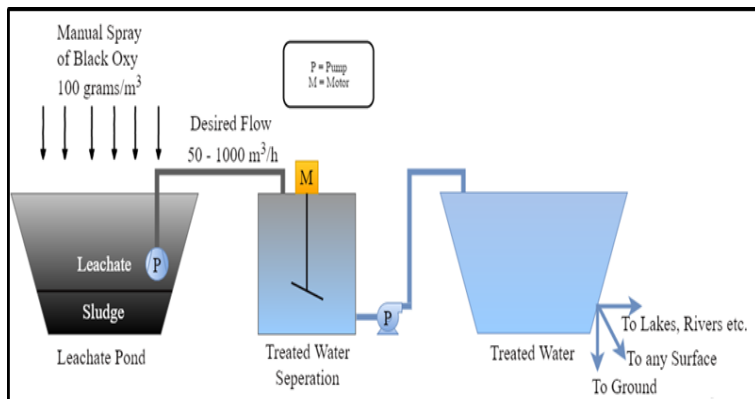


BLACK OXY

LEACHATE BLACK OUT



Advantages of Filtration

- **No First Filtrate** – always clean effluent of a high quality
- **No interruption** of the operation for backwash
- **No waste water** storage tank
- Surpass strict **environmental discharge standards**
- **Low energy** consumption
- **Small footprint**
- The system is **easy to construct** and **easy to maintain**.

How easy it is

to treat this most dangerous of liquids "Leachate"...

Great Benefits

Watch Water REDOXY-3C and Blackoxy are designed to be directly inject into the contaminated water or surface or sludge and Soil, eliminating expensive systems, system design, capital and operations cost. Systems such as suction of the product and spray is not time intensive and are not expensive. Applying these products to the subsurface is fast and easy. Results can be observed in just few days but not later than one week.

Environmentally the safest

Both products Redoxy and Blackoxy are nontoxic, food grade materials designed with Green chemistry consists of chemicals that degrade after use.

Blackoxy is a combination of two different watch water chemistries. Black is an activator which has to be added before use with oxy. When the activator is added to the oxy, it starts the Reaction kinetics, these increased kinetics help to generate a Radical Oxidation process to destroy all Contaminants of Concern (CoC). This combination has a very strong and high oxidation potential. Addition of Black (activator) converts the oxy anion into Sulfate Radicals (Radical Oxidation), these radicals are much more stronger than Redoxy with kinetics are analogous to "Fenton's chemistry", where RED is added to oxy based on hydrogen peroxide in order to form stronger, kinetically taste radicals to clean Drinking water, Surface water, Wastewater including rivers, lakes and ponds.

Not one Activator chemistries are available that can form such an Aggressive Sulfate Radicals (ASR) then watch water Blackoxy which is a combination of Activated carbon, Metal chelates, and high pH. Black generates Oxy activation and this process starts contaminants destruction. Oxy is an advanced chemical oxidation technology designed to treat Leachate contaminants including high concentration of organics, it can be used on a wide range of contaminants in both Leachate and Landfill.





SO EASILY TO TREAT THIS MOST DANGEROUS OF LIQUIDS "LEACHATE"

Introduction

Two-stage Treatment of Landfill Leachate is named **BLACK OXY-L** by **Watch-Water[®]** Mannheim, Germany. Every Landfilling of waste leads to the production of Leachate which usually has a very high BOD and COD together with high amount of Heavy metals, Inorganics and organic halides. Leachate contains high amount of Nitrogen, Phosphates, Ammonia and Hydrogen Sulfides. All these above contaminants make the color of water Black and Jet Black. Many factors determine the quality and composition of Leachate-waste types, disposal methods, construction and the age of the

landfill and climatic/seasonal effects being amongst the most important

All leachate waters need a treatment before/prior to discharge into surface waters. The most suitable treatment method varies with leachate composition and required discharge standards. **BLACK OXY-L** manufactured by **Watch-Water[®]** is Made-to-Treat-Leachate technology, which can be used as **Overall Treatment** to meet the requirements of every landfill site in the world.

