

Analysis of formaldehyde in tap water with 1,3-Cyclohexanedione-post column derivatization

As a by-product of disinfectant, aldehydes are likely to be found in water and so guidelines concerning the acceptable level of formaldehyde in tap water have been drawn up. Formaldehyde and acetaldehyde in tap water were measured using 1,3 cyclohexanedione post-column derivatization. Fig. 1 and Fig. 2 show the derivatization reaction and system schematics respectively, and Fig. 3 shows the chromatogram of tap water and tap water spiked with 0.1 ppm of standard sample.

Keywords: 1.aldehyde, 2.STD mixture, Tap water, 3.KC-811 4/FL, 5.1,3-Cyclohexanedione postcolumn derivatization

Conditions:

Column: Shodex Ionpak KC-801P+KC-811
Eluent: 3mM HClO₄
Eluent Flow rate: 1.0 mL/min
Column Temperature: 60 degree celsius
Reagent: 2.5g Cyclohexanedione + 20g Ammonium acetate + 10mL Acetic acid in 500mL H₂O
Reagent Flow rate: 0.6mL/min
Reaction Temperature: 120 degree celsius
Wave length: Ex 366nm, Em 440nm, Gainx10
Sample: STD mixture
 Tap water
INJ. VOL.: 100μL

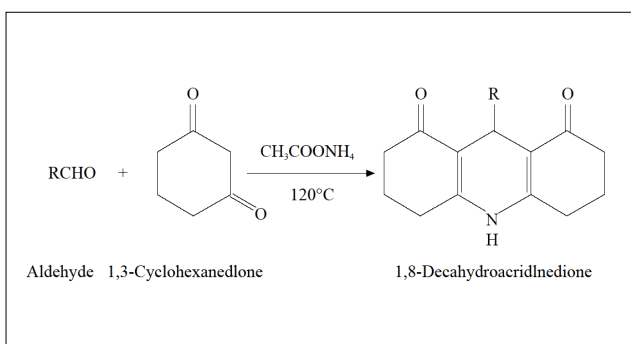


Fig. 1 Derivatization reaction

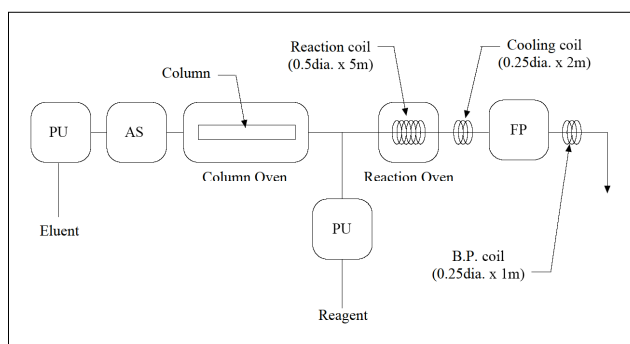


Fig. 2 System schematic

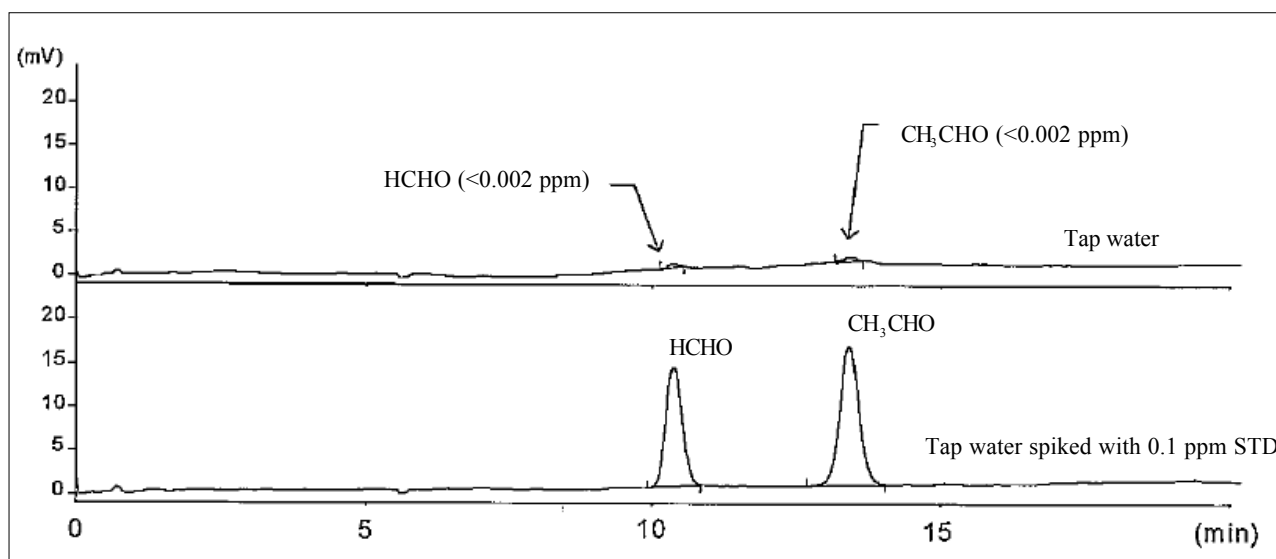


Fig. 3 Chromatograms of tap water and tap water spiked with 0.1 ppm STD