

OHTA pre-registration self-assessment for candidates

W505 Control of Hazardous Substances

The following are examples of topics covered in the course and calculations. Answers to all the following, and exam and homework questions are covered in the training course.

- The velocity of air moving in ductwork is 30 ms^{-1} . What is the velocity pressure?
- Air is passing through a duct of cross-sectional area of 0.04 m^2 at a rate of $1 \text{ m}^3\text{s}^{-1}$. If the static pressure is -300 Pa , what is the total pressure in the duct?
- A worker spills 100 g of toluene in an unventilated room of dimensions $10 \text{ m} \times 3 \text{ m} \times 10 \text{ m}$. Assuming perfect mixing, what is the concentration in the room?
- The initial airborne concentration of a solvent in a large room is 1500 ppm . The room volume is 623 m^3 . If $0.944 \text{ m}^3\text{s}^{-1}$ of fresh air comes into the room, calculate the airborne concentration in the room after 15 minutes, using the formula $C = C_0 e^{-Rt}$ (where $R = Q/V$)
- What is the density of air at 30°C and 780 mm Hg ?
- When designing a duct system what factors need to be considered if the final design is to be efficient and practical?
- What are the two main types of respirators?
- When evaluating glove materials, why is a product with a shorter breakthrough time sometimes given a better rating than one with a longer breakthrough time?
- How can BEIs[®] be used to determine if adequate control has been achieved?
- A solvent evaporates at 100 mgs^{-1} from a tank. The room ventilation rate is $1 \text{ m}^3\text{s}^{-1}$. Assuming that perfect mixing takes place, what is solvent concentration in the room?