

Answers

about CARBONIT®

Drinking Water Filters





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Answers

about CARBONIT® Water Filters

Not every water is the same as every other water - and the opinions people have about water quality and water filters are as varied as the questions that we are asked about them. We have been encouraged to compile the most common questions and the most appropriate answers to them, and now, at customer request and with customer support, we present them to you here...

Drinking Water Regulations (TrinkwV)

When the Drinking Water Ordinance (TrinkwV 2001) came into force on January 1, 2003, it was considered for the first time that pollutants can enter drinking water on the way from the waterworks to the tapping point. In the previous ordinances, limit values were defined and compliance with them was checked in the waterworks. In the current Drinking Water Ordinance, testing is also carried out in the waterworks, but this is supplemented by testing in the household. Measurements are made thereby of those substances which are not able to come into contact with the drinking water before it passes through water mains and (in particular) building pipe systems. All limit values must be maintained at those tapping points which serve as extraction points for drinking water. This means that each building owner and owner of a building installation shares responsibility for the quality of the drinking water. If the drinking water is intended for public use or if unusual potential hazards are present (e.g. hospitals, doctor's surgeries), then additional provisions are to be complied with.

The current TrinkwV makes a distinction for that reason in connection with the definition of limit values between "Chemical parameters whose concentration as a rule does not increase in the distribution network, including the building installation (*Chemical Parameters, Part 1*)" and "Chemical parameters whose concentration could increase in the distribution network, including the building installation (*Chemical Parameters, Part 2*)". These include, among other things, all heavy metals!



*Drinking
Water
Regulations*

Why filter?

"But drinking water is one of the best foodstuffs there is! Why does it still need to be filtered?"

These statements are generally based on the investigations carried out at waterworks. The quality of the water that you receive from the faucet at home is not only dependent in particular on the pipes in the building, but also on the water mains that supply them. House water pipes made of lead continue to be used in some buildings. This metal can then appear in various concentrations in the drinking water. It is unlikely in such cases that the applicable limit values can be maintained. It is also true that plumbing fixtures and equipment - particularly components lacking the DVGW testing certificate - can contain lead at forbidden high levels.

With a filter from CARBONIT®, you, too, can also influence the quality of the water coming out of your faucet, if for example the landlord does not intend to replace existing pipe systems or has not yet begun with this replacement or if uncertainty exists with regard to the plumbing fixtures that have been installed.

"But we already have very strict regulations governing drinking water in Germany. Must I really filter my drinking water, even when the limit values are being complied with?"

We are not talking about a "must-do" situation here, but if you are of the opinion that your drinking water should go beyond the required values in exhibiting the best purity possible, then you have reached a well-thought-out decision with CARBONIT®.

And if you have ever asked yourself what a limit value actually is...: examples include the following specifications for "the levels of constituents in drinking water which are harmless to health":

Extract from German Drinking Water Regulations

| Element | max. content | Element | max. content |
|-----------|--------------|----------------|--------------|
| Iron | 0.2 mg/l | Nickel | 0.02 mg/l |
| Copper | 2.0 mg/l | Lead | 0.01 mg/l |
| Aluminium | 0.2 mg/l | Vinyl chloride | 0.0005 mg/l |

It is evident that not only maximum purity and thus maximum safety are achieved in these areas through the use of CARBONIT® Drinking Water Filters, but that in addition such things as unpleasant discolourations of the drinking water or the staining of bathroom fixtures (e.g. in the presence of water containing

Limit values (I)

iron or copper) can be reduced or even completely avoided.

Even the current Drinking Water Regulations are not able to take into consideration more than just a fraction of all the possible pollutants in drinking water. This means that other **recognised pollutants** are also to be found in drinking water **for which no limit values have however been established**. Included among these undesirable substances, for example, are:

- **Pharmaceutical residues**
- **Radon**
- **Asbestos fibres**

No one can at present determine on the basis of solid evidence exactly which quantities of these substances represent health hazards and how the substances interact with one another. It is clear, however, that these substances are not drinking water components to be found in nature.