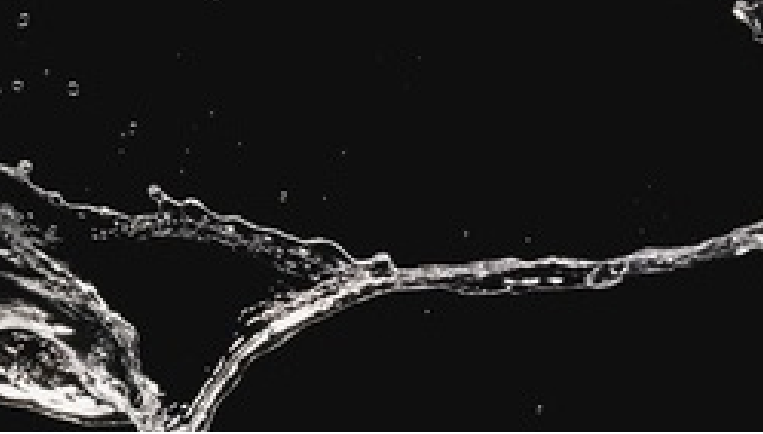
BLACK OXY Features

- Reduces BOD & COD
- Reduces all Pollutants and contaminants
- Meets local water discharge legislation
- Treat all types of leachate
- Most cost effective technology with minimum space requirement

BENEFITS

- One step BlackOxy mixing Black + Oxy onsite treatment reduce costs treat all kinds of Leachate without pre-treatment, reduce costs.
- Treat all kinds of Leachate with pre-treatment
- Very simple, very safe
- Reduce Ammonia and Hydrogen sulfide smell
- Lowest operating costs for Leachate treatment
- The only true zero Liquid Discharge Technology
- Treat Organics and Inorganics in the same process
- Treat industrial wastewater
- 100% Biological treatment, with nitrification/denitrification process, generation of harmless, organically-based Oxygen and Nitrogen forms
- Membrane Technology is an Unjustified waste of money
- And high concentrates of Reverse-Osmosis organic strengths can persist for at least several decades





Why leachate is so black?

When leachate is black, it smells strongly. Its strong smell is related to **Methanogenic** landfill, or an old landfill which has passed through its **Methane** producing state. Before this state there are many odor producing **Volatile Fatty Acids** present in the leachate, and a Hydrogen Sulfide (Bad Egg Smell) is notable. The Methanogenic phase will then continue for a very long period of time. The Methane generation rate rises to a peak, and then tails off. During this period the Ammoniacal Nitrogen

concentration which rises in the Acetogenic stage will not diminish and been seen to rise if the leachate produced is not fed by enough oxygen. To rush this process a Catalyst is needed.

Black → A Catalyst
Oxy → Pure Oxygen

Watch-Water[®] suggests, once **BLACK OXY** is applied to leachate and landfills with sufficient **BLACK OXY** all of them will become harmless, and can be allowed to discharge into the environment.

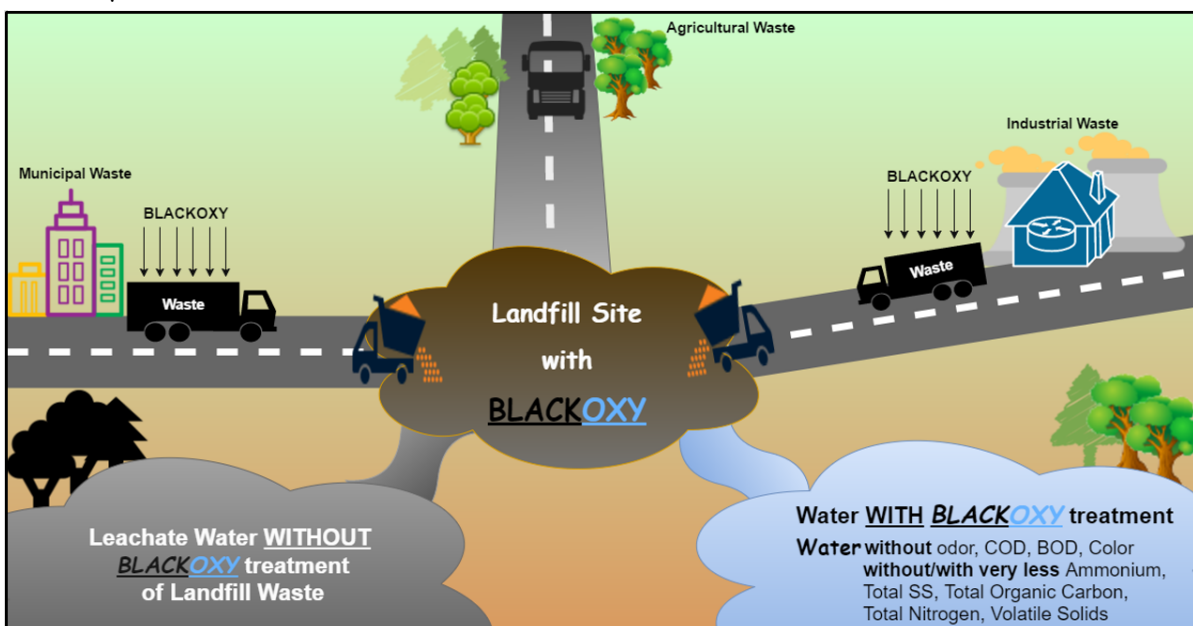
"Leachate treatment by Black-Oxy is the most cost effective and successful technology"

