



Seville, 14 June 2017

Explanatory documents for the revised draft BAT conclusions of the Pre-Final Draft of the revised Waste Treatment BREF

Aim of this document and of the attached Excel file

This document together with the attached Excel file accompanies the Pre-Final Draft of the revised Waste Treatment BREF. Its objectives are twofold:

- 1/ Explain the changes made to the draft BAT conclusions after the final TWG meeting for the Pre-Final Draft (shown in **blue** in the revised draft BAT conclusions). Modifications to the draft BAT conclusions after the final TWG meeting are the result of:
 - a) the EIPPCB assessment of the TWG written comments submitted in March 2017 on those BAT conclusions that were not discussed during the final TWG meeting; the explanations for these modifications can be found in the attached Excel file;
 - b) a further check of consistency and wording carried out by the EIPPCB in line with the decisions taken at the final TWG meeting; the explanations for these modifications can be found below in this document (except in the case of simple editorial corrections).

- 2/ Assess the proposals made by a few members of the TWG for additional BATs (namely BAT 26bis, BAT 52bis and BAT 52ter) as posted on BATIS on 18.04.2017 ([>BATIS >Forum >Waste Treatment >Review of the Waste Treatment BREF 2013 - >11 Final meeting >05 Task force contributions](#)).



Changes made to the draft BAT conclusions after the final TWG meeting for the Pre-Final Draft resulting from a further check of consistency and wording

Scope

- In the part of the scope concerning the activities not covered by the BAT conclusions, all the occurrences of "; this may be covered" or "this is covered" have been replaced by ". This may be covered" and ". This is covered" respectively, in order to bring consistency within the section (see also our assessment of the split view (section 2.2)).
- In the same part, the three occurrences of "when covered" have been replaced by "when this is covered" for editorial reasons.

Definitions

- The definition of "Laboratory smalls" has been removed, as these words are not used any longer in the BAT conclusions.
- The definitions for missing pollutants/parameters mentioned in the BAT conclusions have been added: BOD, CFCs, PFOA and PFOS.
- A definition for "Odour concentration" (as defined in the EN 13725:2003 standard) has been added as there is a BAT-AEL for this parameter.
- HOI: the acronym is now spelled out in the column "definitions" (right column)

Acronyms

- The term "Air pollution control" is not used in the BAT conclusions and the acronym has therefore been removed.

BAT 23

- In technique (e), the word "hazardous" has been added in the technique description to ensure consistency with the name of the technique.

General conditions (averaging periods for emissions to air), BAT 4 and BAT 32

- The term "odour" has been replaced by "odour concentration" for precision. Indeed, EN 13725 describes the measurement of the "odour concentration" (and not of other parameters such as "odour exposure" or "odour impact").

BAT 2:

- In the column with the names of the techniques, the word "to" has been removed

BAT 4, Table 6.13bis and Table 6.12

- The words "(...) as relevant in the waste gas" have been changed to "(...) as relevant in the waste gas stream", to be consistent with BAT 2bis and Table 6.6bis.

BAT 4

- The monitoring of the odour concentration as an alternative to the monitoring of NH₃ and H₂S has been moved from a footnote to a dedicated row in the table, as there is also now a dedicated row in the Table 6.8.
- The wording of the Footnote 5 as agreed at the final TWG meeting left room for interpretation: it could be understood in the sense that the odour concentration is monitored instead of **both** NH₃ and H₂S or that it is monitored instead of **either** NH₃ or H₂S. It is therefore proposed to make 2 different footnotes for clarification.

BAT 5:

- In technique (a), the word "optical" has been added before "absorption" to avoid possible misunderstanding with the absorption of organic compounds in a medium.

BAT 8

- In the second bullet point, the mentions to specific odour monitoring have been removed as all these options are now listed in the revised BAT 6.
- In the fourth bullet point, the mention to the odour exposure has been removed as this is now listed as one possible option in the revised BAT 6.

BAT 13:

- In the description of technique called "ex-technique 20b", the word "collected" was repeated twice ("rainwater (...) is collected (...) and , depending on the pollutant content, recycled or collected for further treatment". The second occurrence has been therefore replaced by "sent".

Table 6.3

- In Footnote 7, the words "the higher end of the range may not apply (...)" have been replaced by "the BAT-AEL may not apply (...)" to be consistent with the wording of Footnotes 3quater and 8.
- In Footnote 3quater, for consistency with footnote 7 and 8, "this BAT-AEL (...)" has been replace by "the BAT-AEL (...)"

BAT 21

- In the description, the word "washing" has been replaced by "cleaning" as the latter is wider and could be carried out without water.

Table 6.5

- In Footnote 2, for consistency within the document, the word "higher end of the range" has been replaced by "upper end of the range".

Table 6.8

- Two tables had the same numbering to distinguish between them the second was renamed to 6.8bis.

Tables 6.5, 6.6, 6.6bis, 6.7, 6.8, 6.8bis 6.13bis and 6.12.

- During the final TWG meeting, the first rows of Tables 6.5 and 6.7 were modified to include the possibility of using a daily average in the case of

continuous monitoring. The other tables concerning BAT-AELs for emissions to air remained unchanged. As continuous monitoring of organic compounds has been reported also in the case of treatment of WEEE containing VFCs and/or VHCs, mechanical treatment of waste with calorific value, MBT, physico-chemical treatment of waste with calorific value and treatment of WBLW, it is proposed to use the same approach in all tables related to BAT-AELs for emissions to air.