Limit values are determined in animal experiments and extrapolated for adult humans – the values are thus more of theoretical than of practical use.

Here an extract from the Brockhaus Encyclopaedia, 24-volume edition:

"[...] The **procedure for establishing limit values is just as controversial as many of the limit values themselves**, e.g. because scientists have different estimations of the harmfulness of certain pollutants and limit values tend to represent politically negotiated compromises between that which is required by various considerations of ecology and health (toxicology), of technical feasibility, of financial acceptability and of economic and political justifiability (to include the international sphere). [...]"

In its requirements for hygiene in the medical care of immunosuppressed patients, the Commission for Hospital Hygiene and Infection Prevention at the Robert Koch Institute (RKI) mentions: "The Drinking Water Ordinance is designed to protect the healthy general population, not to adequately protect highly immunosuppressed patients."

"What is the difference between a so-called 'pot filter' and a CARBONIT®filter?"

Pot filters are intended to improve the taste and odour of the water. These gravitation systems usually consist of an ion exchanger for decarbonisation (with limited capacity) and a small proportion of silvered activated carbon packing. The ion

Do the new Drinking Water Regulations take into account all harmful substances?

*Limit values (II)
How are these limit values determined?*

Pot filter





Bacterial
safe

exchangers replace calcifying ions, e.g. with hydrogen ions. The pH value of the filtrate is thereby altered, and thus is no longer in compliance with the current TrinkwV. PH-neutral potassium ions are therefore already in use "as exchangers" in some appliances.

All **CARBONIT®** Premium Drinking Water Filters are designed for reducing pollutants and naturally also for improving the taste and odour of the water. Here the filter has guaranteed characteristics, but still no reduction of calcium or magnesium content takes place through the activated carbon.

"Can the filters lead to bacterial build-up in the water?"

No. Bacterial build-up **can not occur.** Tests with extremely high bacterial concentrations (several million placed before the filter) **certify the extraordinarily high performance** of the (NFP Premium) filter ["zero" test bacteria (E. Coli and Enterococcus faecalis) made it through]. The NFP Premium filter cartridge has successfully passed a number of additional hygiene tests; this filter was tested for retention of the following (the retention rate was always >99.9%):

Bacteria (*Staphylococcus aureus*, *Staphylococcus haemolyticus*, *Enterobacter cloacae*, *Pseudomonas aeruginosa*, *Bacillus subtilis*)

Microorganisms (*Entamoeba coli*, *Giardia lamblia*, *Cryptosporidium parvum*, *Hymenolepis nana*, *Schistosoma mansoni*)

Funguses/yeasts (*Candida albicans*, *Rhodotorula mucilaginosa*, *Saccharomyces cerevisiae*)

The **IFP Puro** filter cartridge types are also outstanding choices for achieving **hygienically irreproachable filtered water**. These cartridges were originally designed to meet especially high requirements – e.g. medical applications - but they are now also being offered for private users as a result of the great demand that has arisen. Please observe in this connection the six-month filter replacement intervals required by statute and the operating instructions for the devices.

"Where are the filter cartridges manufactured?"

CARBONIT® is a company based in Germany in the state of Saxony-Anhalt.

Activated carbon is a carefully processed renewable raw material resource. Even the ancient Romans used activated carbon for preserving wine; nowadays waterworks everywhere are still using this material. Activated carbon also provides emergency

Made in
Germany

medical therapies against poisoning or diarrhoea illnesses. The special CARBONIT® knowledge lies in the quality-monitored and careful selection of this natural vegetable product as well as in its the unique later processing to produce baked (sintered) block filters.

High-performance filters for universal application are created without chemical additives (e.g. silver) and with complete batch tracking.

"It is claimed that pharmaceutical residues and polar pesticides with possible hormonal effects may also be found in drinking water. Can CARBONIT® filters remove such things?"

