

Equilibrium partitioning of organic compounds

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Mine sweeper for enviromental chemists - not a game!

Question: Does it make a difference whether dogs are trained on a small or a large amount of soil spiked with explosives (assuming constant concentrations of explosives in the soils)?

Answer: The points made in the answer to the previous question also apply to this question. However, there is one additional point that needs to be made here. Upon equilibrating soil that contains explosives with clean air, the concentration of the explosive in the soil decreases. (Note that the concentration of the explosive remains constant in case you work with pure chemical explosives.) Thus, the equilibrium concentration in air will be somewhat smaller than the concentration in air in equilibrium with the original soil sample would have been. Given a fixed volume of air, this effect increases as the size of the soil sample decreases. However, the extent of this concentration decrease upon equilibration with fresh air also depends on the partition constant of the chemical between soil and air. In some cases, the decrease may be extremely small even if the amount of soil differs by a factor of 10 or more. This will be looked at in more detail in Chapter 3.

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