

FILTERSORB FILTRATION **ADSORPTION** INSTANT PRODUCTS OXY TREATMENT SYSTEMS



# BISOXY-LINER BISPHENOL OXIDATION AND PASSIVATION

BISPHENOL A

C15H16O2

#### INTRODUCTION

Bisphenol-A (BPA) is a hazardous chemical that poses a significant risk when present in drinking water. Existing pipes, particularly those coated with BPA, contribute to the leaching of this harmful substance into our water supply.

#### **BISPHENOLA (BPA)**

ENDOCRINE DISTRUPTION

# -→Ŷ CANCERŶ

BPA leaching from drinking water pipes (Hot & Cold) gives reason for huge concern and reason to solve this issue. There is an immediate need to stop this leaching into drinking water pipes. BPA is a linked to various health issues, including cancer and endocrine disruption Even at very low doses, it is linked to bad health and big environmental problems. Long-term exposure to BPA can have adverse effects on both human health and the environment.

Epoxy & Bisphenol - A Coating



PREMIUM QUALITY MADE IN GERMANY

#### OUR SOLUTION

**Oxidation and Relining of BISPHENOL-A (BPA) coated** hot and cold-water pipes instead of replacing them.

BISOXY-Liner, our cutting-edge solution crafted in Germany to address BPA contamination in pipes provides a sustainable and effective alternative to traditional methods.

#### Relining / Passivation with **BISOXY-LINER**

Our product eliminates the need for pipe replacement by employing a sophisticated process of BPA oxidation and passivation. This innovative approach ensures the reclamation of BPA-coated pipes, offering a cost-effective and environmentally friendly solution.

Forged with precision in German precision, BISOXY provides an unparalleled advantage in terms of efficacy and environmental responsibility. The cornerstone of BISOXY 's prowess lies in its ability to mitigate BPA contamination without necessitating the wholesale replacement of pipes.





FILTERSORB FILTRATION ADSORPTION INSTANT PRODUCTS OXY TREATMENT SYSTEMS



# Bisphenol A (or BPA) causes and impacts on Human Health !!

Bisphenol A (or BPA) is a toxic endocrine disrupting chemical that is released into the environment through modern manufacturing practices.

The major exposure of BPA is through epoxy resin coating used in food containers, Water distribution network pipes,

microplastics, wastewater disposal, cosmetic products. Long term BPA toxicity can adversely affect the physical and neural faculties of offsprings and can cause major health concerns like cancer and diabetes in adults. Below Figure 2 – showing the bisphenols exposure and effects on human health.

## **Bisphenol A : Toxicity, detection and remediation.**



Figure 2 – showing the bisphenols exposure and effects on human health

2





FILTERSORB // FILTRATION // ADSORPTION INSTANT PRODUCTS // OXY TREATMENT // SYSTEMS //



**Oxidation** (Chemistry) is a reaction in which the atoms of an element lose electrons (e-) and the oxidation state of the element increases while **Peroxidation** (Chemistry) is an oxidation reaction especially of an **OXIDE** that produces a **PEROXIDE**.

The main difference between Oxidation and Peroxidation is that **Oxidation** is the combination of **BISOXY** with oxygen while **Peroxidation** is an oxidation reaction especially **MgO**, that produces **PEROXIDE** to destroy **Bisphenols (BPA)** in clod and hot water pipes.

### VERY ADVANCED OXIDATION PROCESS (AOP'S)

**BISOXY** can eliminate very toxic and persistent organic pollutants including BISPHENOL-A. **BISOXY** generate very potent **Reactive Oxygen Species (ROS)**, such as **hydroxyl radicals (OH**<sup>•</sup>) from powder hydrogen peroxide and **sulfate radicals (SO**<sub>4</sub><sup>•</sup>) from **BISOXY** activation. Because this hydrogen peroxide in a powder form, it is more stable and safer for transportation and storage.  $SO_4^{\bullet}$  has an oxidation potential of 2.5 – 3.1v + 2.7v of OH<sup>•</sup> and a long life. Additionally, **BISOXY** activation with Liner (MgO) can be operated at a wider pH range of 8 to 9.

To improve the degradation efficiency of **BISOXY**-**Advanced Oxidation** system, a MgO catalyst is very important. Then advanced oxidation system of MgO activated **BISOXY** degrades BISPHENOL-A and other organic pollutants in a very fast **Modus**. The results of active substance that is OH<sup>•</sup>, SO<sub>4</sub><sup>•</sup> and O<sub>2</sub> produced in **MgO/BISOXY** system contributes greatly to the degradation of **BISPHENOL-A**.

Oxygen ( $O_2^{\bullet}$ ) vacancies and Hydroxyl groups on the surface of MgO accelerate the electron transfer between CO<sup>2+</sup> and CO<sup>3+</sup>, thus improving the cycle efficiency of CO<sup>3+</sup>/CO<sup>2+</sup>



**Degradation rate** of BISPHENOL-A can reach 99.9% in 0.3 minutes using MgO + **BISOXY** system. **BISOXY** based on Sulfate Radicals (SO<sub>4</sub>•) is one of the most effective removal method for Organic BISPHENOL-A pollutant.

Alkaline Metal Oxides such as MgO can build the alkaline sites (Liner/Layer) on the surface of Pipes and form surface bound hydroxides-MgOH. MgOH catalytic activated surfaces are favoured because of its advantages like addition of magnesium in drinking water which is full of energy. magnesium oxide is one of the most important Metal Oxides as a Catalysis. Dehydrogenation-dehydration of BISPHENOL-A







**Magnesium Oxide** is usually classified as a basic support for life. Chemically, an interesting feature related to MgO is that it an irreducible Oxide with a very electropositive Cation (Mg<sup>2+</sup>) and the **Oxygen Vacancies** when formed are indeed anion vacancies with trapped electrons. MgO is an Oxide with a rock-salt structure, which means that on the surface each Mg<sup>2+</sup> is surrounded by five O<sup>2-</sup> ions. Magnesium Oxide Liner is the best Coating of Metals like, anhydrous surface of metal oxides.

BISOXY-LINER is a selective oxidative dehydrogenation of BISPHENOL-A. Catalytic Degradation of Organic BISPHE-NOL-A with MgO.

### CATALYTIC SURFACE

The Catalytic Liner of **MgO** is stable in the temperature range of 90° to 110°. MgO is used as a Catalyst for the dehydrogenation of BISPHENOL-A. MgO has a degree of hydration and Hydroxylation.

**BISOXY** is a finely tuned chemical reaction where atoms within the BPA coating lose electrons, resulting in an increase in the oxidation state of the element. Huge amount of Hydroxy Radicals available on the surface of MgO allows degradation of BISPHENOL-A. **BISOXY** is the Best Technology available in the market to destroy all kind of Organics and BISPHENOL-A.

Disclaimer : The information in this publication is based on reliable data and is provided in good faith, without warranty or performance guarantee, as product use conditions are beyond our control. Watch Water GmbH, Germany, does not offer express or implied warranties, including merchantability or fitness for a specific purpose. Users should assess product suitability and performance with their equipment. Specifications may change without notice. Please note that the filter media in this brochure do not eliminate bacteria. Do not use our products with microbiologically unsafe or unknown-quality water without proper disinfection. Watch Water GmbH, Germany, is not liable for consequential or incidental damages, such as lost profits from





Watch-Water<sup>®</sup> GmbH Fahrlachstraße 14 68165 Mannheim, Germany ᠖ Tel. +49 621 87951-0 ◎ Fax +49 621 87951-99 ◎ info@watchwater.de