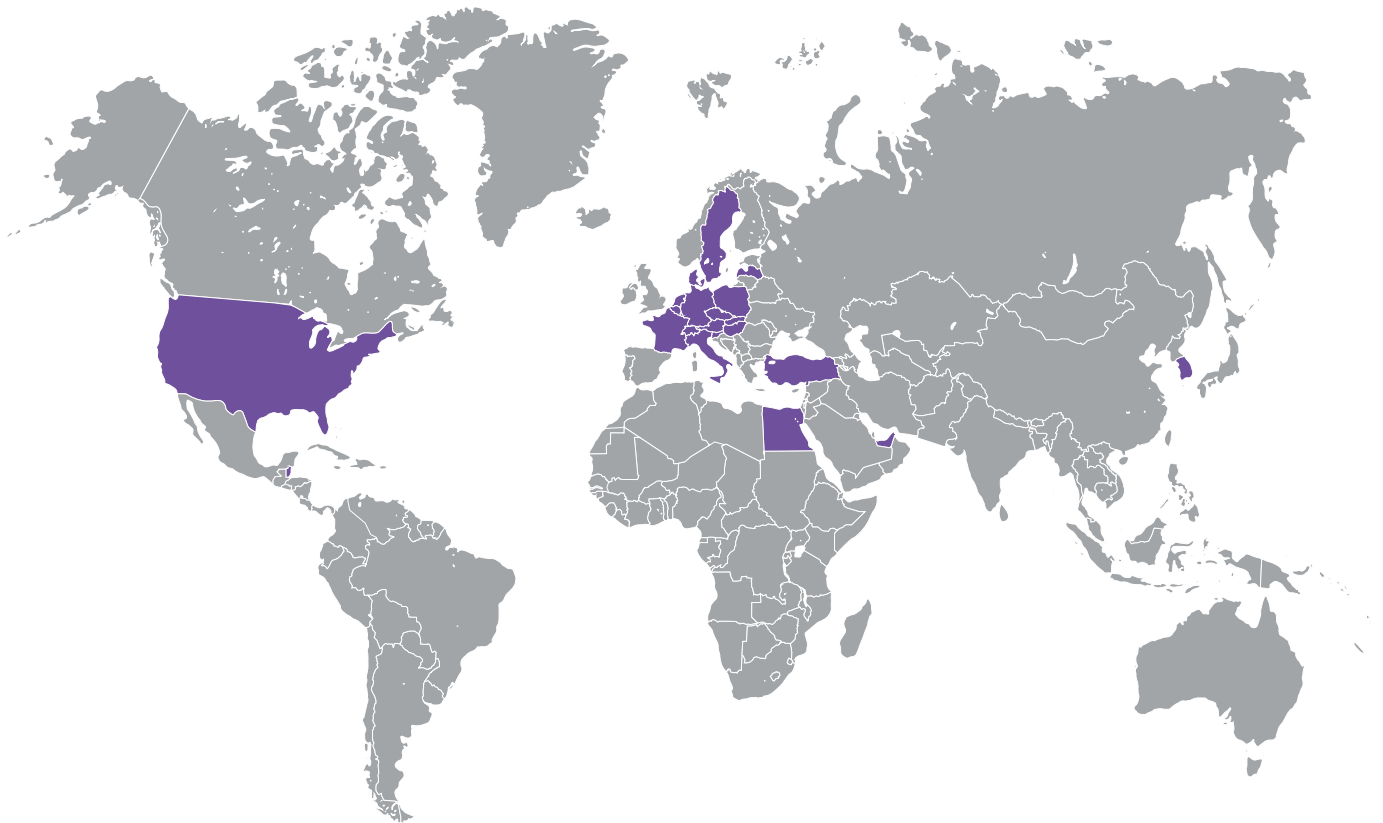
Landfill monitoring



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.

UGN-Umwelttechnik GmbH
Gewerbepark Keplerstraße 20
07549 Gera (Thuringia),
Germany
Phone: +49 (0)365 - 830 58 98
Fax: +49 (0)365 - 710 69 31
Email: info@ugn-umwelttechnik.de
www.ugn-umwelttechnik.de

Your dealer

