

This edition of the resource recovery update looks at two frequently asked questions and answers. More FAQs will be presented in future editions.

What will be emitted from the thermal technologies and in what concentrations?

There are over a thousand thermal facilities operating world-wide, performing to strict emission limits. EMRC has sought information through the Expression of Interest (EOI) process which demonstrates that facilities using thermal technologies are achieving consistently low emissions. These emissions are well below the limit values set by the European Union (EU) or other regulatory bodies.

Depending on the technology, emissions can include liquid discharge, solid residues as well as gaseous emissions. The following two tables outline emissions from facilities operating under EU regulations.

Technology: Combustion

Location: Brescia, Italy – Owner/operator: ASM

| Stack emissions in milligrams per cubic metre (mg/Nm ³) | Plant design Data 1994 | European Union Limits 2000 | Actual Operation Data |
|---|------------------------|----------------------------|-----------------------|
| Dust | 3 | 12 | < 0.5 |
| Sulphur dioxide | 40 | 50 | 10 |
| Nitrogen Oxides (NO _x) | 100 | 200 | 80 |
| Hydrochloric acid (HCl) | 20 | 10 | 5 |
| Hydrofluoric Acid (HF) | 1 | 1 | 0.2 |
| Carbon Monoxide | 40 | 50 | 20 |
| Heavy Metals | 0.5 | 0.5 | 0.01 |
| Cadmium (Cd) | 0.02 | 0.05 | 0.002 |
| Mercury (Hg) | 0.02 | 0.05 | 0.002 |
| PAH (Polycyclic aromatic hydrocarbons) | 0.01 | - | 0.001 |
| Dioxin (TCDD TEQ) ng/Nm ³ nanogram/ normal cubic metre | 0.1 | 0.1 | 0.01 |

Technology: Gasification

Location: Averøy, Norway – Owner: Energos/NIR

| Emissions* | EU Limits | Actual Operation Data |
|------------------------------------|-----------|-----------------------|
| Dust | 10.00 | 0.24 |
| Mercury | 0.0300 | 0.00327 |
| Cadmium + Thallium | 0.050 | 0.00002 |
| Metals | 0.500 | 0.00256 |
| Carbon Monoxide | 50 | 2 |
| Hydrofluoric Acid | 1.000 | 0.020 |
| Hydrochloric Acid | 10.0 | 3.6 |
| Total Organic Carbon | 10 | 0.2 |
| Nitrogen Oxides (NO _x) | 200 | 42 |
| Ammonia | 10.0 | 0.3 |
| Sulphur Dioxide | 50 | 19.8 |
| Dioxins | 0.100 | 0.001 |

* Milligrams per cubic metre except for dioxins which are expressed as nanograms/cubic metre of TCDD TEQ (a nanogram is one thousand millionth of a gram (10⁻⁹) TEQ is the toxic equivalent quantity, a quantitative measure of the combined toxicity of a mixture of dioxin like chemicals)

What emissions are there from composting?

Emissions include carbon dioxide and water vapour and exhaust gas emissions from the combustion of biogas in the processing of waste. Exhaust gas emissions will be limited to carbon dioxide, water vapour, oxides of nitrogen, plus any residuals from the clean up of the biogas (eg hydrogen sulphide removal as solid sulphate). Odour is a primary issue with anaerobic digestion facilities and if this was the chosen technology then EMRC would establish controls such as odour scrubbers and odour monitoring points to ensure that odours are not detectable offsite. All emissions will be subject to Environmental Protection Authority (EPA) assessment for regular monitoring and reporting requirements.

What type of monitoring will be undertaken? How regularly and from where?

This will be determined by the Environmental Protection Authority (EPA) and Department of Environment and Conservation (DEC) who set the emission monitoring programme and licence limits. Thermal technologies would typically have continuous emissions monitoring systems as well as an ambient monitoring programme. This could be a combination of on-site monitoring plus off-site monitoring.

Further information will be provided through the environmental approvals process in 2010/2011. Information on monitoring sites, frequency and type will be made publically available as it comes to hand.