Many of the pharmaceutical and polar pesticide residues which to our knowledge are the ones most commonly being discussed have been tested in an extensive study and none of these were detectable in the filtered water. You will find the list of substances tested in the Data Sheet.

"Have CARBONIT® filters been tested by an independent institute?"

Yes. The filter performance **confirmed in the expert appraisal certificates** can be found on our website. The filters have been tested by the following, among others

- TÜV-Umwelt Berlin (lead, copper)
- Universität Bielefeld (bacteria & pathogenic parasites)
- HS Magdeburg (agricultural pesticides, chloroform, chlorine, ozone)
- Hygieneinstitut des Ruhrgebietes (bacteria and viruses)
- TU Berlin (polar pesticides, pharmaceutical residues, hormones, steroids)
- NSF (membrane of the IFP Puro: parts made of ANSI/NSF 53)
- LGA Bayern (Monoblock: food safety)

CARBONIT® however also insists on high quality standards in the housings. As a result, our filter housing is not only in compliance with the KTW BWGL¹ but also with the DVGW W270 Worksheet².

1) KTW BWGL = Health-related evaluation of plastic substances and other non-metallic materials under the auspices of the law governing foodstuffs and commodities [Lebensmittel-und Bedarfsgegenstände-gesetz (LMBG)] for drinking water.

2) DVGW W270= The increase of micro-organisms on materials for the drinking water sector.

Pharmaceutical residues

Certificates



Conductance

"Why is the measurement of the conductance value not suitable for the assessment of the quality of the filtered water?"

The conductivity of water indicates as a sum parameter the number of total ions in the water. Carbonit advertises leaving minerals in the water. However, since these minerals are the main component in the TDS value, this value is usually not lower after filtration than before. The reason for an even higher value after filtration is a slight increase of the content of inorganics. Besides, the filtered water is usually warmer than the unfiltered water.

An increase factor of the conductivity values of approx. 2% per °C must be considered. Carbonit activated carbon filter cartridges are primarily aimed at the removal of organic substances (C-H compounds, including pesticides, pharmaceutical residues, pesticides, such as lindane, DDT, ..., taste and odor molecules, ...).

Since these are to a large extent electrically neutral, conductivity measurement is not suitable for assessing the effectiveness of the filtration process. Only a laboratory analysis can provide help here.

Chemistry

"Are chemicals utilised in the filtering process?"

No chemicals are used in CARBONIT® filters.

"Then why don't the filters lead to bacterial build-up?"

The pores of the filter are so fine that bacteria such as *Escherichia coli* or even enterococci cannot grow through the filter element (within a six-month period). We filter at the levels of microfiltration. The use of chemicals for disinfection purposes (e.g. silver) therefore be redundant, and it is furthermore not required.

Replacement interval

"Why is the filter to be replaced after 6 months?"

There are two reasons for this. On the one hand, there are only a few cases of drinking water chlorination (or other disinfection methods) in Europe. This leads to a situation whereby any **bacteria possibly can grow and multiply without hindrance**. Filters made of activated carbon in particular offer microorganisms a favourable area for growth on their outer surfaces. Consequently, a change of filter should take place every six months for **hygienic reasons**.

Furthermore, filter replacement after six months is advisable in accordance with DIN EN 808 attachment A: „[...] For hygienic reasons, replacement (with a new filter element) is required no less frequently than every six months (...).“ The reasoning for this is, among other things, that a **bacteria build-up** could form over time on the **rear side of the filter**. The studies of our NFP Premium over 6 months have confirmed the reliability for this period, so we recommend a change every 6 months.

"Can the filters get rid of the lime as well?"

Yes, the filters remove the lime particles from the water, together with all other particles down to the specified filter fineness (e.g. $<0.45\ \mu\text{m}$ for the NFP Premium or $0.15\ \mu\text{m}$ for the IFP Puro). The lime that is in solution, that is to say the minerals, remains in the water. Lime is made up mainly of calcium and magnesium - which are minerals. The term "in solution" is used here to mean the same as when sugar is dissolved in water.

