

# KATALOX LIGHT®

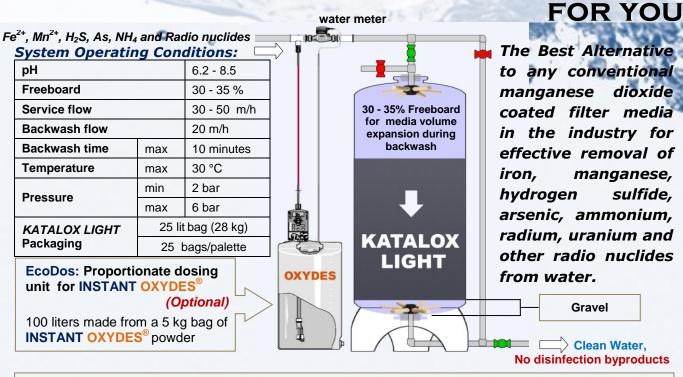
# ADVANCED CATALYTIC FILTRATION MEDIA

**F**e<sup>2+</sup>(ferrous) **M**n<sup>2+</sup>(divalent) **H**<sub>2</sub>S(hydrogen sulfide) **S** (elemental sulfur) As3+(arsenite)

**F**e<sup>3+</sup>(ferric) Mn<sup>4+</sup>(tetravalent) As<sup>5+</sup>(arsenate)

**F**eO (ferrous oxide)  $Fe_2O_3$  (ferric oxide)

# WATCH® MAKES THE SYSTEM



KATALOX LIGHT® System in Continuous Regeneration (CR) mode

#### General

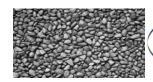
Katalox Light® is a revolutionary high surface media provides the best method for removing contaminants primarily Metals from water for residential, industrial, commercial and specially for bottled water industries where the treated water is used for drinking, cooking and make food and beverage products. Katalox Light® the most suitable filter for pretreatment of ion-exchange and membrane applications. Katalox Light® filters are used for industrial applications such as cooling towers, heat exchangers and all water reserving tanks. Katalox Light® utilizes a combination of best filtration media and a catalyst that is manganese dioxide. Mechanical pre-filtration is not required as done with all other manganese filters.

# INSTANT

# **OXYDES®**

## **REVOLUTION:**

Watch<sup>®</sup> has developed an OXYDES® to kill microorganisms, bacteria and viruses which cause serious illness and deaths. Stabilized OXYDES® should be fed at least 5 - 20 seconds upstream of Katalox **Light**® Filter. H<sub>2</sub>O<sub>2</sub> generated from mixing **INSTANT OXYDES**<sup>®</sup> in water will destroy all bacteria and viruses and degrade in seconds on the surface of Katalox Light® catalyst and the filtered water will have ZERO Disinfection byproducts (DBP).







Water with contaminants (Fe, Mn, H<sub>2</sub>S, As, Rn, Ra, U)

What is Katalox Light®?

**Katalox Light**<sup>®</sup> is granular with a natural Zeosorb<sup>®</sup> and very specially processed and coated media that can filter particles as small as 2-3 microns. It generally falls under the category of "Coated Zeosorb<sup>®</sup>" with manganese dioxide. It is not a resin or plastic or sand product. All components are NSF Certified to ANSI/60-61 standards. Watch Water **Katalox Light**<sup>®</sup> media is the most effective and economical Filtering media and Heavy Metals

#### **ADVANTAGES:**

- Higher Filtration rates
- High removal capacity of Iron, Manganese, H<sub>2</sub>S, Arsenic and other heavy metals
- Media replacement every 10-12 years
- Reduced foot prints, reduced space

removing media in the market today.

- No disinfected by-product
- No KMnO<sub>4</sub>, chlorine or chlorine dioxide dosing.
- Low operational costs
- Unique product, unmatched by our competitors
- Low electricity or pump costs
- Low sewage costs

# **Turbidity Removal & Filtration**

**Katalox Light**<sup>®</sup> System effectively remove turbidity from surface water, ground water and any waste water is coated with Manganese dioxide. The **Katalox Light**<sup>®</sup> granules have an angular shape, rough high micro-porous surface to filter water down to 2-3 microns. The rough surface and very high porosity provide a huge surface area for efficient reduction of dirt, silt and suspended solids.

