

hydroxide in a mixture of 2-propanol and water (1:1). Fullers' earth may also be used.

2.4 Field analysis

Field analysis can give the first indication of which chemical warfare agents are present in the area. This information may make it easier to select the best method for sample preparation and analysis, and thereby give the most reliable results.

The following techniques may be used for field analyses:

- Thin layer chromatography (TLC).

Samples collected as described above are extracted with a small volume of dichloromethane, 20 μ l of which are applied to silica TLC plates.

Use the following mobile phases:

cyclohexane:ethylacetate:acetone = 5:3:3 for sarin, soman and tabun,

methanol:acetone = 4:1 for VX,

n-hexane:methanol:dichloromethane = 7:1:2 for lewisite, clark and adamsite, and toluene for mustard gas.

The nerve agents sarin, soman, tabun and VX are detected by an enzymatic reaction. Spray with cholinesterase (250 IU in 100 ml phosphate buffer pH=7.4), warm gently (30°C-40°C for 5 min) and spray with a mixture of 1-naphtylacetate (250 mg) and fast blue salt (400 mg) in ethanol (100.ml). White spots on a red background indicate the presence of nerve agents. Note that this reaction is very sensitive. If the concentrations of nerve agents in the samples are too high the spots become large and difficult to define.