



FERROLOX - LIGHT®

Granular FERRO-HYDROXIDE HIGH ADSORPTION

Part I

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INTRODUCTION



FERROLOX - LIGHT®

Granular FERRO-HYDROXIDE HIGH ADSORPTION



Manufactured By:

WATCH GmbH

Fahrlachstrasse 14
Mannheim, Germany

- ✓ ARSENATE
- ✓ ARSENITE
- ✓ PHOSPHATE

It can also be applied for removal of

- ✓ FLUORIDE
- ✓ MOLYBDENUM
- ✓ SELENIUM
- ✓ ANTIMONY

And water purification up to 3 - 5 micron

TECHNOLOGY



Iron (**Ferro**) is one of the most widespread elements in the earth. The convenience of resources and ease in synthesis render **FERROLOX-LIGHT**[®] to be the most environment friendly and low-cost adsorbents for its high capacity performance to remove Arsenic and phosphates in water. The adsorption is based on Langmuir-Adsorption-Isotherm, where the electrostatic interaction is involved in the adsorption capacity between **95 mg/L** and **60 mg/L** respectively. The arsenate adsorption is largely related to the iron (**FERRO**) content of Adsorbent.

The adsorbed arsenic on granular **FERROLOX-LIGHT**[®] can be easily removed by **FERROSALT** which is acidic regeneration treatment, resulting in an Arsenic removal rate of 99%. Regeneration super clean acid washed **FERROLOX-LIGHT**[®] with a high specific surface through an environment friendly **Desorption route**.



FERROLOX-LIGHT® : Coated ZEOSORB with Ferrohydroxide having a porosity of 85% and specific surface area of 325 – 350 m²/g

Material Properties:

ZEOSORB Content:	40%	
Active Ferrohydroxide:	60%	as Fe(OH) ₃
Adsorption Capacity(m/m):	56 g/kg	Arsenic
	28 g/kg	Phosphorous



THE BIGGEST ADVANTAGE!

Life of the Media is between 5-7 years because

ALL

CONVENTIONAL ADSORBENTS CAN NOT
BE – DESORPTED OR REGENERATED



Disposal of the contaminated Adsorbent media is the biggest problem as it's not safe. The disposal technique is not appropriate for all facilities because of very high cost and need very well trained operators



The Advantages of this **NEW FERROLOX-LIGHT®** is so many!

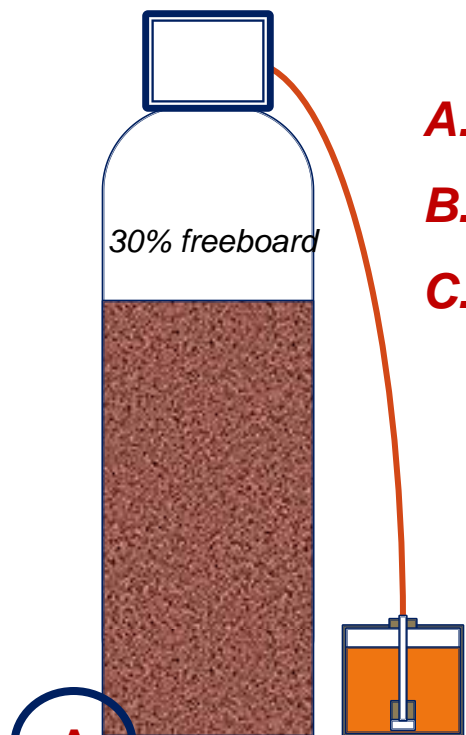
- **FERROLOX-LIGHT®** can remove both As(III) and As(V) without using any oxidants, acids or can be influenced by competitive ions.
- The **FERROLOX-LIGHT®** is a very strong media and can be regenerated with almost very less concentrate which is very easy to dispose.
- Disposal of spent regenerant is collected in Disposal Cartridge which is low cost and easy for all system operators. This is absolute **Green Technology!**
- **FERROLOX-LIGHT®** is fast in adsorption process. It takes only a few seconds to occur.

