

OXYLOCK®

THE WORLD'S FIRST TRUE OXYGEN ELIMINATION TECHNOLOGY

INTRODUCTION

OXYLOCK® is the world's first advanced adsorption-based oxygen elimination system that removes dissolved oxygen to near-zero levels - without chemicals.

Developed by **Watch Water®** Germany, OXYLOCK® represents a complete paradigm shift in water treatment.

OXYGEN IS THE HIDDEN ENEMY OF WATER SYSTEMS

Across the global water treatment industry, dissolved oxygen is the primary cause of:

- ❖ Corrosion in pipelines and heat exchangers
- ❖ Boiler system failure
- ❖ Oxidation of metals and surfaces
- ❖ Microbiological growth acceleration
- ❖ Reduced system lifetime
- ❖ Energy inefficiencies

For decades, industries have relied on:

- ❖ Toxic chemical oxygen scavengers
- ❖ Hazardous dosing systems
- ❖ Inconsistent removal performance
- ❖ High operational costs

INCOMPLETE OXYGEN REMOVAL, ENVIRONMENTAL RISKS, AND LONG-TERM SYSTEM DAMAGE.



APPLICATIONS



Steam Boilers



Power Plants



Industrial Process Water



Oil & Gas Injection Systems



Heating & Cooling Systems



Semiconductor Industry



PREMIUM QUALITY
MADE IN GERMANY

OXYLOCK®

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



**ZERO CHEMICALS
ZERO CORROSION**

SCIENCE & TECHNOLOGY

OXYLOCK® is built on an advanced framework matrix that removes oxygen at a molecular level, going beyond conventional filtration. Its unique material composition generates an internal electrochemical environment for continuous and efficient oxygen elimination. This self-powered technology ensures stable, long-term performance without the need for external energy.

THE CORE TECHNOLOGY: ADVANCED FRAMEWORK MATRIX

OXYLOCK® media consists of a proprietary combination of:

- ◆ MOF (Metal Organic Frameworks)
- ◆ COF (Covalent Organic Frameworks)
- ◆ AOF (Anode Organic Frameworks)
- ◆ Cathodic Functional Structures

These materials create:

INTERNAL ELECTROCHEMICAL CURRENT GENERATION

- ◆ Formation of micro-anode and cathode zones
- ◆ Continuous electron flow within the media
- ◆ Creation of a powerful redox field

HIGH-ENERGY REDOX FIELD

This redox system:

- ◆ Breaks dissolved oxygen molecules (O₂)
- ◆ Converts oxygen into stable bound forms
- ◆ Eliminates oxygen from water completely

OXYGEN LOCKING MECHANISM

Unlike conventional systems:

OXYLOCK® does not just remove oxygen — It locks oxygen permanently

Zero re-dissolution Long-term stability

Continuous performance



VACUUM OXYGEN EXTRACTION EFFECT

OXYLOCK® operates with a micro-vacuum adsorption effect:

- ◆ Actively pulls dissolved oxygen out of water
- ◆ Traps oxygen within the framework structure
- ◆ Prevents re-release



**OXYLOCK® IS NOT
AN IMPROVEMENT**

**IT IS A
REVOLUTION**

ULTRA-HIGH SURFACE AREA

- ◆ Massive adsorption capacity
- ◆ Multi-layered active sites
- ◆ Continuous oxygen capture even at high flow rates

SELF-POWERED SYSTEM

No external energy required:

- ◆ The internal current is generated by the media itself
- ◆ Fully autonomous operation



STOP DOSING TOXIC CHEMICALS

FILTERSORB
FILTRATION
// ADSORPTION
INSTANT PRODUCTS
OXY TREATMENT
SYSTEMS

ANOXIC PASSIVATION & PERFORMANCE

OXYLOCK® introduces Anoxic Passivation, a breakthrough approach that eliminates dissolved oxygen to near-zero levels while creating a protective electrochemical layer on metal surfaces. This process significantly reduces metal reactivity and prevents oxidation, ensuring long-term system protection. By generating its own internal current, the technology forms a stable passive barrier that stops corrosion at its source. As a result, systems achieve higher reliability, extended lifespan, and consistent performance under varying conditions. **OXYLOCK®** also replaces hazardous chemical scavengers, delivering a cleaner, safer, and fully sustainable solution.

WHAT IS ANOXIC PASSIVATION?

A process where:

- ❖ Oxygen is removed to near-zero levels
- ❖ A protective electrochemical layer forms on surfaces
- ❖ Metal reactivity is drastically reduced

HOW IT WORKS

The high electrical current generated by **OXYLOCK®**:

- ❖ Alters surface energy of metals
- ❖ Forms a protective passive layer
- ❖ Prevents oxidation reactions

RESULTS

- ✓ No corrosion
- ✓ No oxygen attack
- ✓ Extended system life
- ✓ Protection of critical infrastructure



PERFORMANCE BENEFITS

- ❖ Near-zero dissolved oxygen levels
- ❖ Immediate corrosion prevention
- ❖ Stable operation under varying conditions
- ❖ No chemical overdosing risk

COMPLETELY REPLACES CHEMICALS

OXYLOCK® eliminates the need for:

- ❖ Hydrazine
- ❖ Sulfite-based scavengers
- ❖ Carbohydrazide
- ❖ DEHA
- ❖ Other toxic oxygen scavengers

THE FUTURE OF WATER
IS ANOXI WITH
OXYLOCK®

OXYGEN IS NO LONGER CONTROLLED
OXYGEN IS ELIMINATED

WHAT MAKES OXYLOCK® UNIQUE?

- ❖ Chemical-free oxygen removal
- ❖ Advanced MOF / COF / AOF hybrid media
- ❖ Built-in electrochemical redox system
- ❖ Ultra-high surface area adsorption
- ❖ Vacuum-assisted oxygen capture
- ❖ Permanent oxygen locking mechanism
- ❖ Creation of Anoxic Passivation Layer

A TECHNOLOGY THE INDUSTRY HAS NEVER SEEN BEFORE

OXYLOCK® is not:

- ⊗ A chemical scavenger
- ⊗ A catalyst requiring dosing
- ⊗ A membrane system

It is a **SELF-ACTIVATING REDOX ADSORPTION SYSTEM** that generates internal electrical current to eliminate oxygen.

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



SYSTEM DESIGN //

OXYLOCK[®] is installed as:



Pressure vessel system



Equipped with control valve (e.g., Clack[®])



Designed for continuous flow operation

OPERATION //

- No chemical dosing
- Minimal maintenance
- No complex controls
- Long media life

GLOBAL IMPACT //

OXYLOCK[®] is set to redefine:

- Water treatment standards
- Industrial corrosion protection
- Environmental sustainability

THE FUTURE OF WATER IS OXYGEN-FREE



OPERATING PARAMETERS //

Flow direction	Up-flow (packed bed) and Down-flow
System freeboard (down-flow)	25 - 30 %
Filtration rate	10 - 20 Bv/h
Backwash velocity	10 - 20 m/h
Minimum depth	80 cm
EBCT	≥ 90 seconds

TECHNICAL PARAMETERS //

Technology Type	OXYGEN ELIMINATION TECHNOLOGY
Appearance	Granular, Dark Grey/Black
Granule size	0.6 - 2.4 mm
Mesh size	8 x 30
Bulk density	Approx 520-530 g/L



Standard Packaging

Packaging	Weight of product	Quantity/ pallet	Gross Wt./ pallet
Bag (30 L)	15.7 kg	40	653 kg

★ Other packaging can be considered on request

