

ABSTRACT

Teaching is the process of imparting knowledge by teachers in learners. To enhance this, methods of presenting information visually to a full room of students at once are used. This includes writing on whiteboards written using whiteboard marker pens. Dry erase ink for whiteboard marker pen is composed of volatile solvent vehicle which easily vaporizes allowing the mark to dry on the surface of the whiteboard. Different manufactures use different solvents and different composition ratios in their ink brands. Different mixtures of VOCs have different irritation thresholds and potencies. This study sought to establish the components of vapour produced when different dry erase inks used in secondary schools in Nakuru County evaporate and compare their ability to elicit eye irritation on the teachers. The study design was repeated measures. Thirteen secondary schools which used whiteboards only in the classrooms were selected purposefully and the teachers in these schools were randomly selected; there were 224 respondents. Questionnaires were used to collect data on self-reported eye irritations while chromatography was used to identify the components of the vapours produced by the different brands of ink. The three ink brands used in the schools were found to contain acetone, ethanol, hexane and methanol. Inks 2 and 3 were found to have a more potent mixture than ink 1 (Odds ratio= 2.182; 95 C.I. =1.174-4.054). The study concludes that different ink solvent mixtures have different abilities to elicit eye irritation on persons exposed to their vapours ($\chi^2 = 6.933$; $p = 0.031$) and that methanol and acetone solvent mixture (found in ink 1) were the least potent eye irritants.

Key words: Dry erase, eye irritation, secondary schools, solvents mixture, teachers.