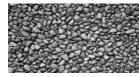
**Katalox Light**<sup>®</sup> structure creates very less pressure loss, high service and flow rates and high bed loadings combined with lower back wash frequency.

**Katalox Light**<sup>®</sup> System for Arsenic, Iron, Manganese,  $H_2S$  and other metal removal is a simple system that needs no potassium permanganate (KMnO<sub>4</sub>) or chlorine.

**Katalox Light**<sup>®</sup> filters can be operated at the flow rate of 50m/h (20 gmp/sq. ft) with a single pressure vessel with and it requires only 10 minutes backwash time with the flow rate of 20 m/h (8 gpm/ sq. ft).

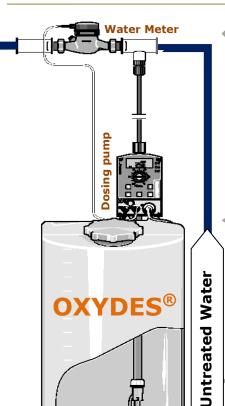
Treated water enriched with 0<sub>2</sub>

Only 30% freeboard is sufficient for expansion of the liaht weiaht KATALOX media **Operating Conditions Inlet pH:** 6.2 - 8.5 Flow rate: 30 - 50 m/h Pressure: 2 - 6 bar Temperature: 5°C Minimum: Maximum: 60°C **Bed Depth:** 80 cm Minimum: Optimal: 120-150 cm Backwash Flow rate: 20 m/h Temperature: 5°C Minimum: Maximum: 60°C Time (max): 10 min **Backwash Conditions** Backwash









**Dilution Tank**Dosing solution made from **INSTANT OXYDES** 

# INSTANT OXYDES® In Drinking Water The Best Choice

**INSTANT OXYDES**<sup>®</sup> is an EPA approved and NSF/ANSI 60 certified bactericide used for treating biological contamination and bacteria in drinking water systems and reservoirs. The oxidation chemistry of **INSTANT OXYDES**<sup>®</sup> in obtained by the use of stabilized hydrogen peroxide (also called hydrogen dioxide) to provide the most environmentally safe oxidizers as an alternative to chlorine based products.

# **Combat offensive Taste and Odor**

Residential, commercial, municipalities and all process water organizations responsible for portable drinking water know how quickly and easily unpredictably bacteria can result in taste and odor complaints from their customers. The oxidative chemistry of **INSTANT OXYDES**<sup>®</sup> neutralizes these compounds to reduce and chemicals customer complaints.

# **Hydrogen Sulfide Abatement:**

**INSTANT OXYDES**<sup>®</sup> oxidizes and eliminate toxic and corrosive hydrogen sulfide (H<sub>2</sub>S) odors. When Hydrogen Sulfide is not oxidized it changes into sulfuric acid, you can see the changes of corrosion on every equipment and facilities. **INSTANT OXYDES**<sup>®</sup> helps to eliminate H<sub>2</sub>S and other bacteria including toxins and its important, without leaving other dangerous by-products.

# **Properties:**

Name	INSTANT OXYDES®			
Applications	Substitute to			
Bulk Density	0.8 - 1.05 g/cm <sup>3</sup>			
Active Oxygen	17%			
Moisture	20% (Max.)			
pH Value (3% solution)	10.2 (approx.)			
Containes	Stabilizer*			
* INSTANT OXYDES® is always sold as powder with Stabilizer to maintain the				

stability of the **Biocide** chemical.

# Alternative to oxidizing filters:

Filters such as Manganese Greensand filters, Greensand plus filters, Catalox or Pyrolox filters require significant maintenance including frequent regeneration with a potassium permanganate solution as it is consumed during oxidation of the dissolved metals. In addition it needs so much water, pumps and high backwash to remove oxidized iron and manganese particles. The potassium permanganate solution or chlorine solution used for regeneration is highly toxic and must be handled and stored in a safety room with care.

Compared to all conventional systems, Watch **Katalox Light**<sup>®</sup> requires less backwash, easy handling and removes more impurities than old technologies.

