



Confederation of European
Waste-to-Energy Plants

9th CEWEP Waste-to-Energy Congress 2018

Best Available Techniques for Waste Incineration

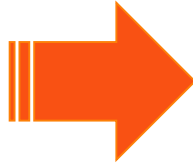
Lighea Speciale, CEWEP
20th September 2018, Bilbao

Torino WtE plant, Italy

Why are we talking about it?

All permits will have to be reviewed after 4 years of the reviewed BREF WI publication





Reviewed BAT conclusions will include mandatory requirements e.g. for emissions to air.



Emission Limit Values (ELVs) in future permits will have to be set **within the range of the new BAT - Associated Emission Levels (BATAELs)** which will be published in the BAT conclusions. The IED clearly states that (Art. 15.3) competent authorities shall set ELVs that ensure that emissions do not exceed BATAELs.



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Acronyms

- **IED:** Industrial Emissions Directive
- **BAT:** Best Available Techniques
- **BREF:** BAT REference document
- **BATAELs:** Best Available Techniques Associated Emission Levels
- **ELVs:** Emission Limit Values

- **EIPPCB/JRC:** Technical Office of the European Commission coordinating BREF reviews
- **TWG:** Technical Working Group set up by the European Commission to review BREFs

- **NOC:** Normal Operation Conditions
- **OTNOC:** Other Than Normal Operation Conditions
- **EOT:** Effective Operating Time





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- ■ Legal Framework: IED aims to prevent and, if not feasible, reduce pollution while ensuring high level of protection for the environment as a whole. In practice it requires that permits of plants be based on Best Available Techniques (BAT)

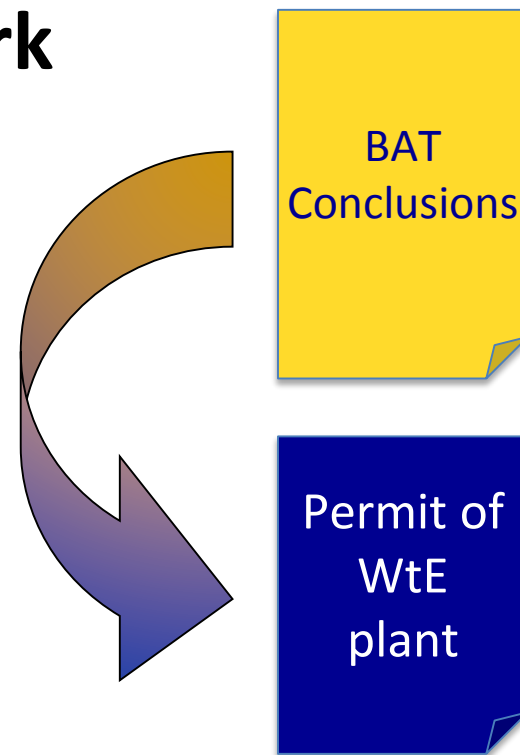


BAT are determined by a Technical Working Group steered by the JRC (EIPPCB) and documented in BREFs

Changes in the legal framework

Revised BAT conclusions are the reference for setting/updating permit conditions (within four years from the publication, which is foreseen for **Mid-End 2019**)

“Permits to contain emission limit values (ELVs) to ensure that, under normal operating conditions, emissions **do not exceed BAT-associated emission levels (BAT-AELs)**”



Permits to be reviewed in all EU Member States before the end of 2023



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 Critical aspects of the BREF WI Review





Critical aspects of the BREF WI Review

- ■ Different nature of BAT Conclusions and BATAELs between 2006 BREF and new BREF
- ■ No guidance on how to interpret the BATAEL ranges to set new ELVs
- ■ BATAELs set directly from operational values
- ■ Different reference for compliance between rules of the IED and BREF (NOC, EOT)
- ■ Potential impossibility to comply with uncertainty requirements when new ELVs are set
- ■ New potentially complex requirements for waste acceptance procedures?
- ■ Energy efficiency requirements are not linked to acceptable improving techniques
- ■ New rules for bottom ash handling and metal recovery
- ■ Ambitious requirements for water emissions



