

Formaldehyde in Air Analysis by HPLC-UV

Instrument: [Jasco UV-2075 Plus Intelligent UV-Vis Detector HPLC system](#)

Formaldehyde is a powerful antiseptic widely used as a fumigant for dwellings, ships, warehouses and clothing. It is also employed in the manufacture of phenolic resins, dyes, organic chemicals, glass mirrors, explosives, leather goods and latex rubber products. Formaldehyde vapours present in the workplace are lachrymatory and intensely irritating to mucous membranes even at low concentrations. As a result, responsible employers frequently monitor. There are a number of methods available for such purposes, but trapping the aldehyde in impingers containing a solution of 2,4-dinitrophenylhydrazine is perhaps the most simple. Formation of the corresponding phenylhydrazone is rapid and the product is quite stable. Reversed phase HPLC separates the formaldehyde-2,4-dinitrophenylhydrazone from the other species present, while the use of UV detection at 340 nm provides sensitivity in the parts per trillion range. Chromatograms obtained for a formaldehyde 2,4-DNPH standard and an air sample are present in Figures 1 and 2 respectively.



Conditions

Column: Spherisorb S5 ODS2,
250 x 4.6 mm ID

Guard: Spherisorb S5 ODS2,
50 x 4.6 mm ID

Mobile Phase: Acetonitrile:Water (50:50)

Flow Rate: 1 ml/min

Detection: UV at 340 nm

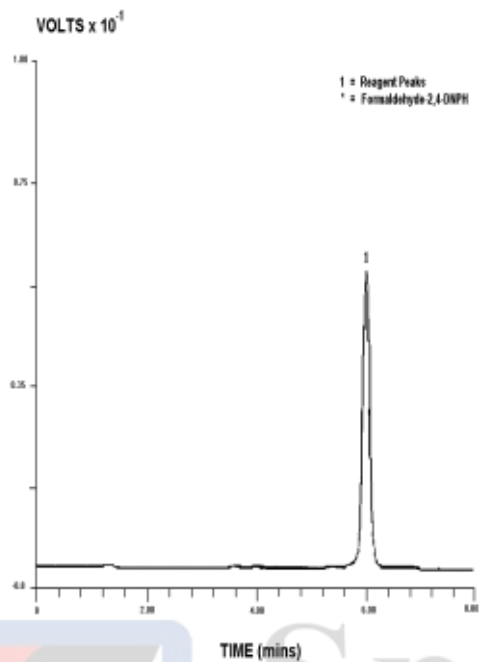


Figure 1 Formaldehyde-2,4-DNPH

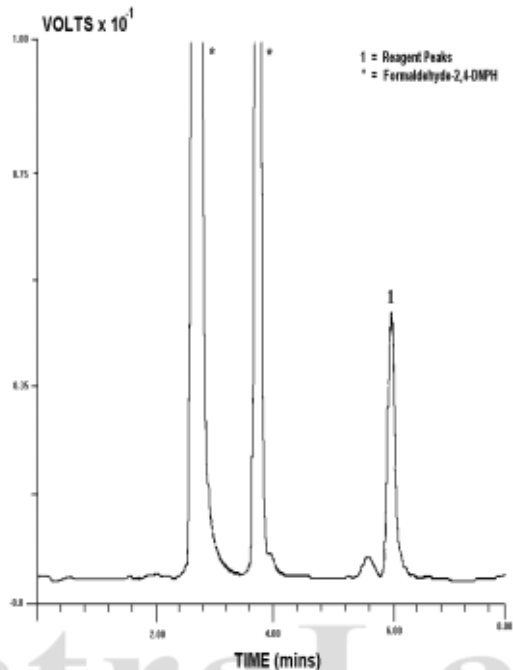


Figure 2 Factory air sample

Reference: http://www.gbcsscientific.com/appnotes/HPLC_app_note_023.pdf