

UGN
UMWELTTECHNIK

UgnCleanPellets®



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www.ugn-umwelttechnik.de

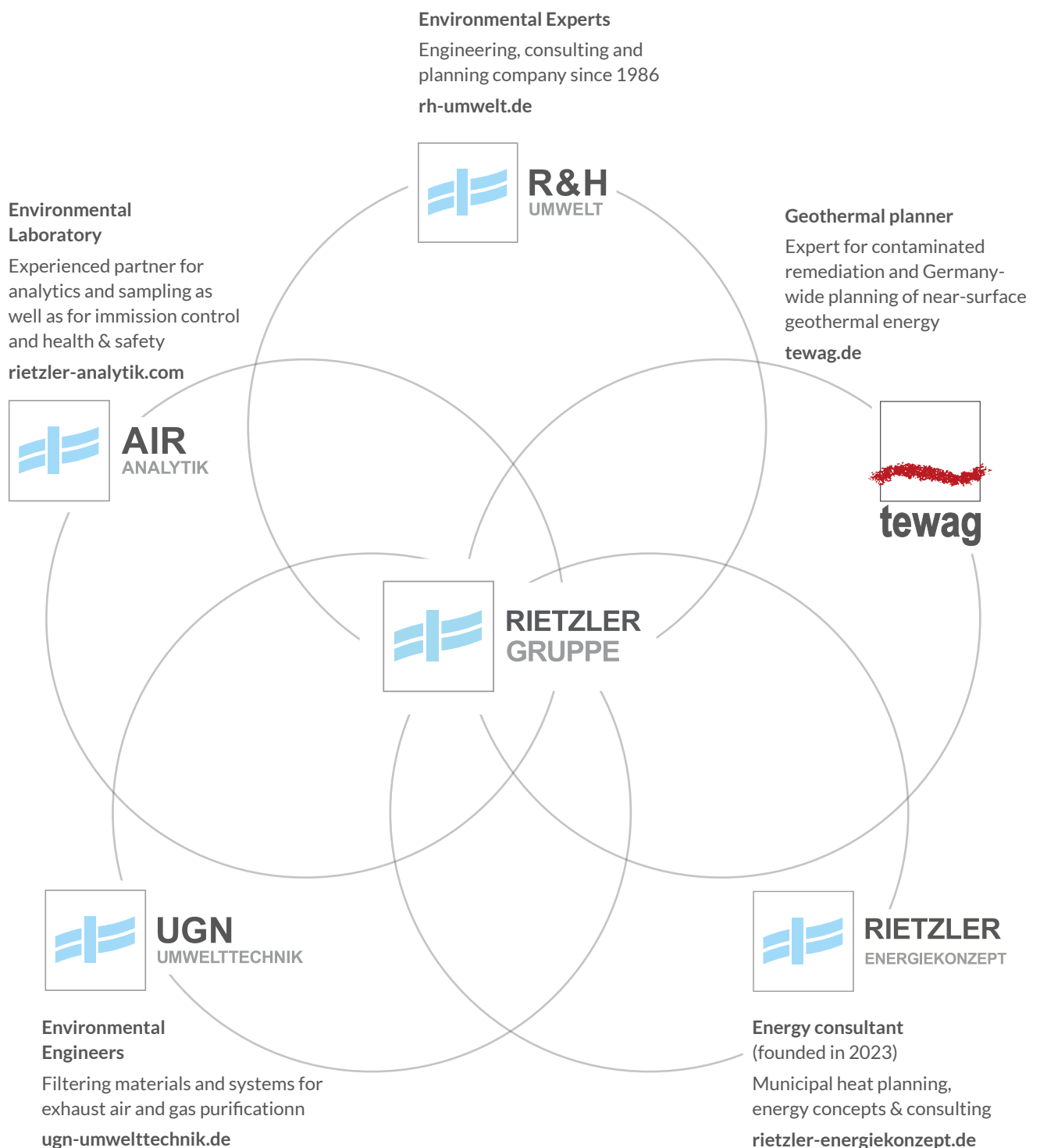
Joint core competencies

Rietzler Gruppe – Synergies and Cooperation

The Rietzler Gruppe is a group of proprietor-run family businesses with about 350 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.