Critical aspects of the BREF WI Review

Effective operating Time (EOT) / Normal Operating Conditions (NOC)

IED Special Regime for Waste Incineration: compliance in EOT for continuous measurements (other sectors comply in NOC)

Reference for BATAELs in **BREFs** is generally NOC (see IED, art. 15.3)

Operating conditions (NOC / EOT) which BATAELs refer to are not clarified in the BAT Conclusion, although in background documents it is specified that they were derived in NOC.

...but IED requires ELVs to be set in EOT, not only NOC!



Critical aspects of the BREF WI Review

Measurement uncertainty

Issue linked to the nature of legally binding BATAELs:

IED and standards require that a maximum uncertainty be associated to ELVs. Compliance with any ELV needs to be checked according to specific rules. Since BATAELs will be the basis for future ELVs, compliance rules need to be defined for the whole range of BATAELs.

How will Member States implement BATAELs in permits if BAT Conclusions do not specify the uncertainty associated to the ranges?

How can operators comply with new ELVs if the set of rules is not defined?

- Examples: new requirements for emissions to air of PCCD/F and mercury

Many dissenting views among the TWG members....





Emissions to air – Dioxins

Current legal requirements – IED, Annex VI, Part 3, §1.4

Substance	unit	IED ELV
PCDD/PCDF	ng I-TEQ/Nm ³	0,1
PCDD/PCDF + dioxin-like PCBs	ng WHO-TEQ/Nm ³	/

Average emission limit value (ng/Nm³) for dioxins and furans over a sampling period of a minimum of 6 hours and a maximum of 8 hours.

Frequency of measurements: minimum 2 times per year.

Emissions to air – Dioxins

New requirements – draft conclusions of BREF WI Final Meeting

Parameter	Unit	BAT-AEL		Averaging period
		New plant	Existing plant	
PCDD/F ⁽¹⁾	ng I-TEQ/Nm ³	< 0.01–0.04	< 0.01–0.06	Average over the sampling period or long-term sampling average ⁽²⁾
		< 0.01–0.06	< 0.01–0.08	Long-term sampling average period ⁽²⁾
PCDD/F + dioxin-like PCBs ⁽¹⁾	ng WHO-TEQ/Nm ³	< 0.01–0.06	< 0.01–0.08	Average over the sampling period or long-term sampling average ⁽²⁾
		< 0.01–0.08	< 0.01–0.1	Long-term sampling average period ⁽²⁾

⁽¹⁾ Either the BAT-AEL for PCDD/F or the BAT-AEL for PCDD/F + dioxin-like PCBs applies.

⁽²⁾ The BAT-AEL does not apply if the emission levels are proven to be sufficiently stable.

Frequency:
every month





Emissions to air – mercury

Current legal requirements – IED, Annex VI, Part 3, §1.3

Substance	unit	IED ELV
Hg	$\mu\text{g}/\text{Nm}^3$	50

Average over a sampling period of a minimum of 30 minutes and a maximum of 8 hours.

Frequency of measurements: minimum 2 times per year.



Emissions to air – mercury

New requirements – draft conclusions of BREF WI Final Meeting

Substance	unit	BATAELs		Averaging period
		New plant	Existing plant	
Hg	$\mu\text{g}/\text{Nm}_3$	<5-20	<5-20	Daily average or average over the sampling period
		1-10	1-10	Long-term sampling period

For plants incinerating wastes with a **proven low and stable mercury content**, the continuous monitoring of emissions may be replaced by long-term sampling or periodic measurements with a minimum frequency of once every six months.