If the lime (i.e. calcium and magnesium) is also to be removed from the water then this can be performed by using an auxiliary cation exchanger. For this purpose, CARBONIT offers special filter cartridges which can be used e.g., in the DUO Kalk unit or a second VARIO-HP. If only deposits on electrical equipment are to be prevented, filter cartridges with catalytic limescale protection are used.

Bellima® is exceptionally suitable for smaller applications, e.g. as a substitute jug filter. The small fan-like "water papers" are suspended in the water during the brewing of tea or coffee, for example, and **reduce the hardness of the water**. Tea and coffee are thereby optimised in both flavour and appearance. Please use Bellima® only in conjunction with CARBONIT®-filtered drinking water. (www.bellima.de)

"Do the filters get rid of the minerals as well?"

Dissolved minerals, salts, ... are not extracted (except possibly in special individual cases). This also corresponds to the advertising statement made by Carbonit " ... vital minerals remain contained in the water". Thus, unfortunately, nitrate, nitrite, ammonium (inputs from overfertilization) is not reliably removed. Furthermore, these minerals include lime, which is why activated carbon is not suitable for water softening.

Lime

Minerals

*Activation/
energisation*

"One hears more and more these days about the possibility of "activating" the water. Doesn't that make filters superfluous? Does CARBONIT® offer such systems as well?"

We regard water activation as a possible supplement to filtering: first remove the unwanted substance-based impairments by means of a CARBONIT®-filter and then treat or introduce the so-called "fine-material" oscillations. CARBONIT® has great competence in the manufacture of filter systems - other firms distinguish themselves through equally great expertise in the manufacture of devices for water activation. CARBONIT® works together with these firms in a cooperative competency network. Consequently, we recommend selected producers of devices for vitalisation; for the mode of action utilised in these devices, consult the respective manufacturer or one of our professional dealers, to find under: www.carbonit.com/fachhaendlersuche.

*Filter
replacement*

"How long does a filter last? When must a filter be replaced?"

The filter can be counted on to clean over 10,000 litres (NFP Premium) or 5,000 litres (IFP Puro) of water; these figures have been tested and confirmed by the institutions mentioned above (see page 7). You should replace the filter after **6 months** in accordance with the drinking water DIN EN 806-5, appendix A - no matter whether you have already filtered 10,000 litres (NFP Premium) or 5,000 litres (IFP Puro). However, an earlier change may be necessary if the water flow is noticeably reduced. Early replacement is not a defect of the filter used, but an indication of increased occurrence of fine particles in the unfiltered water.

Safety

"The filter handles 10,000 litres (NFP Premium) or 5,000 litres (IFP Puro); that's far more than I would ever use in six months. Why doesn't CARBONIT® produce filters for fewer litres?"

The filter elements manufactured by CARBONIT® involve filters which have been modified to conform to international and commercial norms and which are produced in large quantities for private households and business operations. Because it is always the same filter type which is used, it is possible to keep production cost low. It is for that reason that we have standardised filters with high litre performance and

you have an inexpensive filter with a high performance spectrum available to you. And you can always be sure that you will not overtax the filter.

"What should I do with a used filter?"

Since centralized recycling is not technically or economically feasible at present, the used filter cartridge should be disposed of in household waste and thus sent for thermal processing. Besides, the ecological footprint would be unnecessarily increased by the return delivery of the individual used filter cartridges.

"Is it possible to reduce the content of heavy metals in drinking water by allowing the water to run down the drain

for a while, to the point where I can dispense with a filter, even when there is a considerable heavy metal content in the water?"