Why use UgnCleanPellets®?

Our idea

In a time where clean biogas and odourless exhaust air are a matter of course, the question of finding efficient filter processes becomes increasingly important. The question of sustainability is often given less priority, however.

We have taken on the task of confronting this 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 tangible.

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

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.



Using UgnCleanPellets®

UgnCleanPellets® for exhaust air treatment

These materials are available as biofilters or hybrid filters and are 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 the desulphurisation of:

- Biogas
- Landfill gas
- Sewer gas
- Pyrolysis gases
- Fermentation gas

An existing gas treatment system (e.g., activated carbon, ferric chloride, or scrubber) can be optimised by retrofitting it with UgnCleanPellets®. This is a good way to cut operating costs.

We are happy to evaluate the potential for using our filtering material in your specific case.



UgnCleanPellets® vs. activated carbon

Activated carbon is a thing of the past

Through the development of our cellulose-based UgnCleanPellets® filtering material, we have set new standards. Our filtering material easily outdoes activated carbon when it comes to effectiveness, as well as in terms of costs and sustainability.

Benefits in performance, price, and environmental aspects

When using UgnCleanPellets®, the gas requires no drying due to the different mode of action. Combined with the lower operating costs (energy, water, labour, disposal, ...), this means that UgnCleanPellets® work out considerably cheaper overall than activated carbon.

In contrast to the carbon-intensive production of activated carbon (10–15 t of CO₂ per ton of activated carbon), the UgnCleanPellets® are carbon-neutral.

The use of local and resource-friendly material in production, which is done at the company site in Gera, Germany, makes the product an authentic example of climate and environmental protection.

Unlike activated carbon, the UgnCleanPellets® allow the recovery and reuse of the sulphur, where permitted by regional laws, so disposal is much easier.

Please note that this needs to be confirmed beforehand with the relevant authorities. Use the pellets to benefit the climate and cut down on your 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	-	+
No O ₂ in the gas	-	+
Carbon footprint	-	+
Low operating costs	-	+



