

ADSORPTION INSTANT PRODUCTS // OXY TREATMENT //

FILTERSORB

SYSTEMS

CARACTER CARBON - ADSORPTION: POA, PFOS, PFAS

#### INTRODUCTION

**Perfluorinated compounds (PFCs)** are a new class of **persistent organic pollutants.** They consist of a hydrophobic perfluorinated carbon tail and a hydrophilic ionic head. Due to the unique structure of **fluoride-carbon bond**, they present significant thermal and chemical stability. As a result, there is

Not even one conventional biological treatment of water or waste water is applicable so far. Filtration techniques such as nanofiltration and reverse osmosis have shown massive destruction in the environment with membrane concentrate and as well as adding massive overall management costs.

Watch Water<sup>®</sup> adsorption treatment technologies including SUPEROXY is an Advanced Oxidation Processes (AOPs), photolysis and use of Zero Valent Iron (ZVI) activated carbon with MGO surface is the solution for direct degradation of PFCs and removal of PFOA equal to 95% using sulfate radicals and photolysis of regenerated concentrate. **SUPEROXY** can effectively degrade perfluorocarboxylic acids (PFCAs) to fluoride ions and carbon dioxide. In recent years Catalytic Carbon (ZVI) has emerged as one of most innovative technology for the removal of most difficult environmental pollutants through reduction regeneration mechanism. The high reactivity of catalytic carbon is due to the high surface area and its very high negative (-) surf ce for cation's. For this reason, Watch Water<sup>®</sup> has created a new stable adsorber by attaching stabilized molecules onto ZVI particles MgZVI/AC. Only Catalytic Carbon (ZVI) coated with a cationic surface modification can remove Halogenated Organic Compounds.





PREMIUM QUALITY MADE IN GERMANY





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### ADSORPTION AND RECOVERY

An adsorption process of CATALYTIC CARBON MG has extremely high adsorption capacity of  $C_2$ - $C_6$ -  $C_8$ fluorine- containing compounds and can be adsorbed without any morphological change. Therefore by the use of adsorption CATALYTIC CARBON MG; and desorption process using SUPEROXY all adsorbed substances can be recycled or destroyed using solar energy. Water or wastewater containing  $C_2$ - $C_6$ - $C_8$  fluorinecontaining compounds is passed through a pressure vessel with the CATALYTIC CARBON MG to adsorb PFOA, PFHA & PFOS and the water at outlet is without fluorine-containing compounds.

The CATALYTIC CARBON MG having the adsorbed fluorine-containing compounds can be regenerated up to 5 years. CATALYTIC CARBON MG features two mechanisms that work rapidly and remove PFOA, PFOS and many other per-fluorinated (PFAS) compounds from contaminated water supplies. This is absolutely a new process CATALYTIC CARBON MG + SUPEROXY to regenerate carbon's. CATALYTIC CARBON MG can remove 97% of PFOA and PFOS from an initial concentration of as low as 0.5 ppb in only 4 to 5 minutes.

#### REGENERATION

Regeneration with **SUPEROXY** means reactivation of adsorber and destruction of adsorbate with strong Oxidation. Regeneration can be explained as combination of Desorption and Activation of adsorber with **SUPEROXY**.

# EASY REGENERATION WITH SUPEROXY

**CATALYTIC CARBON MG** is re-activated and is like brand new Carbon the total amount of regeneration is as the following cycles:

1. Backwash - 5 minutes

2. Suction Regenerant (SUPEROXY - 1%

- Cocentration) 30 minutes
- 3. Slow Rinse/Fast Rinse 10 minutes
- 4. Back to service (Regeneration 45 60 minutes)

#### SUPEROXY TECHNOLOGY

Watch Water<sup>®</sup> has a solution to treat PFAS contaminated water with CATALYTIC CARBON MG and regenerate the desorbs the carbon with SUPEROXY. The SUPEROXY system uses Oxydes-P blended Titanium Dioxide Powder to break down the contaminants formidable molecular bonds while cleaning wastewater and systematically destroying hazardous compounds with Solar or UV energy (Photocatalytic Degradation). SUPEROXY process is a clean and most effective destruction of PFAS and other co-contaminants. SUPEROXY systematically breaks down PFAS and transforms from a toxic hazardous contaminant to Carbon Dioxide, Water, and Fluoride. Titansorb-P (Titanium Dioxide Powder) and Oxydes-P are the key drivers in regeneration process and provide great results even after plenty of regenerations.