No single, comprehensive answer is possible for this question. The number of litres of water you need to allow to run off depends upon many considerations: such as, for example, the floor on which you live in your building, where the section of

Recycling

Heavy metals

| Designation | The following was measured at the waterworks at Berlin-Jungfernheide | Peak values found in various investigations of Berlin water obtained from household faucets | Values measured in these households following installation of a CARBONIT® filter |
|---------------------|--|---|--|
| Minerals | | | |
| Calcium | 121 mg/l | 125 mg/l | 125 mg/l |
| Magnesium | 12.1 mg/l | 11.5 mg/l | 11.5 mg/l |
| Potassium | 7.8 mg/l | 8.0 mg/l | 8.0 mg/l |
| Fluoride | 0.18 mg/l | 0.18 mg/l | 0.18 mg/l |
| Nitrate | 3.2 mg/l | 5 mg/l | 5 mg/l |
| Nitrite | none detected | none detected | none detected |
| Sodium | 49 mg/l | 51 mg/l | 51 mg/l |
| Heavy Metals | | | |
| Copper | none detected | 9.8 mg/l | 0.1 mg/l |
| Lead | none detected | 0.47 mg/l | none detected |
| Zinc | none detected | 14 mg/l | < 0.5 mg/l |
| Nickel | none detected | 0.55 mg/l | none detected |
| Cadmium | none detected | 0.01 mg/l | none detected |



pipeline is located which is responsible for the higher **heavy metal content**, what the habits of your fellow tenants are, etc. It is also true that you cannot reduce the amount of substances which might already be contained in the drinking water when it leaves the waterworks simply by running more water, (e.g.: pharmaceutical residues). In addition, it is certainly **not a sign of environmental conscientiousness** to simply send a lot of water down the drain. Also, even with very brief stagnation periods, water absorbs more lead than the limit value permits.

In all the analysis results shown here (page 11), the respective limit values are complied with at the waterworks. In the households, on the other hand, **values in excess** of the limit values were found.

Nitrate

"My drinking water contains nitrate and nitrite in concentrations that I would like to see reduced. Which model series is available from CARBONIT® which could help me do this?"

The problem of nitrate in drinking water unfortunately continues to be high in recent years. In many cases, however, the exposure levels from foodstuffs (e.g., salad or sausages) are considerably higher and can only be controlled to a limited extent. A highly recommended filter system for nitrate reduction is available from Carbonit. Information is available from your specialist dealer, also to be found at:

www.carbonit.com/fachhaendlersuche

Microplastics

"Can the CARBONIT® filters also filter out microplastics?"

Microplastics is a broad term. None of the literature sources defines it in terms of its particle size. However, since it can be assumed that microplastic is clearly a (geometrically measurable) particle due to its origin and mode of formation, the particle retention limits we have stated for our cartridges apply: IFP Ultra = 0,02 µm, IFP Puro = 0,15 µm, GFP Premium = 0,40 µm, NFP Premium = 0,45 µm.

According to our research, however, the smallest particles resulting from abrasion are likely to be in the very sand range (approx. 2-10 µm). Below this, there is a lack of particulate mass to further reduce by mutual abrasion.

The situation is different, however, with specially manufactured nanoparticles (in toothpaste, sunscreen, ...). These particles lie in a range that is also below the particle retention limit of the IFP Ultra.

"Can I connect a countertop filter to my sink faucet with pull-out hand shower?"

When you connect a filter unit to your faucet, filter operation creates back pressure that the faucet's extendable hose must withstand. So you should ask the faucet manufacturer if the hose and press-fit are safe.

Furthermore, you should keep in mind that every time you pull the hose out of the faucet, you also pull the connecting hose of the filter unit. This could be a bit impractical in some circumstances.

"I have a depressurised storage water heater. Which filter from CARBONIT® can I then use?"

Under no circumstances should you use a SANUNO, because the **warm water storage tank** could suffer damage (see also the product description). A DUO Classic or a Vario would be the most suitable for this situation. Due to the special water circulation associated with depressurised storage water heaters, even the water that flows into the warm water storage tank will wind up being filtered when the DUO or the Vario Universal is used. (*Beware: bacteria can form in these storage tanks after filtering through reverse bacteria build-up on the fixture side!*)

Similarly, do not connect a SANUNO to a spray hose fitting!