Our planet – our future

Protecting the climate and the environment

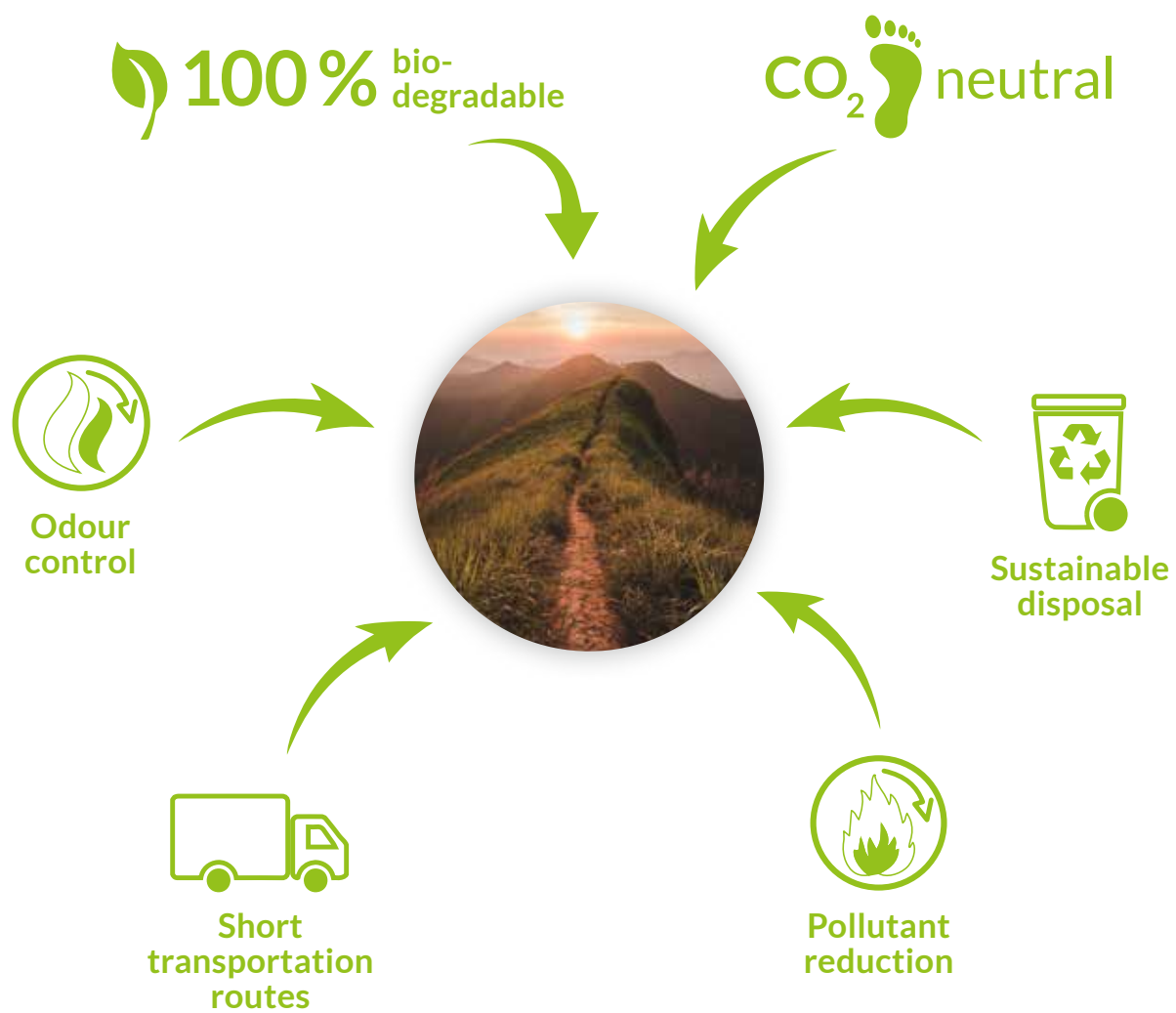
In producing the UgnCleanPellets® filtering material from local and resource-friendly materials based on cellulose, we set new standards for gas purifying processes – also from an ecological point of view.

The potential of our carbon-neutral filtering material becomes evident, especially when compared with the carbon-intensive activated carbon. From the start of our research activities, we have striven to create a green product that helps conserve nature. The UgnCleanPellets® show that we have been successful.