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## **ADVANTAGES**

- Effective Removal of PFCs
- Environmentally Friendly
- High Removal Efficiency
- Proven Effectiveness

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- Regeneration and Reusability
- Extended Service Life

#### **RESIDENTIAL APPLICATIONS**

The high capacity of our CATALYTIC CARBON MG adsorber makes it ideal for POU applications that can remove PFOA and PFOS, pesticides such as atrazine and chlorpyrifos, organic synthesis such as bisphenol (BPA), as well as hundreds of Pharmaceuticals compounds, CCMG can be easily integrated into all major categories of POU water filters like faucet mounted, counter top, under the sink and table pitcher products including point of entry for whole house water treatment.





## **COMMERCIAL APPLICATIONS**

Drinking water treatment systems based on Activated carbons at residential and commercial applications are unable to remove micropollutants and harmful perfluorinated compounds from the drinking water facilities. CC-MG adsorber offer an easy and costeffective way to help bringing healthy and clean water to all residential and commercial applications. Point of entry system for whole building water treatment.

#### **INDUSTRIAL APPLICATIONS**

The Mobility, Persistence and widespread use of perfluoroalkyl and polyfluoroalkyl substances (PFAS) have resulted in all municipal and community drinking water systems globally. PFAS were found in the drinking water of more than 1.6 billion citizens in 70 countries and a recent analysis indicates that PFAS - contaminated drinking water is much more widespread than previously reported. These chemicals are "All-over" and "Forever" around us. These toxic chemicals are contaminating everything from food and drinking water even the air around us.



CATALYTIC CARBON MG can be used all type of applications like Municipal and Industrial applications for effective PFAS, PFOS, PFOA removal up to 97% -CATALYTIC CARBON MG.



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## **INCREASE OF ACTIVITY**

CATALYTIC CARBON MG from Watch Water® GmbH was High oxygen on surface of Activated Carbon is the most adsorption capacity. CC-MG takes out these harmful characteristics. compounds from water and makes it safe to drink.

# SURFACE CHEMISTRY

created using a stabilisation process on the already existing important factor which influence its surface characteristics. and successful Catalytic Carbon, which is made using a To achieve these, the surface has to be treated in a very unique surface modification process on the best quality special way. The larger oxygen content the higher the coconut shell activated carbon. Due to this surface hydrophilic character of the carbon surface. Watch Water® modification, the product has very strong PFOA and PFAS treatment gives activated carbon unique acid-base

OPERATING CONDITONS		TECHNICAL SPECIFICATIONS	
Flow Direction	Up-flow or Down-flow	Color	greenish back granules
System freeboard (down-flow)	25 - 35 %	Particle size Mesh size (US)	0.6 – 2.4 mm 8x30
		Surface area	(BET) 2000 – 2500 m <sup>2</sup> /g
Filtration rate	10 – 25 BV/h	Moisture Content	5 % (max.)
Backwash velocity	10 - 20 m/h		
	00 400 ( 400 )	Ball pen hardness	98 % (min.)
Bed depth	80 – 100 cm (max. 120 cm)	Bulk density	640 – 650 kg/m <sup>3</sup>
EBCT	≥90seconds	рН	9.5
*Depending on the contamination load and regeneration frequency, Catalytic Carbon MG can be regenerated using SuperOxy depending on the loaded contaminants. *Pilot test is recommended for industrial applications, wastewater		Expected service life	2 – 5 years *
		Regeneration	Yes *

\*Pilot test is recommended for industrial applications, wastewater treatment and other critical waters.

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Conted Activated Carbon MG*	Standard Packaging				
Conservation for Professionage and the Conservation of the Co	Packging	Weight of product	Quantity/ pallet	Gross Wt./ pallet	
rgen Davis en a by den Ker energi hen den under Bres Transport Information ADR-AGG-WAICKO Mat Regulated Scramatin	bag (30 L	19.2 kg	40	793 kg	
	Bulk Bag (1000 L)	640 kg	1	665 kg	

\* Other packaging can be considered on request





#### Watch-Water® GmbH Fahrlachstraße 14 68165 Mannheim, Germany

<sup>©</sup> Tel. +49 621 87951-0 🗎 Fax +49 621 87951-99 ☑ info@watchwater.de

www.watchwater.de