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Monitoring benzene for environmental compliance

The Tiger Select is designed to allow specific detection of benzene in a complex mixture of hydrocarbons. This is done by drawing the sample through a Draeger benzene pre-filter tube.

Typically, benzene is monitored due to its health effects. As occupational Time-Weighted Average exposure limits are commonly set at 1 ppm or less, the benzene pre-filter tube has been tested primarily in the 0 to 40 ppm range. However, for environmental compliance measurements, benzene concentrations of up to 200 ppm need to be measured. In this study we tested the accuracy of the Draeger benzene pre-tube used with the Tiger Select PID to measure at such high concentrations.

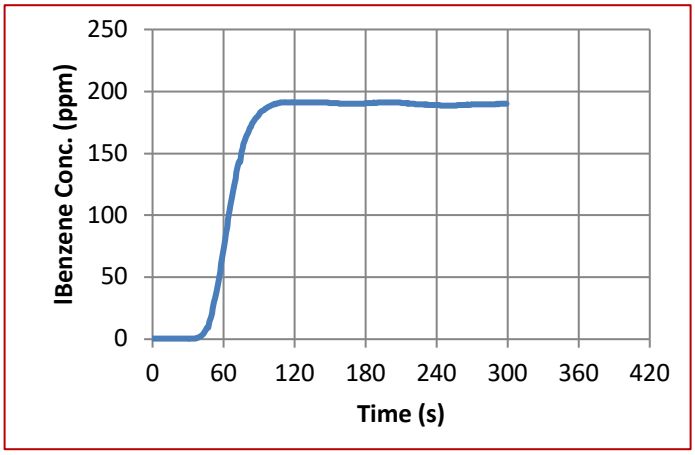

Figure1. Tiger Select Response to 200 ppm Benzene

The Draeger benzene pre-filter tube has been tested at Ion Science with 200 ppm benzene to check its suitability at higher concentrations. Figure 1 shows the response of the Tiger Select to 200 ppm benzene. Concentration reaches 190 ppm after approximately 90 s (the standard measurement time for a spot concentration measurement using a Draeger pre-filter tube) then remains stable for the test period.

This demonstrates the suitability of using a Draeger pre-filter tube to measure benzene concentrations up to 200 ppm.

Note, when using the Tiger Select to measure higher concentrations of benzene the concentrations of other hydrocarbons may also be high and the pre-filter's tube capacity should be considered. As the pre-filters capacity is reached the tube will turn from a bright orange to "greenish brown". If the colour changes beyond the ¾ marking the benzene concentration displayed may not be accurate, see figure 2. If the colour turns past the ¾ mark, as long as the benzene reading is below the test limit (e.g., 200 ppm), the result is still within environmental compliance and the work activity can continue.

Figure 2. The lower tube has discolouration the ¾ mark indicating the tubes capacity may have been reached.

Please contact Ion Science for more information: