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## A chemical probe technique for the determination of reactive halogen species in aqueous solution: Part 2 – chloride solutions and mixed bromide/chloride solutions

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**Abstract.** Although reactive halogen species ( $X^* = X\cdot, \cdot X_2^-, X_2$  and HOX, where  $X = \text{Br}, \text{Cl}, \text{or I}$ ) are important environmental oxidants, relatively little is known about their kinetics in condensed phases such as seawater and sea-salt particles. Here we describe a new technique to determine reactive chlorine and bromine species in aqueous solutions by using allyl alcohol ( $\text{CH}_2 = \text{CHCH}_2\text{OH}$ ) as a chemical probe. This probe is combined with competition kinetics in order to determine steady state concentrations of  $X^*(\text{aq})$ . In some cases the technique also can be used to determine the rates of formation and lifetimes of  $X^*$  in aqueous solution. In a companion paper we reported the results of our method development for aqueous solutions containing only bromide ( $\text{Br}^-$ ). In this paper, we discuss method development for solutions containing chloride ( $\text{Cl}^-$ ) alone, and for solutions containing both bromide and chloride.

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