*“More beautiful
than having visions
is realising them.”*

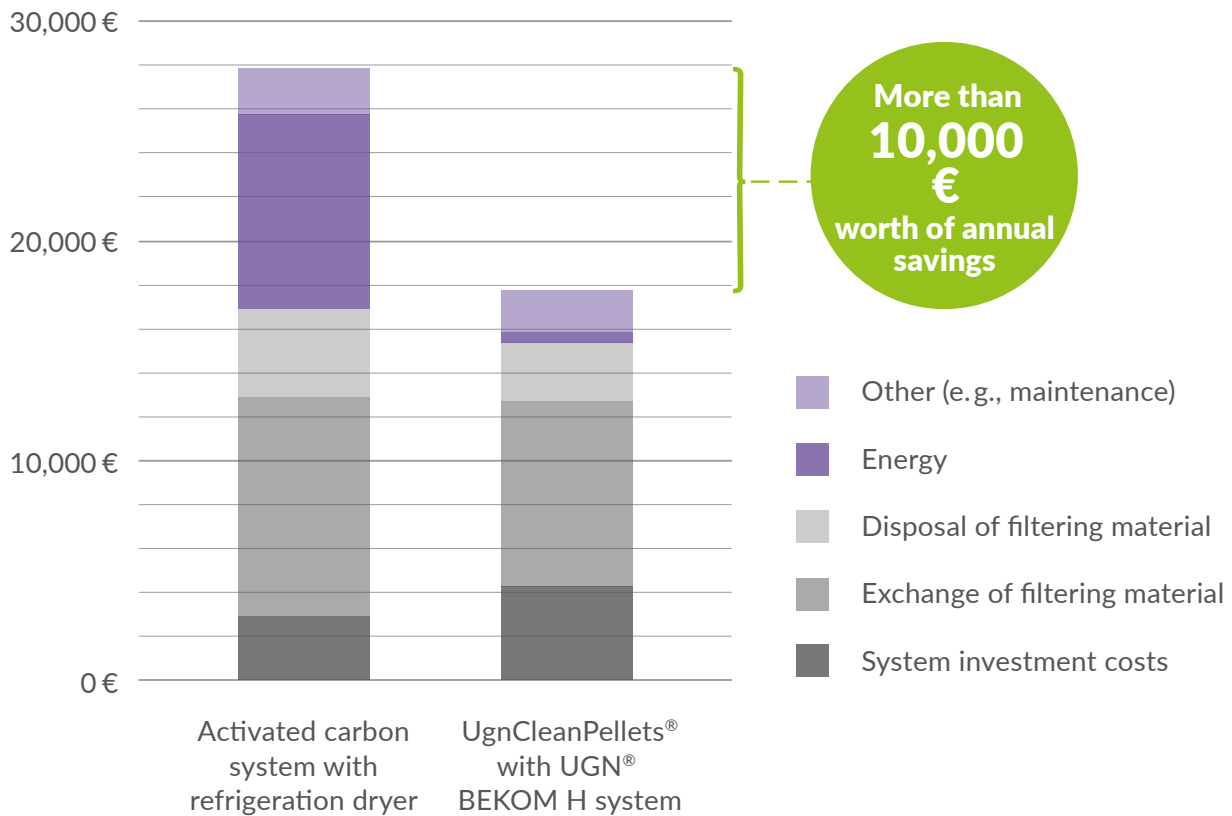
*(Lisz Hirn, *1984)*





Overall costs and amortisation

Annual costs*



Comparative calculation for a life cycle of 15 years

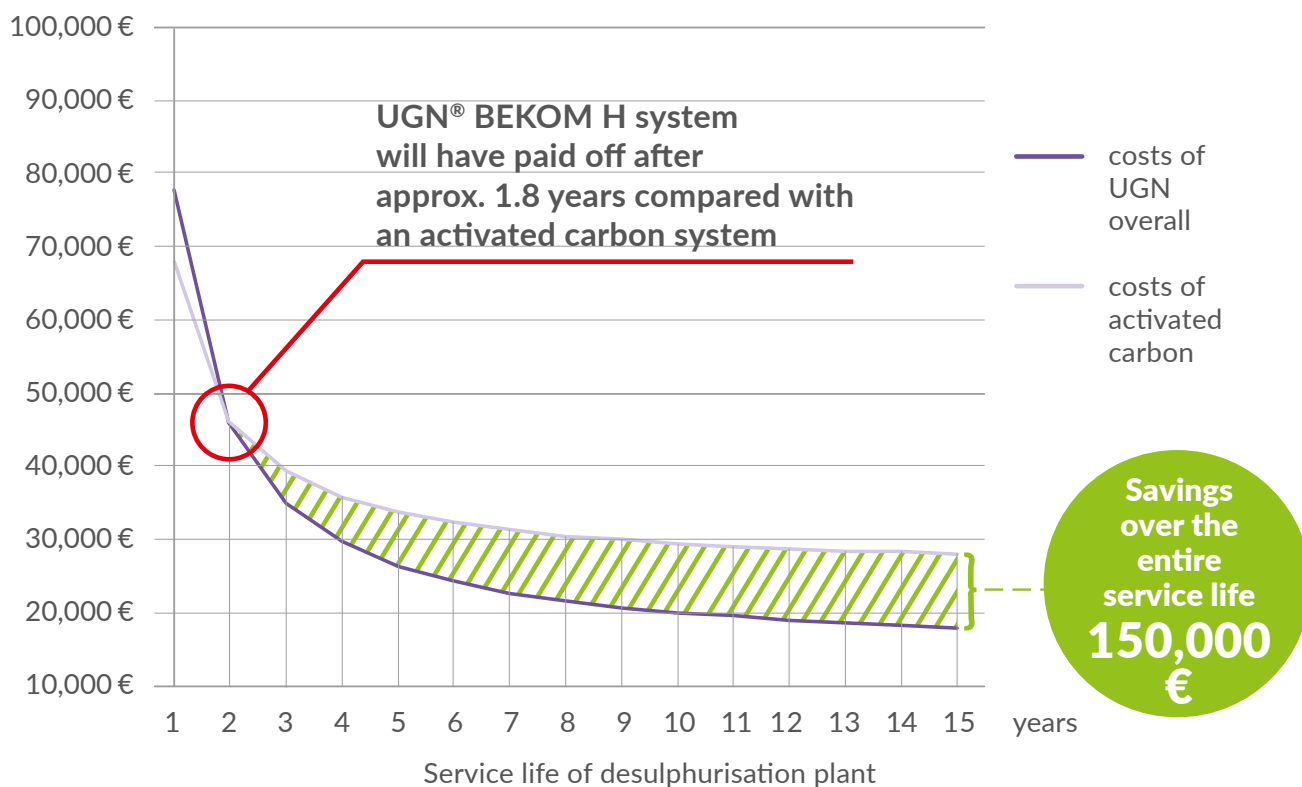
Filtering materials are often compared based on their respective purchase price. However, due to the different operating principles this does not make much sense. A comparison of all costs (incl. investment, operating, and filtering material costs) over a certain time period is much more accurate.

