



CarboTech

The activated carbon people

AT A GLANCE

Our proposition to businesses:

- High quality activated carbon cleaning solutions “made in Germany”.
- Individual solutions for your specific area of application.
- Sustainability and cost-effectiveness through responsible recycling, e.g. reactivation of activated carbon.
- Comprehensive, competent, professionally sound advice.
- In-house laboratories for research, development and quality assurance.

WE'RE AT YOUR SERVICE

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ONE OF THE WORLD'S LEADING SUPPLIERS OF **ACTIVE CARBONS**

CarboTech is one of the world's leading suppliers of high-quality powdered, granulated and extruded activated carbons for demanding applications.

As the market leader in the recycling of saturated activated carbon through thermal reactivation or energy recovery, we focus on sustainability in all areas.

Located in the Ruhr conurbation at the heart of Europe, our integrated production plants manufacture, refine and package as well as reactivate tailor-made activated carbons and carbon molecular sieves. All common source materials are used in this process.

Our globally unique fluidised bed process ensures customers are supplied with highly effective activated carbons of consistent quality for a wide range of challenging cleaning processes. Thanks to our decades-long experience and expertise in the field of activated carbon, we now act as a **full-service provider for our customers in various industries**.

We are your competent partner: From consulting on product selection and the production, the logistical handling of activated carbon – in sacks, BigBags or as a Mobile Adsorber Rental System (MAMS) – to the sustainable reactivation of used activated carbon or its disposal. We furthermore establish individual solutions and tailor-made products according to your wishes and requirements.

This versatility is made possible by our **qualified application engineering** and our in-house-laboratories. If you are already using activated carbon-based solutions, we will be happy to provide you with higher-performance alternatives from our product portfolio. Our definition of **“full service”** is therefore always based upon your needs. Whatever your challenge is: we are here for you and will quickly provide you with the ideal solution.

The following applications lend themselves to the use of activated carbon:

- Air and gas purification
- Water and waste-water treatment
- Fluid treatment
- Hydrogen purification

If needed, our in-house laboratories can analyse customers' activated carbon and assist them in optimising the use of activated carbon at their plant.





QUALITY AND ECONOMY

Our activated carbon solutions are consistently reliable and cost-effective. Ensuring they remain so at all times, especially when up against complex and demanding tasks, is what our experienced professionals do every day. High-quality products and excellent service are two traits we consistently demand from ourselves.

Thanks to our globally unique fluidised bed process, our activated carbon always achieves the specified values with consistent quality, and we're happy to back this up in our own laboratories.

We keep our promise: **activated carbon of the highest quality, which is worth its price in every aspect.**

HOW DOES **ACTIVATED CARBON** WORK?

Activated carbon is an ingredient from the group of adsorbents whose surface acts as a special adsorption capacity and is therefore ideal for the **efficient and inexpensive purification** of various pollutants.

By activating the carbon with the help of continuous heat supply in our unique fluidised bed process, the surface area is increased to 500 to 1500 m²/g, which gives it a **much more effective cleaning performance** than activated carbons from other activation processes.

As a result, the surface area of one teaspoon of activated carbon is equivalent to as much as a complete soccer field.





HOW DOES THE **ACTIVATION** WORK?

Within our **unique fluidised bed process**, we achieve a constant heating of the coals of 1000 °C on average through ideal mixing. With this process, we create a particularly large number of micro pores on their surface.

In our in-house laboratories, we regularly check the properties of our activated carbons and can thus always guarantee you consistently high quality.

As an additional feature, activated carbon can be **sustainably reactivated** using the appropriate systems engineering in a recycling process. We reactivate your coal at our location in Essen for you. The adsorption capabilities and properties of our activated carbon are manifold – we will be happy to advise you on the selection of the right product for your application!



APPLICATIONS

CarboTech's activated carbons can be used in a wide variety of applications – however specialist yours is, **our experts will find you the perfect solution**, even if your application is not listed here. Just ask us – we'll be happy to advise you!

Air and gas purification

Air quality in Germany has improved considerably in recent decades according to the German Federal Environment Agency, but a Harvard study published at the end of 2019 says air pollution has the capacity to damage almost every cell in the human body, and in animals. Accordingly, the cleanliness of the air is set to remain a key issue.

