

Abstract

Disinfection of swimming pool water is necessary for reducing the risk of disease transmission. Disinfection by-products form when chlorine reacts with organic matter contained in water. More than six hundred disinfection by-products have been found in swimming pools. Trihalomethanes, haloacetic acids, chloramines, halonitromethanes, haloacetonitriles and nitrosamines are among the most frequently occurring. Disinfection by-products may be toxic. The volatility of some of them causes their occurrence in the surrounding air and poses a risk not only for swimmers, but also for people in the vicinity who are not in direct contact with the water. DBPs enter human body by inhalation, absorption through the skin and ingestion. They have been linked to health problems such as skin and eye irritation, bladder cancer and respiratory diseases. Preventing their occurrence is not an easy task; a number of factors play a role in their genesis (the amount of organic matter, type and the amount of disinfection, the quality of source water, temperature, pH) and not all principles of their formation have been fully clarified yet. Further research on DBPs and their sufficient regulation are important steps to maintain chemical safety in swimming pools.

Key words: disinfection by-products, swimming pool, chlorination, toxicity