

Emission monitoring of non-standard processes: tips and techniques for operators

“Caring for the
environment and
creating safer
workplaces”



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About us

Envirocare has over a decade of experience assisting businesses optimise their performance.

We provide clients with innovative solutions to the monitoring of their non-standard processes based on our expertise and technical knowledge.

We were one of the first to offer MCERTS accredited air monitoring services and we continue to develop innovative techniques to measure emissions.



Envirocare offers

- Innovative Techniques Tailored to Needs
- Facilitation of Regulatory Compliance
- Comprehensive Technical Expertise
- Diverse Sector Experience
- Optimisation of Business Performance



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VOC Monitoring Standards

Monitoring for Total VOC (FID analyser)

- BS EN 12619 - suitable for low range VOC (0 - 20 mg/m³)
- BS EN 13256 - suitable for VOC up to 500 mg/m³

Monitoring for Speciated VOCs

- BS EN 13649 - suitable for VOC up to 2000 mg/m³

Envirocare has all of the above methods within its MCERTS scope.



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Case Study One

Textile Processing

Saving Money on Inefficient Processes

Problem: A stenter curing fabric at high temperature was producing high VOC emissions during stack testing using an FID analyser.

What we did: We modified the FID analyser such that we could determine Total VOC and then methane only. This demonstrated that the high VOC levels were mostly methane derived from unburnt gas. This showed that the process was actually compliant.

Solution: We suggested modifications to the direct gas-fired stenter to improve the burning efficiency to best utilise the natural gas fuel. This saved the company 17% off their fuel bill.



Case Study Two

Manufacturer of Chemicals/Resins

Emission Mapping for Batch Processes (with no flow)

Problem: Obtaining accurate VOC data from batch processes with unpowered ducts.

What we did: We carefully chose the sampling point and carried out speciation monitoring to provide the mean concentration over the batch period. We then used FID real time data and logged flow over the batch to provide the mass emission profile for the batch.

Solution: We provided an accurate understanding of VOC emissions

released and the characteristics of the batches from

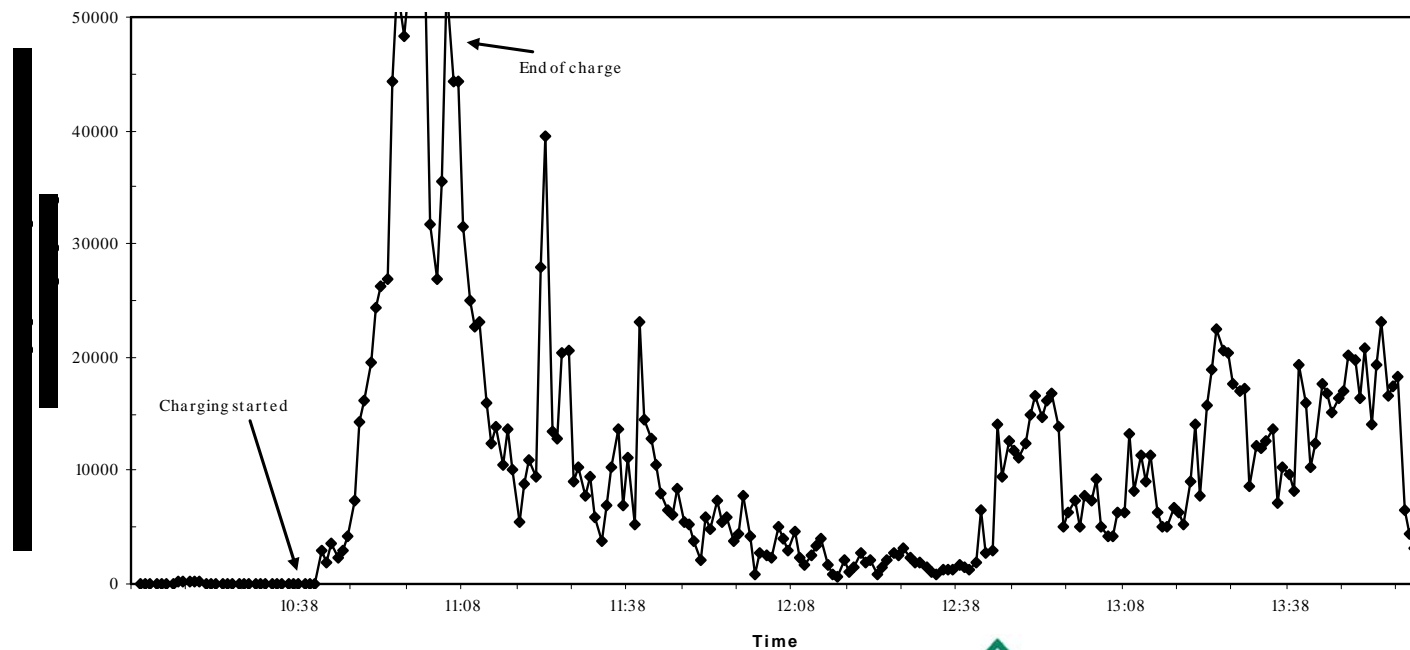


Case Study Two

Manufacturer of Chemicals/Resins

continued ...

Figure 18
Total VOC Emissions From K36 Cooler PUMA X980-406 (Run 4) (07/12/06)



Case Study Three

Manufacturer of Metal Products

Understanding and Identifying Abnormal Emissions

Problem: Unexplained high VOCs from a high temperature degreasing process which exceeded the compliance limits.

What we did: We carried out speciation monitoring and analysed all of the components used in the process to identify the source.

Solution: We found there were abnormal substances in one of the components causing these emissions. We provided all the information to the client and made suggestions on remedial action.



Case Study Four

Industrial Laundry Process

Volatile Organic Speciation in Wet Emissions

Problem: A complex mixture of VOCs were emitted from a tunnel washer which needed to be identified.

What we did: We used manual techniques to accurately monitor the VOCs by the use of a sorbent tube with a chilled trap in front of it. Both trap and tube were analysed to provide the breakdown of Class A and B solvents.

Solution: An appropriate methodology was used to provide the data on the precise VOCs emitted from the process to show



Case Study Five

Coating process

Accurately Monitoring Phthalates (plasticisers)

Problem: During high temperature textile coating processes using plasticisers, fumes are released which are difficult to monitor accurately. These are semi-volatile organics (eg. phthalates) and are "sticky" and cannot be monitored using an FID technique.

What we did: These semi-volatile organics occur in a range of processes and may be in the form of aerosol or vapour dependant upon temperature and other factors.

They were sampled isokinetically as particulate matter by in-stack sampling followed

by extraction and analysis of the filter for phthalates.

Determination of the vapour phase was accomplished by using a sorbent trap after the filter outside the stack.

Solution: By understanding the chemistry of the processes we



Summary

Using consultants with wide ranging
experience and
expertise and who do not blindly follow
standards will
provide invaluable and accurate
monitoring of
non-standard processes.



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Q & A

Thank you for listening -

Any questions ????