Water and waste-water treatment

Water is the source of all life – and in times of climate change and an associated growing shortage of water, it is an increasingly crucial resource that must be protected. Indeed it is needed both for private use – i.e. for drinking, heating, swimming pools and aquaria – and for industrial applications such as cooling machinery, producing medicines and chemical substrates, or for whitening sugar.





Fluid treatment

As well as water, there are many other liquids that also need to be cleansed. Applications are mainly in the food and beverage industries. Oil mills, for example, have to safely remove carcinogenic substances that may be produced during manufacturing of consumer products. Spirit producers want to extract certain fusel alcohols from their spirits without altering the taste. Furthermore, international lemonade and fruit juice producers often face the challenge of making their products taste the same all over the world at all times.

Hydrogen purification

Government and industry experts are already calling it the “fuel of the future”, and the media have also latched onto hydrogen – indeed, this is a gas that is increasingly making news. Stock exchange trading floors, too, are seeing burgeoning growth in the numbers of companies looking to use or market hydrogen for propulsion purposes. Yet they all face the same problem, which is that although hydrogen is a fairly common element, it is almost always bound to other substances and can only be separated by applying great amounts of energy and technical effort.

Carbon molecular sieves (CMS)

Innovation with its roots in Essen: CarboTech is known and appreciated across the world as one of the key innovation drivers in the world of activated carbon. One thing to come out of our research and development work has been carbon molecular sieve (CMS) technology which is used in nitrogen production and other applications.

Working with our partner OSAKA Gas Chemicals, we continue to sell these sieves exclusively in Europe, India and the Middle East. And that’s not all, because we are refining the sieves still further in collaboration with our partner and a university.

SOLUTIONS

CarboTech can supply you with activated carbon solutions that are made-to-measure. **Our unique activation process makes our activated carbon the best in the world, and a wealth of expertise make our service truly unique.**

Activation

What do the chemical industry, the medical sector, exhaust gas filtration and waste-water treatment have in common? They're all areas where activated carbon plays a crucial role in filtering gases or liquids. Thanks to its highly porous internal structure, activated carbon can bind and trap unwanted substances in large quantities.

Reactivation

Unlike many other filter materials, activated carbon can be used several times thanks to sustainable reactivation. In the process, we remove the pollutants bound to the activated carbon, thereby re-opening the pores. This leaves the activated carbon just as absorbent as it was before initial use.

Impregnation

For some applications, only specialist knowledge and additives can help. This is because the properties of many pollutants mean they cannot be removed properly from their substance flows using "conventional" activated carbon. Cases like these call for impregnation, where we treat the activated carbon with other chemicals such as catalysts. This means it is then also ready to bind the undesirable substances.





Laboratories

We ensure the specified properties through continuous tests in our laboratories. Especially for novel or complex tasks in the gas and liquid phases, the effectiveness and benefit of adsorptive purification using activated carbon will be determined through intensive testing. One thing that can be identified in this way, is whether further substances should subsequently be added by impregnation.

Mobile adsorber rental systems

If you don't have the suitable filter systems or don't want to remove them, that's not a problem – because we have just the right solution for you: our "MAMS" mobile adsorber rental systems! They are the convenient solution for almost every application. Available in different sizes, quickly configured, delivered, assembled and ready for use. That's our "Plug & Clean" promise!

Grinding

As well as pelletised and granulated activated carbons, we can also supply ground (powdered) activated carbon upon request. The advantage is that we can create an optimum mix of several activated carbon grades for you, whose specific separation and adequate filtration properties complement each other perfectly for your application. To do this, we use all activated carbon types and activation methods to solve your problem.

Application technology

Not all activated carbon is created equal – that much is obvious. But how do you find the right product for your needs? How much activated carbon do you actually require? And how long can you use it until it needs to be replaced? Answering these questions and more calls for in-depth knowledge.

Luckily, you have an expert on hand! At CarboTech, we have decades of experience in advising our customers, selecting and making suitable activated carbons and providing the right amount of product for your applications.

Packaging solutions

At Carbotech, it's not all about activated carbon. We're also passionate about exceptional service – and if you wish, you're welcome to make use of our handy packaging service. Our packaging service also gives you the opportunity to capitalise on our efficient logistics, honed by years of experience. We'll do it for you!

CONTACT

Interested in discovering more? Our products and solutions can be used to great effect in lots of other areas as well, and we'll be very happy to discuss and explain more.

We can also show you what our **activated carbon can do for your company** – we're always happy to advise!

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