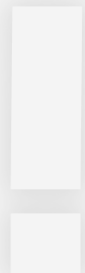
"Wouldn't it be better to filter all the water in the house through a central installation, so that filtered water would be available everywhere?"

Yes, it is true that with a central water treatment installation - such as with a QUADRO filter installation from CARBONIT® - all of the water would be treated before it entered the household pipeline system. And this would indeed lead to a **visible improvement** in water quality. The problem is that the heavy metals which can enter the water from the walls of household pipes themselves cannot be treated using a central installation. Consequently, we recommend the installation of an **additional filter in the kitchen** where there is centralised water treatment. This will ensure that any possible copper or lead given off by the house installation will be considerably reduced.

*Shower
house faucet*

IMPORTANT!!!

*Central filter
installations*



Why additionally filter ?

"I already have a central water treatment installation - a water softener. Why should I filter my water as well?"

If the water is also to be filtered, then a combination of other devices with CARBONIT® filters is the ideal solution.

Water softener installations reduce the hardness of the water - meaning the levels it contains of dissolved calcium and magnesium. In exchange, sodium (the natural component of our table salt), is introduced into the drinking water. CARBONIT® filters are in turn not designed to reduce the dissolved minerals in the water; instead, the filters are useful against a multitude of other substances.

Simple connection

"Is it complicated to connect a CARBONIT® filter to the water supply lines?"

You can install the appliances of the SANUNO, Vario and Duo series yourself in just a few steps. The only requirement is that the appliances be installed between the 3/8" corner valve and the armature mounted on the sink. The SANUNO (table top model) is in fact connected only to the spray regulator on the armature. If you would like to be able to alternate easily between filtered and unfiltered water in your kitchen, appliances with a small separate water faucet are available for selection - or you simply replace your existing plumbing fixture with our easy-to-use 3-way armature. §12 Par. 2 AVB WasserV requires that the QUADRO model series, which is installed at the house entry point (downstream from the water clock), be installed by a professional installation company.

However, no unusual tools are required. All systems are supplied ready-to-install.

Chemical-free lime treatment

"Do alternative lime treatment processes also exist which do the job and which are to be recommended?"

Numerous possibilities exist for chemical-free lime treatment in cases where no ion exchanger is desired for lime treatment. Not all of these processes fulfil expectations – some explanation approaches cannot be tested against recognised scientific criteria. CARBONIT® offers filter cartridges with a catalytic limescale protection granulate for this application, which has proven its effectiveness in various tests and in customer practice.

"What do I do with the filter when I go on vacation for some time?"

In principle, carbonite filters should be used regularly, i.e., without major downtimes. Longer downtimes are always problematic, as the stagnant water tends to absorb substances from its environment (pipelines, hoses, fittings). The dissolution of these substances does not take place like sugar in water, but in exceptionally long periods of time. Besides, stagnation of water can also lead to germ development and growth, especially at higher ambient temperatures. Cartridges, such as the NFP Premium and the IFP Puro, due to their filter fineness, act as a bacterial barrier, i.e., they do not allow bacteria from the installation to pass through. However, inorganic metabolic products of the bacteria that may have settled in front of the cartridge (e.g. nitrite) may briefly occur cumulatively in the water (nitrite is hardly removed by activated carbon, for example). Both situations (substances from the material and metabolic products from bacteria) can lead to short-term peaks in concentration, which can be counteracted by thorough rinsing.