ABC of The Complete System



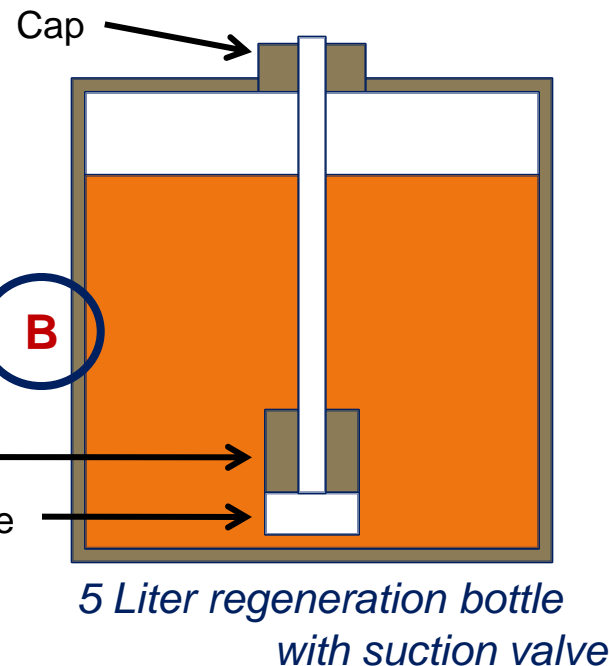
Regeneration once a Year!

- A. FERROLOX-LIGHT System**
- B. 5-500 liters regenerant vessel**
- C. 500 g – 5 kg Pouch**



A System FL-1354-AUT
3 ft³ (84 L) **FERROLOX-LIGHT**

160 grams of **FERROSALT** for
1 ft³ (28 L) of **FERROLOX-LIGHT**®



C



INSTANT FERROSALT
Granules



Regeneration



WATCH® has discovered this revolutionary

Regeneration Process with a very high efficiency and with very simple operation. Its without any involvement of chemical reaction. It's safe technology to ensure the maintaining of maximum-contaminant level up to zero all the time and it is a very simple method. All adsorption

METHOD OF REGENERATION OR DESORPTION



Operating Process



Granular **FERROLOX-LIGHT**[®] Systems are fixed bed adsorbent systems operating like conventional water softeners in a down-flow mode. Mode of operations are **1. Service**, **2. Backwash** and **3. Fast rinse** and **4. Ferrosalt regeneration** once in a year. This is a unique technology with a combination of high Arsenic and Phosphate removal efficiency of the ADSORPTION process with a very simple regeneration of the fixed bed system.

This technology is most reliable, economical and also most effective as far as the efficiency in eliminating Arsenic or Phosphate from any source of water is concerned. Watch Water has designed a **SPECIAL VALVE** for all rural areas in the world to do a very simple regeneration of the system, as well as for very large scale systems for towns with community water works.