Our example shows the costs for both activated carbon and UgnCleanPellets® over 15 years of service. The results speak for themselves.

* This illustration shows a sample calculation from a UGN-Umwelttechnik project.

For questions regarding the underlying data, please do not hesitate to contact us at info@ugn-umwelttechnik.de

Overall cost/system life cycle*

Average overall cost per year
(depending on system service life)

Investing in a UGN system appears more costly at the beginning of the service life due to higher purchase costs, but this changes as quickly as after a year thanks to lower operating costs.

Even before the end of the second year, the relationship changes completely and the operator starts making considerable savings on gas purification.

On average, a gas purification system can be expected to run for 15–20 years.

* This illustration shows a sample calculation from a UGN-Umwelttechnik project.

For questions regarding the underlying data, please do not hesitate to contact us at info@ugn-umwelttechnik.de



Christian Richter

Managing director of UGN-Umwelttechnik GmbH

Do the UgnCleanPellets® work in the same way as activated carbon?

No, the operating principle of the UgnCleanPellets® is completely different to that of activated carbon. While activated carbon requires the biogas to be dried in advance, the UgnCleanPellets® can handle the untreated, moist and hot biogas. In contrast to a system running on activated carbon, this is not a purely chemical process, rather a bio-chemical one. This results in a better performance by the UgnCleanPellets® and thus in cost reductions for the plant operator.

UgnCleanPellets® consist of?

We cannot explain the composition of our filtering material in detail here. The complex production process took ten years of development and research and is being constantly optimised. However, we can assure you that the product is entirely made of sustainable and local materials. The starting material for our filtering material is cellulose. This makes our filtering material a 100 percent carbon-free desulphurisation product.

What are the preconditions for using the UgnCleanPellets®?

The UgnCleanPellets® require an oxygen content of not less than 1 % vol in the respective filter system. The maximum filter volume load should not exceed $500 \text{ m}^3/(\text{m}^3 \times \text{h})$. Other than activated carbon, our filtering material needs a hot and moist gas of approx. 30–40 °C and 100 % rel. humidity. The biogas plant operator can thus skip the gas drying and save money.

Why should I switch from activated carbon to UgnCleanPellets®?

To put it in a nutshell, the benefits of our UgnCleanPellets® tip the scales. Properly used, they show better performance at less costs and on top of that cut carbon emissions. Our research team has spent more than a decade working on a product that is going to replace activated carbon in the long run.

