

Potassium Hypochlorite - KOCI



ENVIROTECH

The logo for ENVIROTECH features the company name in a bold, sans-serif font. 'ENVIRO' is in dark blue and 'TECH' is in a lighter blue. The text is enclosed within a blue oval shape that has a slight 3D effect with a darker blue shadow on the bottom. A horizontal line in dark blue extends from the left side of the oval across the slide.

ENVIROTECH

- Began in 1991 to service the food processing industry in the Central Valley of California
- Specializing in EPA and FDA regulated chemical products especially for Food Safety and Water Treatment
- Basic manufacturer of proprietary peracetic acid and bromine products and in the near future KOCI
- Awarded 6 US patents, several more pending



- Full-Scale R&D, Technical Support, QC Laboratories (9 full-time lab employees)
 - FDA GMP and EPA GLP Compliant
 - New Product Development
 - Microbiology
 - Process Improvement
 - Customer Technical Services



Introduction

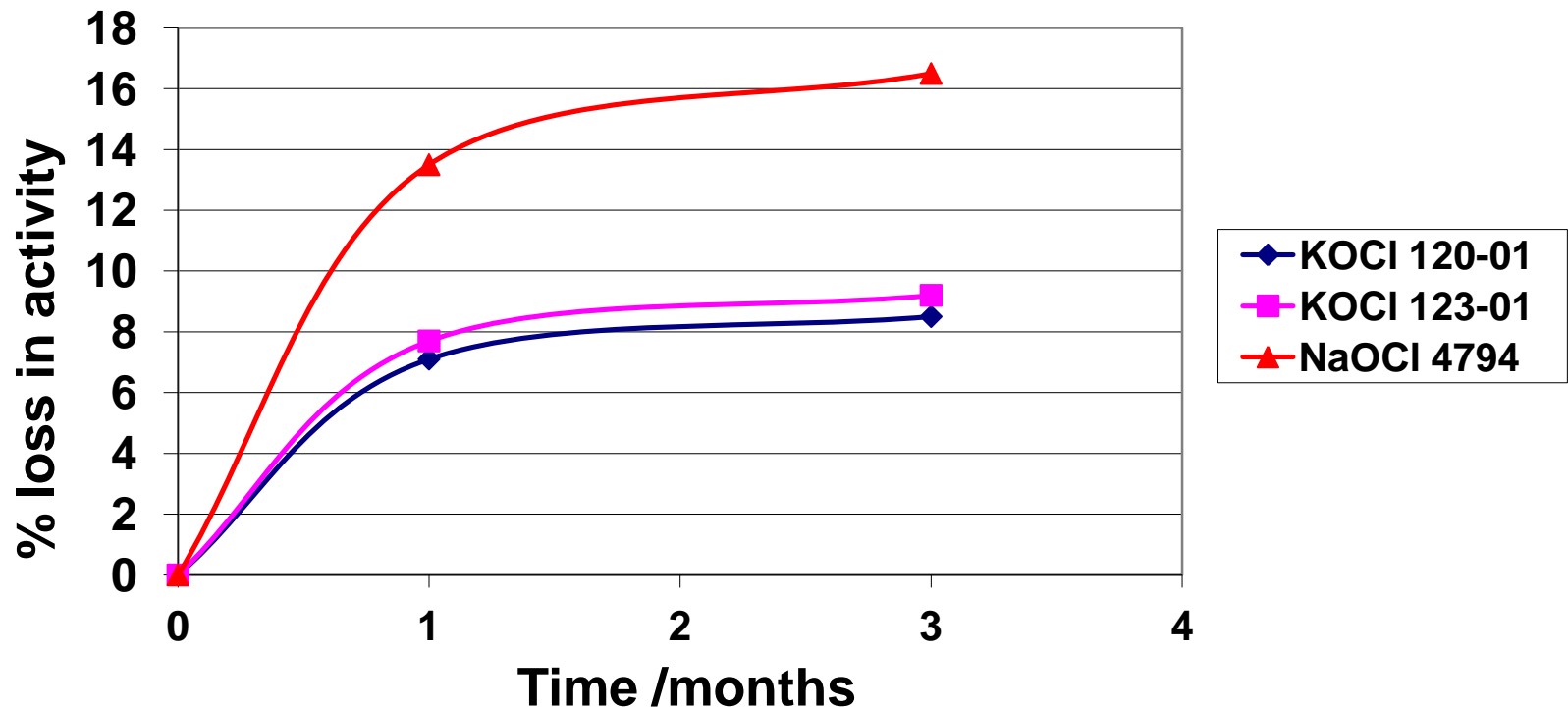
- **Excessive sodium ions have no beneficial qualities when added to either land or water masses.**
- **Many wastewaters have sodium ion limitations if used for irrigation (soil sodicity)**
- **Particularly in the Western States, potassium salts are gaining popularity over sodium salts as being more environmentally-friendly or “green” in I&I uses**

Comparison NaOCl vs. KOCl

	NaOCl	KOCl
% Active	12.5	12.5
% Available Cl₂	11.9	9.8
Color	Pale Yellow	Pale Yellow
Density	10.1 lb/gal	9.75 lb/gal
lb Na⁺/Gallon	0.78	0
lb K⁺/Gallon	0	1.05
As K₂O	0	13%
EPA Status	Approved	Approved
Disinfection By-products (DBPs)	NaCl & Oxidized Organics	KCl & Oxidized Organics
Storage Stability	See Chart	See Chart
Field Test Kit Available	Yes	Yes

KOCl – Characteristics (submitted to EPA)

- % Loss in Activity over Time



KOCl - Characteristics

- 12.5% KOCl
- 16% Improved storage stability in first 3 months compared to 12.5% NaOCl
- KOCl is a new EPA approved active ingredient
- 10 year exclusive on EPA registration from March 2011

Enviro Klor - EPA & FDA Registered Uses

- ***KOCl*** ***EPA Reg. No. 63838-10***
 - KOCl has all EPA registered uses as NaOCl including agricultural
- ***KOCl*** ***FDA***
 - KOCl has all FDA registered uses as NaOCl
 - FDA considers sodium and potassium ions interchangeable
- ***KOCl*** ***Cal EPA Reg. No. 63838-CA-01***
 - KOCl has all EPA registered uses as NaOCl including agricultural in California

Target Markets – Bleaching and Laundry

- Able to make a claim on a more environmentally friendly household bleach
- Provides a sodium-free solution to laundry discharges

Target Markets – I&I

- Chemical Compounding – Trend for formulations to become sodium-free
- Replacement chemical in CIP cleaners
- Enhances current programs of low salt formulas
- More stable in certain formulations
- Extended short-term shelf-life compared to NaOCl

Target Markets - Agriculture

- Potassium is one of the three required soil nutrients needed to maintain plant growth along with phosphorous and nitrogen. Therefore, there is little objection to the introduction of potassium ions to land
- Use as a disinfectant for wastewater applied to land for irrigation, conserving water
- Fungicide
- Post Harvest Fungicide can be applied up to 24 hours before harvest when compared to others that can be as long as 2 weeks.

KOCl - Production Site To Be Announced

- Hasa Chemical will be our first manufacture of KOCl
- Current bleach manufactures with Powell Machines
- Batch process locations

KOCI Conclusion

- Enviro Tech's response to the public's increased environmental awareness