Pressure Vessel Systems



WATCH® offers FL systems to fit in all type of needs



Handheld
Backwash valve
Systems

Fully-Automatic
Systems

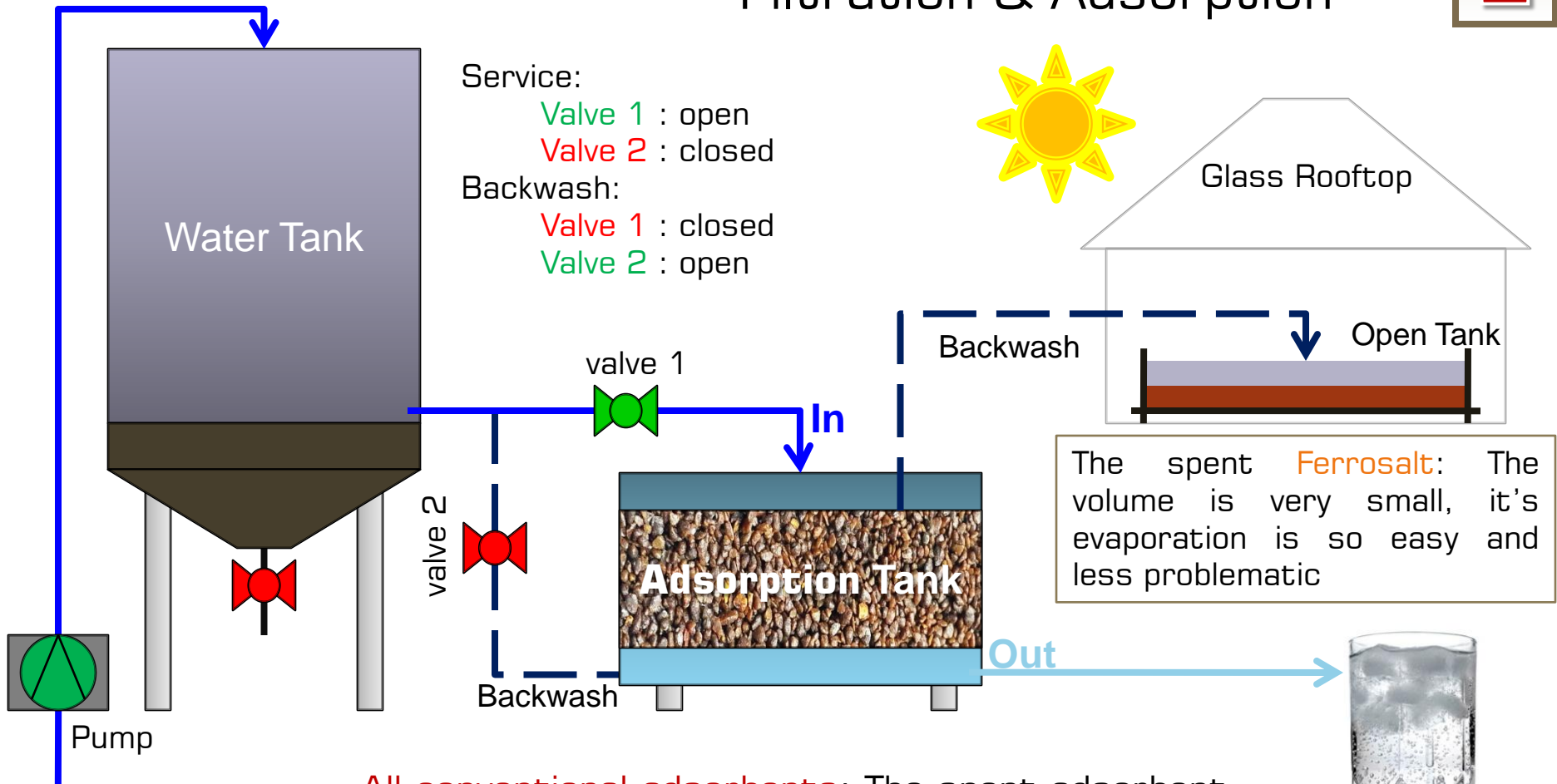


Municipal applications for Process water and
Drinking Water

Gravity Easy-to-Install Systems



Filtration & Adsorption



All conventional adsorbents: The spent adsorbent are toxic and hazardous solid waste. Its volume being very large, its disposal is a big concern and problematic (read more).

Granular Ferrolox-Light



Granular **FERROLOX-LIGHT**[®] is very rich coated ferrihydroxide process manufacture from a dry ferric-oxide as there is no water involved in this process all the pores of Zeosorb are completely filled with ferrichydroxide, leading to a very high surface area and thus to the highest adsorption capacity. The main application of is the adsorptive removal of Arsenate, Arsenite and phosphate from surface water, well water including wastewater. It can also be applied for the removal of other dissolved substances in water such as fluoride, molybdenum, selenium, antimony, lead and copper.

Ferrolox-Light



Manufactured Ferrichydroxide having a porosity of 85% and specific area of 325 – 350 m²/gram



Physical data

Appearance	Dark Red granules
Grain size	0.8 – 1.5 mm
Bulk Density	1.02 kg/L
Porosity	82 – 87 %
Specific surface	325 – 350 m ² /gram

Benefits



FERROLOX-LIGHT	Benefits
Low regeneration temperature	<ul style="list-style-type: none">▪ Reduced energy consumption▪ Lower operation costs▪ Minimal hydrothermal aging
Granular Bead Shape (0.8 – 1.5 mm)	<ul style="list-style-type: none">▪ Low pressure drop▪ Low backwash water▪ Reduction of energy and operation costs
Long-life 5 to 7 years	<ul style="list-style-type: none">▪ Decreased adsorbent replacement▪ Decreased expense▪ Lower service and operational costs
Large specific surface area	<ul style="list-style-type: none">▪ Large adsorption capacity▪ Low contamination level▪ Increased service life
Low bulk density/high loading capacity	<ul style="list-style-type: none">▪ Reduction of plant size▪ Increased capacity of existing equipment▪ Improved operational benefits due to once a year regeneration.

Thanks for reading!