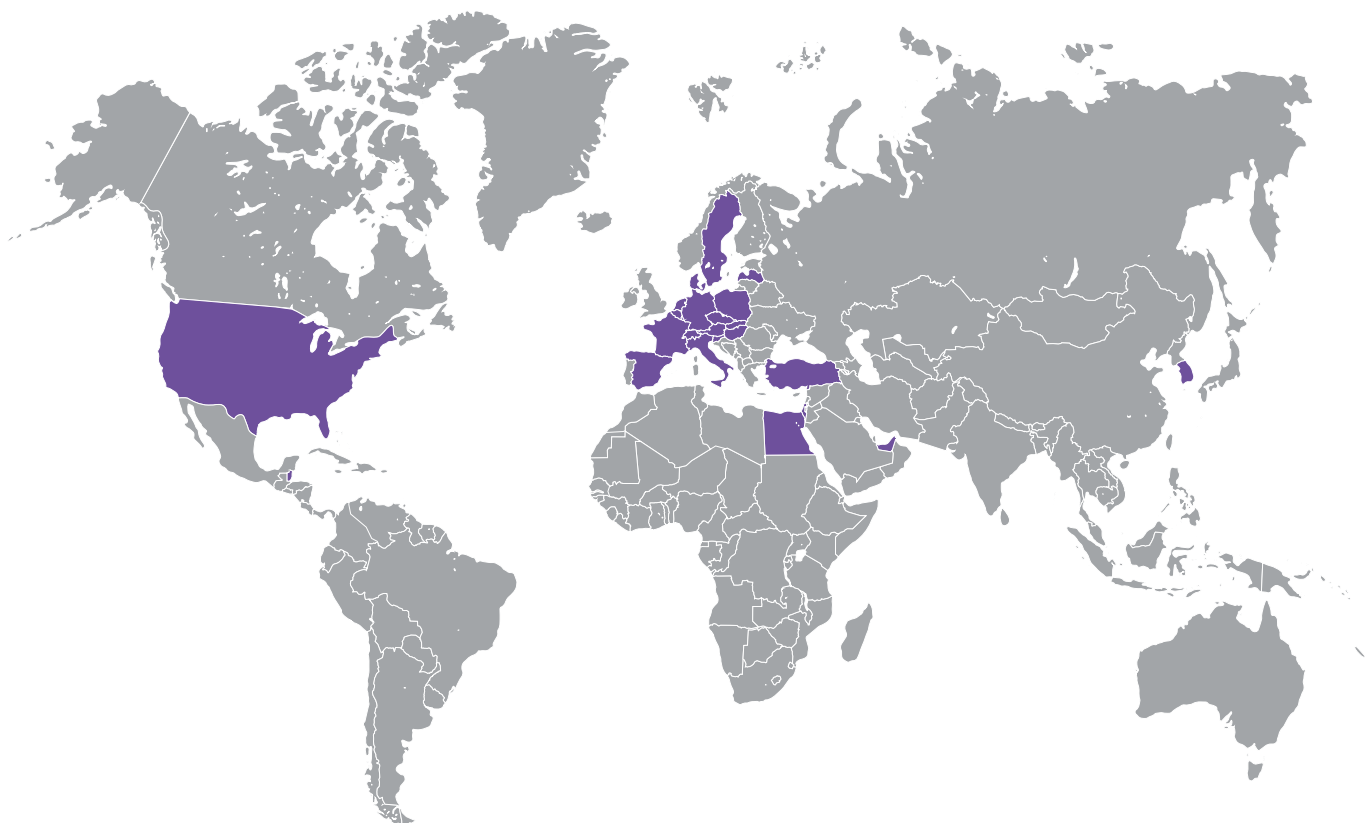
How much do UgnCleanPellets® cost compared to activated carbon?

It is a common mistake to directly compare the costs of 1 kg of activated carbon with those of 1 kg of UgnCleanPellets®. Each of these products features its own principle of operation. A UGN system would usually be bigger as the process requires more volume. This leads to higher initial investment costs; however, after about two years it becomes clear that by using UgnCleanPellets® plant operators will achieve a double-digit percentage in savings in the medium term.

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 sales partner

Alongside our sales partner we ensure world-wide availability of our filtering material and our systems.



Just scan the QR code and get a detailed overview of our sales partner 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 salespartner