Therefore, if the following rules are followed depending on the interruption of use and the environmental conditions, the problem can be well controlled:

1. 3 to 7 days Drain at least 5 liters before new use
2. 1 to 6 weeks Drain at least 10 liters before use
3. 6 weeks to
3 months Disconnect the filter unit and store it
 upright with the cartridge in the refrigerator
 then proceed as in item 2.
4. 3 to 4 months a) Remove cartridge, allow to drain for
(or if 3. is not approx. 1 hour. (stand upright)
possible, from b) Allow to dry thoroughly (with the central
6 weeks opening of the of the cartridge upwards)
onwards) (best at about 40°C for at least 6 hours
 in the convection oven).
 c) Pack the cartridge hygienically (foil, ...) and store as dry and cool as possible
5. from 4 months Use a new cartridge onwards

Tip: Synchronize your annual vacation with the upcoming filter change, so you can easily avoid the interruption of use, which is especially problematic in the summer.

*Interruption of
use*



Why
CARBONIT®
filters, after all?



"There are so many different activated carbon block filters from so many different manufacturers. Why should I purchase one from CARBONIT®, after all?"

Due to their special manufacturing process and the materials used, Carbonit's activated carbon block filters are superior to those of other manufacturers.

Studies on adsorption performance, for example, have shown that the removal of organic compounds (chloroform in the test) is up to 400% higher. In the case of chlorine reduction, the figure is as high as 700% compared with the competition. <https://www.carbonit.com/anwendung/wettbewerbvergleich>

Usage time

"Is the useful life of the filter housings limited?"

There are no specifications from the manufacturers about the service life of the filter housings. You could do the same as with other household items (coffee maker, faucet, pot, bowl, etc.): If the signs of use on the filter housing make you feel uneasy, just buy a new one. If you are satisfied with the condition of your filter housing and have always treated it properly, there is no need to replace it. However, it is recommended to replace the connection hoses from time to time. Biofilm forms inside, which can vary in severity depending on external conditions. The housing seals are also subject to wear and should be replaced regularly.

More
contaminant
retention with
other filters

"When I read the tables showing the substances held back by the filters made by other manufacturers, I find many more listed than are claimed for CARBONIT® filters. What is the reason for that?"

Every manufacturer focuses on specific problem situations. This could be a reason for differences in specifications.

An additional reason is that some manufacturers also list substances which are **projections made based on the „Chloroform“** parameter. Reference is made to general experience for this projection. If tests were thus made for chloroform, then statements can also be made based on projections for the following substances (examples):

Benzole, O-xylol, toluol, ethyl benzole, p-dichlorobenzene, trichloroethene, carbon tetrachloride, dichloromethane, monochlorobenzole, atrazine, lindane, 1,2-dichloro-propane, 2,4-D, simazine and many other substances.

Only individual analyses can prove to what extent this is true.

CARBONIT® will however continue to **restrict itself** in the future **to presenting the substances which have been measured directly**, even when a projection can be made on the basis of experience. The retention of chloro-form with **CARBONIT®** products (for all filter cartridges with activated carbon) is, by the way, >99.9%.

"When I compare the percentage retention rates between CARBONIT® and other filters, I find that there are others which can filter out more, particularly in the case of lead and copper. Is this true?"

CARBONIT® bases its self-presentation in terms of contaminant retention on the statements contained in the expert appraisal certificates, which means that **the listed amount always reflects the worst figure from the entire investigative series throughout the entire litre performance**. The important thing to remember is the significance of "%": "out of one hundred". Neither an interpretation nor even a comparison is possible on the basis of these percentage data, unless the filters were investigated in accordance with the same test. An example can be given to make this clearer: **American filters** are often tested for lead retention with **water which contains approximately 150 µg of that substance**. If the filtered water still contains around 6 µg or less of lead, then the filter has a retention quota of >96%.

The TÜV test for **CARBONIT®** Filters was however carried out with water that **contained up to 2,000 µg of lead**. The retention rate achieved for this was >90%. In a later test with **water that contained up to 600 µg of lead**, the **filtered water exhibited no sign of the substance** (detection limit = 10 µg/l). Accordingly, the tested filters have a retention rate of >97%. All the same, it is the "worse" value of >90% that is listed.

