



## Members' summary note on BAT conclusions

The Waste Treatment BREF is the EU reference document setting out best available techniques (BAT) for the waste sector. It will apply to all sites operating as installations (i.e. with a capacity of over 100 tonnes per day for AD and over 75 tonnes per day for composting).

The final draft of the Best Available Techniques (BAT) Reference Document for Waste Treatment has been published and can be found [here](#).

The BAT conclusions set out emission levels associated with the best available techniques for emissions to air and water.

### When does it apply?

There is a 4 year period for member states to implement the conclusions for existing waste treatment installations (i.e. first permitted before the publication of the BAT conclusions). New installations (i.e. first permitted after the publication of the BAT conclusions) need to comply immediately with the new requirements. We expect the EA to review permit conditions in line with the requirements and also possibly publish further guidance on their interpretation of the requirements.

### BAT conclusions relevant to AD, Composting and MBT

It is important to note that the BAT conclusions are neither prescriptive nor exhaustive. Other techniques may be used that ensure at least an equivalent level of environmental protection.

### Overall environmental performance

- Implement Environmental Management System - BAT 1.
- Implement waste acceptance, sorting, tracking and segregation and output quality management system - BAT 2.
- Establish and maintain inventory of waste water and waste gas - BAT 3.
- Reduce environmental risk associated with storage by having adequate storage (optimal location, adequate capacity, safe operations) – BAT 4.
- Implement waste handling and transfer procedures – BAT 5.
- Reduce odour emissions and improve environmental performance by selecting the waste input – BAT 33.

### Monitoring

- Monitor key process parameters for emissions to water – BAT 6 and 7.

- COD, total nitrogen, total organic carbon, total phosphorus and total suspended solids once every month.
- PFOA / PFOS once every six months.
- For MBT only – Above plus Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, and Zinc once a month.
- Monitor channelled emissions to air – BAT 8.
  - H<sub>2</sub>S, NH<sub>3</sub>, odour concentrations every six months.
  - For MBT only – above plus dust and TVOC once every six months
- Periodically monitor odour emissions (at a frequency determined by odour management plan – BAT 10.
- Monitor annual consumption of water, energy and raw materials as well as annual generation of residues and waste water at least once a year – BAT 11.

Emissions to air

- Prevent or reduce odour emissions by implementing odour management plan – BAT 12.
- Prevent or reduce odour emissions by using one or a combination of: minimizing residence times; chemical treatment; optimizing aerobic treatment – BAT 13.
- Prevent or reduce diffuse emissions to air (dust, organic compounds and odour) use a combination of: minimizing the potential diffuse emission sources; selection and use of high integrity equipment; corrosion prevention; containment, collection and treatment of diffuse emissions; dampening; maintenance; cleaning of waste treatment and storage areas; leak detection and repair programme – BAT 14.
- Reduce channeled emissions to air of dust, organic compounds and odour including HS<sub>2</sub> and NH<sub>3</sub> use a combination of: adsorption; biofilter; fabric filter; thermal oxidation; wet scrubbing – BAT 34.
- Associated emission levels

Emission type	Substance / Parameter	BAT-AEL
Channelled NH <sub>3</sub> , odour, dust and TVOC emissions to air from biological treatment of waste	NH <sub>3</sub>	0.3-20 mg/Nm <sup>3</sup>
	Odour concentration	200-1000 OUE/Nm <sup>3</sup>
For MBT only – channeled emissions to air	Dust	2-5mg/Nm <sup>3</sup>
	TVOC	5-40mg/Nm <sup>3</sup>
Either BAT-AEL for NH <sub>3</sub> or the BAT-AEL for odour concentration applies		

- Only use flare for safety reasons or non-routine operating conditions by having correct plant design and plant management – BAT 15.
- Reduce emissions from flares when use is unavoidable by correct design of flaring devices and monitoring and recording as part of flare management – BAT 16.

## Noise and vibrations

- Prevent or reduce noise and vibration emissions by implementing a noise and vibration management plan – BAT 17.
- Prevent or reduce noise and vibration emissions by using one or a combination of: appropriate location of equipment and buildings; operational measures; low-noise equipment; noise and vibration control equipment; noise attenuation. – BAT 18.

## Emissions to water

- Optimise waste consumption, reduce volume of waste water generated and prevent or reduce emissions to soil and water, use a combination of: water management; water circulation; impermeable surface; techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels; roofing of waste storage and treatment areas; segregation of water streams; adequate drainage infrastructure; design and maintenance provisions to allow detection and repair of leaks; appropriate buffer storage capacity – BAT 19.
- Reduce emissions to water by treating waste water using a combination of: equalization; neutralization; physical separation; adsorption; distillation / rectification; precipitation; chemical oxidation; chemical reduction; evaporation; ion exchange; stripping; activated sludge; membrane bioreactor; nitrification /denitrification; coagulation and flocculation; sedimentation; filtration; flotation. – BAT 20.
- Reduce generation of waste water and reduce water usage by using all of the techniques: segregation of water streams; water recirculation; minimizing the generation of leachate – BAT 35.
- Associated emission levels

Emission type	Substance / Parameter	BAT-AEL
Direct discharge to receiving water body	Total organic carbon	10-60mg/l
	Chemical oxygen demand	30-180mg/l
	Total suspended solids	5-60mg/l
	Total nitrogen	1-25mg/l
	Total phosphorus	0.3-2mg/l
Direct or indirect discharge to receiving water body – for MBT only	Arsenic	0.01-0.05mg/l
	Cadmium	0.01-0.05mg/l
	Chromium	0.01-0.15mg/l
	Copper	0.05-0.5mg/l
	Lead	0.05-0.1mg/l
	Nickel	0.05-0.5mg/l
	Mercury	0.5-5µg/l
	Zinc	0.1-1mg/l

### Emissions from accidents and incidents

- Prevent or limit the environmental consequence of accidents and incidents use all of the techniques as part of the accident management plan: protection measures; management of incidental / accidental emissions; incident / accident registration and assessment system. – BAT 21.

### Material efficiency

- Use materials efficient and substitute materials with waste – BAT22.
- Maximise the reuse of packaging as part of residues management plan – BAT 24.

### Energy efficiency

- Implement an energy efficiency plan and maintain an energy balance record – BAT 23.

### BAT conclusions relevant to composting and aerobic treatment of waste

- Reduce emissions to air and improve environmental performance by monitoring and /or controlling key waste and process parameters – BAT 36.
  - Monitor: waste input characteristics; temperature and moisture content at different points in the windrow; aeration of the windrow (via windrow turing frequency, O<sub>2</sub> and or CO<sub>2</sub> concentration in the windrow; temperature of air streams in the case force aeration); windrow porosity, height and width.
- Reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps by using one or both of: use of semipermeable membrane covers; adaptation of operations to the meteorological conditions – BAT 37.

### BAT conclusions relevant to AD

- Reduce emissions to air and improve overall environmental performance by monitoring and controlling key waste and process parameters – BAT 38.
  - Implement monitoring to: ensure stable digester operation; minimise operational difficulties; early warning system for failures.
  - Monitor: pH and alkalinity of digester feed; digester operating temperature; loading rates; VFA and ammonia; biogas quality, composition and pressure; and liquid and foam levels in digester.

### BAT conclusions relevant to mechanical biological treatment (MBT)

- BAT conclusions for aerobic and anaerobic treatment apply where relevant.
- Reduce emissions to air by segregation of the waste gas streams and recirculation of waste gas – BAT 39.

For any further advice, please contact the REA Organics Recycling Group ([Jenny@r-e-a.net](mailto:Jenny@r-e-a.net)).