



# INTEROX® Hydrogen Peroxide

## Applications

INTEROX® Hydrogen Peroxide is an **oxidant** commonly employed to degrade many toxic organic compounds, mostly involving the **generation of the hydroxyl free radical** which is a short lived but very **powerful oxidizer**.

- Fenton's Reagent involves the combination of hydrogen peroxide with an iron salt and an acid to reduce pH.
- Modified Fenton's Chemistry uses INTEROX® Hydrogen Peroxide with an iron salt or chelate without acidifying to a low pH.
- INTEROX® Hydrogen Peroxide can be injected in the soil with no other additives.

INTEROX® Hydrogen Peroxide can also be used to **enhance aerobic biodegradation** by injecting a very dilute solution. Concentrations used for enhanced bioremediation are between 0.5 – 6% by weight. Oxidation projects using INTEROX® Hydrogen Peroxide have also the additional benefit of enhanced biological activity after the first oxidation step.

The most common pollutants that can be treated with INTEROX® Hydrogen Peroxide include :

- **BTEX** (benzene, toluene, ethylbenzene and xylene)
- **MTBE** (methyl tertiary butyl ether)
- **TPH** (total petroleum hydrocarbons) from **light and heavy fuel oils**
- **Non-halogenated volatile solvents** such as methylethylketone, methanol, ethanol, acetone, ethyl acetate, acetonitrile, tert-butyl alcohol (TBA), etc.
- **Phenols** such as phenol and cresols
- **PAH's** (polycyclic aromatic hydrocarbons) such as naphthalene and methylnaphthalenes
- **Some halogenated compounds** such as vinyl chloride (VC), chlorobenzenes, pentachlorophenol (PCP), etc.

## Strengths

INTEROX® Hydrogen Peroxide is both a **very powerful oxidizer** under concentrated solutions and a **source of oxygen** able to enhance bioremediation under diluted solutions. The decomposition of hydrogen peroxide alone produce only oxygen and water.

## Technical Information

**Formula :** H<sub>2</sub>O<sub>2</sub>

**CAS Number :** 7722-84-1

**Molecular Weight :** 34.01

## Physical Properties

Item	Typical Properties		Item	Typical Properties	
Appearance	Clear colourless liquid		Concentration in water, % w/w	35	50
Concentration in water, % w/w	35	50	Active oxygen, g/L	186	281
Active oxygen, g/kg	165	235	Specific gravity @ 20°C	1.131	1.195

\* Active oxygen is the amount of oxygen available for oxidation. Every molecule of hydrogen peroxide provides one active oxygen

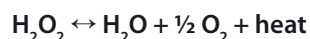
Aqueous commercial concentrations of INTEROX® Hydrogen Peroxide include 35 and 50% w/w concentration. These must be diluted with clean water to more appropriate concentrations before injection in the soil.

Solvay  
Chemicals

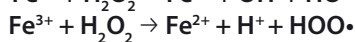
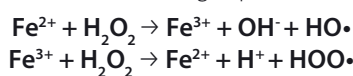


## Chemical Properties

INTEROX® Hydrogen Peroxide decomposes exothermally to water and oxygen with no toxic residues.



Fenton's reaction works after addition of the iron and INTEROX® Hydrogen Peroxide, which react together to generate some hydroxyl radicals as it shows in the following equations :



## Certificates

The production facilities and sales organisations of INTEROX® Hydrogen Peroxide are ISO Certified.

## Availability

INTEROX® Hydrogen Peroxide is sold in concentrations of 35 %, 50 %, 60 % and 70 % and is available in bulk truck, railcar from our different plants in Europe. IBC and drums are also available up to 60 % concentration.

## Storage and Handling

- Store INTEROX® Hydrogen Peroxide in the original vented container, upright, in a cool, ventilated area where it is protected from damage or in bulk storage tanks made from approved alloys of aluminium or stainless steel.
- Do not store other chemicals, fuels, or combustible materials near INTEROX® Hydrogen Peroxide.
- Never return unused INTEROX® Hydrogen Peroxide to the storage container.
- Use only approved material for pumps, piping, and hoses.

## Safety

- Persons working with INTEROX® Hydrogen Peroxide should be familiar with personal protective equipment, first aid measures and the proper safety and handling procedures. Consult the Material Safety Data Sheet (MSDS) for appropriate information.
- Fast decomposition of INTEROX® Hydrogen Peroxide will generate oxygen release and pressure build-up.

### SOLVAY CHEMICALS

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