

M505: CONTROL OF HAZARDOUS SUBSTANCES

Case Study 1 - Soldering

Background

A company employs approximately 160 persons 70 of whom do soldering as part of their daily work. A diagnosed case of occupational asthma has been reported to the inspectorate recently and another one was previously identified about three years ago.

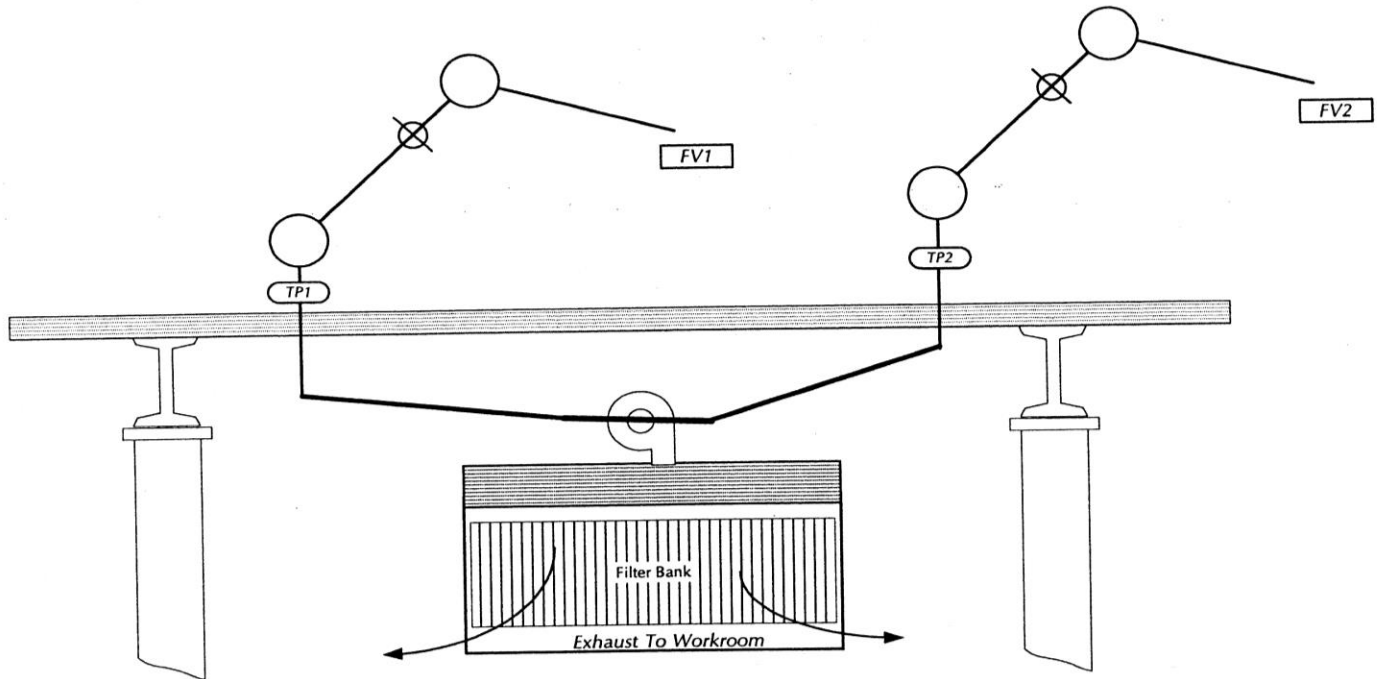
The current re-circulating capture ventilation systems have been in place for three years and are the only means of controlling soldering fumes. Employees are supposed to move the hoods near to where they work. Some point soldering and some jig soldering is done. There are a large number of women employed in the process whose use-of-English is limited. And it has been established that they do not know the risks of the occupational asthma risk from exposure to solder fume or the early-warning signs and symptoms.

The LEV systems have no instrumentation apart from a manometer on the re-circulatory filter unit. The company has no testing instruments such as smoke tubes, a dust lamp, an anemometer or a manometer.

The task-based exposures range from 3 to 60 $\mu\text{g}/\text{m}^3$ (rosin acid). The 8 hour TWA WEL is 50 $\mu\text{g}/\text{m}^3$ and the 15 minute TWA (STEL) is 150 $\mu\text{g}/\text{m}^3$.

Exercise Examine the schematic of the ventilation system, photographs and video material and answer the following questions:

1. Is the exposure adequately controlled?
2. How could the LEV hood/system design be improved?
3. What test equipment should the employer have?



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Diagram 1 - Schematic of Ventilation System



Photograph

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Photograph 2

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