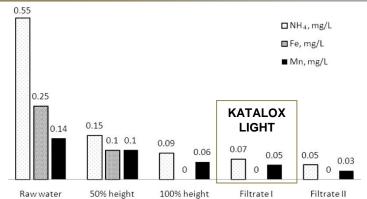
**Note:** Katalox Light® is a combination of <u>oxidizer</u> and <u>filtration</u> in one unit, it is may be the best options for managing lowest levels of any impurities including iron and manganese.



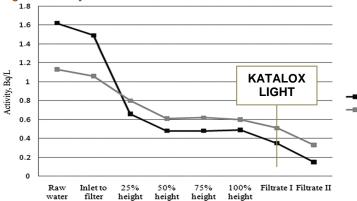




# **Case Study**

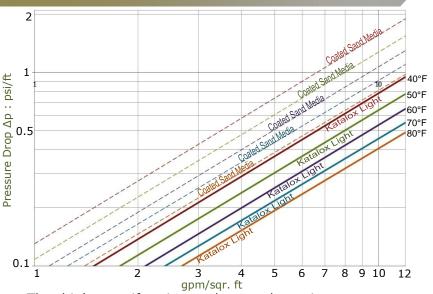


Changes in ammonia, total iron, and manganese content in the twostage filtration system.



Changes in the radioactivity of water treated with Katalox Light

# **Pressure Drop**



The higher uniformity and smooth grains assures a lesser pressure drop during the operation that is at least 60% lesser than any other sand based media. The logarithmic graph shows the pressure difference between  $MnO_2$  coated sand media (dashed lines) with **Katalox Light**<sup>®</sup> (thick lines with corresponding colors) in different water temperature.

(Please visit our website for more information)

# **Technical Data**

# **Composition of KATALOX LIGHT®:**

Compounds	Typical value	Specifications
ZEOSORB (Naturally Mined)	80%	>80%
MnO <sub>2</sub>	15%	>14.5%
CaO	4%	<3.5%

## **Physical Properties:**

Filysical Froperties.								
Appearance	Appearance		Dark brown beads					
Odor		none						
Mesh size		US	14 x 30					
		SI	0.6 - 1.4 mm					
Uniformity Coefficient		≤ 1.75						
Dulleuraialat	Dullermalalet		68.67 lb/ft <sup>3</sup>					
Bulk weight		SI	1.1 kg/l					
Moisture Content		<0.5% as shipped						
for Fe		<sup>2+</sup> alone	3000 mg/l 85000 mg/ft <sup>3</sup> (aprx)					
Capacity	for Mn	<sup>2+</sup> alone	1500 mg/l 42500 mg/ft <sup>3</sup> (aprx)					
	for H <sub>2</sub> S alone		500 mg/l 14000 mg/ft <sup>3</sup> (aprx)					

### **Recommended System Operating Conditions:**

Inlet water pH		6.2 - 8.5	
Freeboard		30 - 35%	
Min. Bed Depth	US	31.5 inches	
	SI	80 cm	
Optimal Bed. Depth	US	47 - 59 inches	
	SI	120 - 150 cm	
Service flow	US	12 - 20 gpm/ ft <sup>2</sup>	
	SI	30 - 50 m/h	
Backwash flow (min.)	US	6 - 8 gpm/ ft <sup>2</sup>	
	SI	15 - 20 m/h	
Backwash time (maximum)		10 minutes	

### Regeneration/Dosing

Continuous regeneration						
	for 1.0 mg/l of	Fe <sup>2+</sup>	0.9 mg/l			
OXYDES <sup>®</sup>	for 1.0 mg/l of	Mn <sup>2+</sup>	1.8 mg/l			
	for 1.0 mg/l of	H <sub>2</sub> S	4.5 mg/l			
	for 1.0 mg/l of	Fe <sup>2+</sup>	1.0 mg/l			
KMnO₄/CI	for 1.0 mg/l of	Mn <sup>2+</sup>	2.0 mg/l			
	for 1.0 mg/l of	H <sub>2</sub> S	5.0 mg/l			

## Advantages of **INSTANT OXYDES**®:

- Cost effective and alternative to potassium permanganate and chlorine
- No dangerous by-products like chlorine and chlorine dioxide
- INSTANT OXYDES<sup>®</sup> is EPA registered and NSF/ANSI standard 60 certified.