

# Contaminant Oxidation Data

PersulfOx<sup>®</sup> is a catalyzed form of sodium persulfate ( $\text{Na}_2\text{S}_2\text{O}_8$ ) for use in the destruction of groundwater and soil contaminants. Commonly encountered contaminants that can be treated by PersulfOx include hydrocarbons, chlorinated ethenes, oxygenates, and chlorinated ethanes. To demonstrate the efficacy of PersulfOx for treating these compounds, a series of laboratory contaminant oxidation experiments were performed on representative contaminants.

## Experimental Procedure

For each contaminant tested, a contaminant stock solution was prepared in distilled water to deliver between 100 mg/L and 250 mg/L of a given contaminant to each sample vial. A stock solution of PersulfOx (1.0 M as sodium persulfate) was prepared in distilled water. A control condition and a PersulfOx-treated condition were run in parallel for each study, in triplicate. 10 mL of the contaminant stock solution and 10 mL of the PersulfOx mixture were added to each treated sample vial yielding a final persulfate concentration of 0.5 M. For each control sample, 10 mL of contaminant solution was combined with 10 mL of distilled water. The vials were then stored in the dark at room temperature. After 7 days, the contaminant concentrations in water were measured. The data are reported in table 1 as averages of the triplicate samples.

**Table 1. Contaminant Oxidation Data**

Contaminant	Starting Concentration (mg/L)	Control 7 d (mg/L)	PersulfOx 7 d (mg/L)	% Oxidized vs. Control
BTEX	232	204	7	96%
trichloroethene (TCE)	226	144	< 1	> 99%
1,4-dioxane <sup>1</sup>	175	105	< 1	> 99%
1,2-dichloroethane (DCA)	101	87	< 10	> 88%

## Summary

The data in Table 1 demonstrates the efficacy of PersulfOx for oxidation of the common classes of organic groundwater contaminants: hydrocarbons, chlorinated ethenes, chlorinated ethanes, and oxygenates. As described in PersulfOx Tech bulletin 1.0, PersulfOx is widely applicable to treat a range of organic contaminants and provides significant safety, convenience, and efficacy benefits when compared with other persulfate activation technologies.