



**Environmental  
Management  
Services**

## **Engineering Laboratory Cleaning Case Study**

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### **Summary**

We were commissioned to decontaminate a chemical fume ventilation cupboard and associated ventilation ducting system. An ineffective fume hood had led to build up of dangerous condensates which had solidified leaving potentially explosive residues behind.

A thorough risk assessment was conducted and all affected areas were decontaminated and decommissioned.

All waste was classified so that it could be disposed of in line with all regulations in the most cost effective manner.



## Health & Safety

We were approached by a metal coating company who needed an on-site laboratory decontaminated. The fume hood had a faulty extraction unit which had led to a build-up of chemical deposits within the fume hood ducting and the walls and floor of the lab.

After consulting a list of Safety Data Sheets (SDS) for each known potential contaminant a number of risks were identified with the most dangerous being Perchlorates, highly oxidising/explosive solid deposits formed when Perchloric acid reacts with some of the organic substrates present.

As a result a testing methodology was devised to ascertain if any explosive deposits were present. A series of samples were taken from strategic points through the system. The sample analysis showed no perchlorates were present; however as a belt and braces approach all surfaces were thoroughly washed down with copious amounts of water to mitigate risks.

## Decontamination

As one of the stud walls was heavily contaminated, the safest and most cost effective solution was to remove and dispose of the wall. This allowed us access to the rear of the fume hood, which was fully decontaminated to allow the fume hood to be re-used.

Before any disassembly of the 20m length of 12" ductwork we performed a series of water flushes. This wash water was tested to further ensure there was no Perchlorate deposits present prior to breaking the seal at the back of the hood to the vent.

All wastes arising from the decontamination works were classified allowing the waste to be disposed of in line with regulations in the most cost effective manner. Swab samples were taken to validate that the decontamination had been a success and that no hazardous residues remained.