"I have heard that activated carbon block filters can contain chemical additives in order to improve the effectiveness of the filter. Does this apply to any of the CARBONIT® filters?"

No, the block filters contain **no chemical additives** for the purpose of improving performance capability. This is also not necessary, because the performance spectrum of the activated carbons used is extremely high.

Higher filter performance for lead and copper with other filters

Chemical additives for better performance



DVGW

Such additives, on the other hand, **are used in many American activated carbon blockfilters**. This can lead to the **release** of other substances - in many cases **zinc** - particularly when an ion exchanger is implemented in the block filter **for the purpose of filtering out lead**.

CARBONIT® consistently dispenses with such additives.

Besides, the activated carbon used is thermally, rather than chemically, activated.

"Why is there no DVGW test mark for Carbonit`s filters?"

For water filtration systems with a filtration fineness below 80 micrometers, the DVGW refuses to issue certifications on principle on the grounds that

- a) no corresponding test specifications are available
- b) drinking water from the public water supply does not require any further treatment, as it is thoroughly and regularly tested by the water supply companies and monitored by the health department as part of state health supervision.

Corresponding applications from Carbonit and other water filter manufacturers are regularly rejected on this basis.

Besides, the presumption of the DVGW (under private law) that only equipment and products with its test marks may be used is not legally correct. In this context, Carbonit uses only materials that correspond to the generally recognized state of the art. All materials also meet food safety requirements (LMBG, KTW guidelines), which we can document on request.

Product quality

"What is the importance of product quality and lasting environmental orientation?"

CARBONIT® is certified not only in accordance with ISO 9001 (Quality) but also **in accordance with ISO 14001 (Environment)**. Our entire attention is focussed on the careful handling of water as a valuable resource. Environmentally harmful materials have no chance with us, neither in packaging nor in the development and manufacture of our products.



We hope that we have also been able to answer to your satisfaction any questions you might have had when you began to read this brochure. We would be happy to receive any suggestions and additional information you might have to offer. Please forward them to:

CARBONIT® Filbertechnik GmbH – Re: FAQ
Industriestr. 2 · 29410 Salzwedel OT Dambeck · Germany

E-Mail: produktion@carbonit.com

You can find reports on our filter cartridges at:
<https://www.carbonit.com/anwendung/gutachten>

All information and the current data sheets for our products:
can be found at: <https://www.carbonit.com/produkte>

Simple. Safe. Practical. Good.

CARBONIT® Filters in your kitchen.



CARBONIT® SANUNO tabletop filters:
inexpensive, flexible, quick-installation.

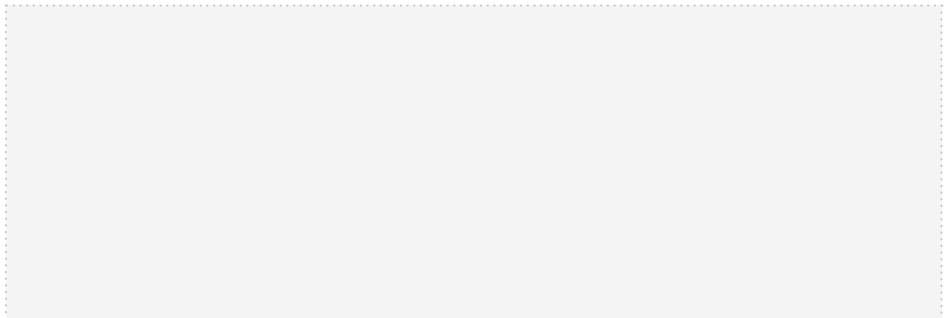
rechts: CARBONIT® VARIO concealed filters
with or without separate faucet: easy to use,
just the way you like it.



Water filters from CARBONIT®:

- specially tailored to European water conditions
- large filtration capacity, e.g. pharmaceutical residues, lead, copper
- extensive performance spectrum for the extraction of harmful substances
- low procurement and subsequent expenses
- can be combined with many vitalisers

Your competent professional dealer:



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