Watch-Water[®] Expert View

Our expert view is that although the potential for serious pollution impacts from landfill leachate will be reduced by BlackOxy to 90% in next three years, volume of the waste being landfilled every day will increase and all the benefits will be reduced. So it's very important.

In true pre-processed landfill municipal waste should be treated in advance, and as the hard COD is extremely difficult to treat later it will be treated at the delivery of landfill waste at landfill discharge without high manpower costs. Doing this, the problem of future groundwater pollution is solved by BlackOxy.

So, as with all the benefits of the very expensive waste processing from the past now being reduced by Watch-Water[®] to less than one third, which will reduce all taxpayer billions of pounds annually, treatment of Landfill Leachate or any waste processing based on the Watch-Water[®] Blackoxy is completely justified and very likely the only solution and no waste of money.



RED-OXY TREATMENT

FILTRATION

KATALOX LIGHT
 CRYSTOLITE

ADSORPTION

CATALYTIC CARBON
 TITANSORB
 FERROLOX

FILTERSORB

FILTERSORB CT
 SORBEX
 FILTERSORB SP3
 SPECIAL FILTER

INSTANT PRODUCTS

ISOFT CHEMICALS
 OXYDES
 OXYDES-P
 OXYSORB
 BIOXIDE
 SCALE-OVER
 GREEN-ACID



When landfill waste degrades and rain rinses the resulting product out, Leachate is formed. This black liquid contains organic and inorganic chemicals, heavy metals as well as pathogens; This "dangerous" black liquid can pollute the surface water, ground water and therefore represents a health risk.

**A BIOLOGICAL
 PROCESS**

"Leachate treatment by BLACK OXY is the most cost effective and successful technology"

**Satisfied with our
 Revolution in Leachate
 treatment? – Think Again.**

Treatment of wastewaters by using BlackOxy

NO	Type	Contaminants	Keyword
1	Municipal Wastewater	Ammonia	92%
		Total SS	95%
		BOD	99%
		COD	85%
2	Landfill leachate	COD/BOD	80%
		Ammonium	60%
		Phosphate	68%
		Total Nitrogen	95%
3	Textile Efferent	Total Organic Carbon	75%
		Color	95%
		COD	80 to 90%
4	Tannery Wastewater	COD	90%
		Ammonia	85-90%
		Volatile Solids	70%

Using **BLACK OXY** will immediately end the Methanogenic Phase, air will again penetrate into the landfill waste mass and there will be a return to Aerobicity. **Watch-Water**[®] suggests that the liability on future generations **Spray-Mix and Filter** the leachate from large Landfills for a very long period with success.

Vomiting of Leachate (Pass)

This should immediately raise a Red Flag in the minds of Landfill operators that Reverse Osmosis cannot hold back the contaminants in the landfill. Throwing up, (Vomiting of concentrates). Recirculation of RO concentrate will always return the salinity back into the waste. So it is explained as follows. Long-Term Recirculation of leachate from Reverse Osmosis treatment is not at all a suitable technology.

To know and learn more about this huge potential of **BLACK OXY** please contact us: