

Reading Passage

The minimization of bleach loss is a high priority for chemical plants that produce sodium hypochlorite. The largest source of bleach loss during production is during the process when the chlorate ion is formed, and the most accurate measurement method for determining the chlorate ion concentration in bleach is ion chromatography, a highly sensitive and complicated titration method. Because this measurement requires specialized equipment and training, most bleach producers are unable to measure the chlorate ion concentration, and thus must employ outside contractors to perform the analysis work. The titration method is based on the method proposed by several scientists in 1984, in which the bleach sample is prepared by removing the available chlorine by reaction with hydrogen peroxide. The measurement is based on the titration of iodine by sodium thiosulfate. A number of oxidizing species in the sample are titrated and measured, and the chlorate ion is titrated along with the oxidizing species. The chlorate ion concentration is calculated by taking the difference of the titrations.

Questions

1. According to the passage, which of the following, if true, would most likely indicate that chromatography is not a good method for detecting bleach loss?
 - a. Chromatography is only able to be used in biological compounds with high levels of sodium.
 - b. The removal of chlorine from a solution by reacting it with hydrogen peroxide does not interact with iodine.
 - c. The oxidizing species in a sample need to be titrated and measured at least three times.
 - d. The levels of chlorate ion in different titrations do not vary significantly.
 - e. Measuring ion concentration in bleach is not a complicated or specialized procedure.

2. It can be inferred that the author of the passage does NOT believe which of the following?
 - a. Ion chromatography is a titration method with little scientific merit.
 - b. Bleach loss should be avoided during all phases of a chemical process.
 - c. Using sodium thiosulfate is necessary when titrating iodine.
 - d. Measuring the oxidizing species of a sample is important.
 - e. Scientists in 1984 made important contributions to the theory of ion chromatography.