Emissions to air – mercury

New requirements – draft conclusions of BREF WI Final Meeting

(2) The lower end of the BAT-AEL ranges may be achieved when:

- incinerating wastes with an ~~intrinsically~~ **proven** low and ~~constant~~ **stable** mercury content (e.g. ~~sewage sludge~~ **mono-streams of waste of a controlled composition**), or when
- using specific techniques to prevent or reduce the occurrence of mercury peak emissions **while incinerating non-hazardous waste**. ~~(e.g. a wet scrubber enhanced with the use of oxidants, or BAT 31 b., d. or e.) can be achieved when using fixed-bed adsorption or a wet scrubber enhanced with the use of oxidants; the~~

The higher end of the BAT-AEL ranges may be associated with the use of ~~can be achieved when using~~ dry sorbent injection.

As an indication, the half-hourly average mercury emission levels will generally be:

- < 15–40 µg/Nm³ for existing plants;
- < 15–35 µg/Nm³ for new plants.



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 Useful documents



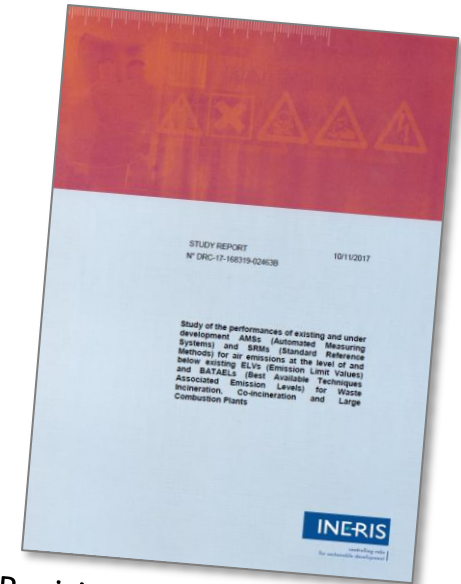
Useful documents – INERIS Study on uncertainty

Available on INERIS website

<https://www.ineris.fr/fr/study-performances-existing-and-under-development-amss-automated-measuring-systems-and-srms-0>

Available on CEWEP website

<http://www.cewep.eu/2017/12/01/ineris-report-on-monitoring-of-air-emissions/>



Revision November 2017

Useful documents

Note to warn stakeholders on hasty use of BATAEL ranges given in WI BREF draft 1



Signed by 8 European associations including CEWEP



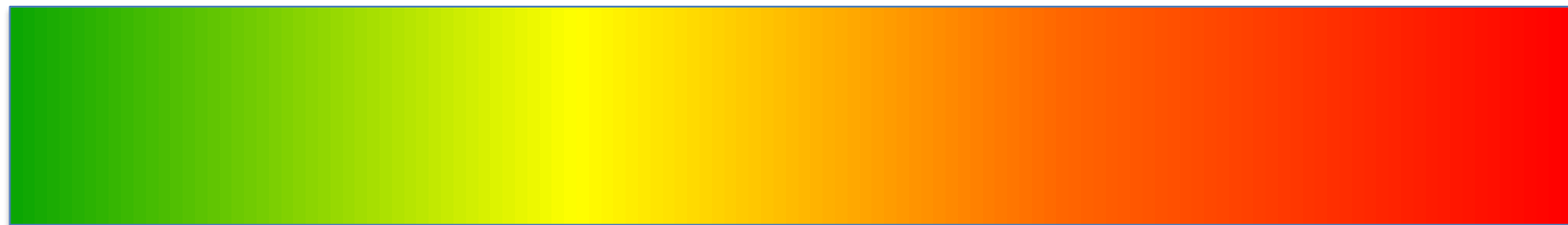
... and if this is still not enough...

For a deeper understanding of the topic, CEWEP will

- Develop a **guidance document** to clarify the grey areas of the BAT Conclusions and help operators in the renewal of their permits
- Organise a dedicated **workshop** to target implementation issues but also the applicability of the main techniques defined as BAT



Survived!



Thank you!

Questions?

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