- In addition, in order to clarify the text introduced during the Final meeting, it is proposed to have this mention to continuous monitoring in dedicated footnotes instead of the first rows of the tables. These footnotes state: "When continuous monitoring is applied the BAT-AEL is expressed as daily average"

Title of Section 6.2.3

- The section title has been aligned with the new name of the waste treatment process as decided during the final TWG meeting.

Introductory text of Section 6.3

- The 2nd sentence has been clarified and aligned with the first one.

Table 6.8

- The footnote "The lower end of the range can be achieved by using thermal oxidation." was renumbered as there were two footnotes with the number 1.

BAT 27

- The description of technique c has been clarified.

BAT 29

- Editorial change in the description of technique a1: "non-dripping" is replaced by "does not drip".

BAT 33

- The description of BAT 33c has been aligned with the one of BAT 13c, concerning the limitations to the waste water recycling.

BAT 48 and BAT 49

- "Wet scrubber" has been replaced by "wet scrubbing" for consistency reasons.

BAT 50

- Below the table, it is proposed to add the sentence ' The associated monitoring is given in BAT 4.' as BAT 50 is referred to in BAT 4.

Description of techniques

- The descriptions of condensation and stripping have been clarified.
- The description of ballistic separation has been removed as it is not mentioned in the BAT Conclusions.

Additional BAT conclusions proposed by some TWG members

Proposal 1

Proposal for a new BAT 26bis on a reduction plan for diffuse emissions from shredders (as uploaded in [>BATIS >Forum >Waste Treatment >Review of the Waste Treatment BREF 2013 - >11 Final meeting >05 Task force contributions](#)):

"BAT 26bis:

In order to prevent diffuse emissions, BAT is to apply all the techniques mentioned in BAT 10g(1) (as proposed above) and mentioned below:

Set up and implement a diffuse emission reduction program designed to identify the sources of diffuse emissions using e.g. for dust EN 15445 (e.g. potential leaks of shredders, conveyor belts, transfer points, drop heights) to estimate the contribution of the sources and to define and implement appropriate actions and techniques to prevent or reduce diffuse emissions over a given time frame."

EIPPCB assessment:

- The BAT statement of the proposed BAT 26bis refers to BAT 10g1 which is already mentioned in BAT 26.
- The BAT statement of BAT 25 refers to BAT 10d, so the containment, capture and treatment of diffuse emissions is already addressed.
- Concerning the diffuse emission reduction programme, a dust management plan is mentioned by 7 out of 31 mechanical shredders of metal waste. In 4 cases (plants 100, 282, 293C and 294C), this dust management plan corresponds to cleaning measures (already addressed by BAT 10g1). In two cases (plants 25 and 55), no further information is given about the content of the management plan and in the last case (plant 441), it seems to correspond to dust measurements being done by an external company.
- No monitoring of diffuse dust emissions is reported by the mechanical shredders of metal waste in the reference list.
- The only information about diffuse emissions and atmospheric deposition of particle-bound PCDD/F and PCB in the surroundings of mechanical shredders of metal waste is in Section 3.1.2.1.4 of the Pre-Final Draft of the revised BREF.
- As the proposed BAT 26bis is partly covered by other BAT conclusions and as it is not considered sufficiently supported by the data collection, it is proposed not to include it in the draft BAT conclusions.
- As there is little information on the monitoring of diffuse emissions to air of dust and particle-bound bound PCDD/F and PCBs from mechanical shredders of metal waste, it is proposed to add in the chapter on "Concluding remarks and recommendations for future work" that such information should be collected during the next review of the Waste Treatment BREF.

Proposal 2

Proposal to complement BAT 52bis (as uploaded in in [>BATIS >Forum >Waste Treatment >Review of the Waste Treatment BREF 2013 - >11 Final meeting >05 Task force contributions](#)):

The additional text proposed is shown below in *italic*.

"BAT 52bis:

In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).

Description

Monitoring the waste input in terms of e.g.:

- bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential, activated sludge inhibition test);
- feasibility of emulsion breaking, e.g. by means of laboratory-scale tests.

As part of the pre acceptance procedures, taking into account the load of organic PBT-substances in the liquid waste, an appropriate combination of waste treatment techniques is selected. Liquid waste containing a significant load of organic PBT substances that cannot be abated adequately biologically should be treated separately in order to minimize the risk posed to receiving water bodies and soil.

COD elimination of >70% in 7 days (>80% when adapted inoculum is used) in accordance with DIN EN 9888 (Zahn Wellens) is considered a sufficient criterion of biological treatability in a biological waste water plant.

If BOD/COD ratio > 40%, no problems with bioeliminability are expected and in that case, the execution of a Zahn Wellens test is unnecessary."

EIPPCB assessment

- BAT 52bis already covers the monitoring of the bioeliminability of the waste input as part of the pre-acceptance and acceptance procedures. This monitoring will inform the operator on the suitability of the waste treatment operations for the waste input (see BAT 2a about pre-acceptance), i.e. on whether the installation is capable of treating certain waste input to the required level, and on which types of treatment are needed.
- If the bioeliminability tests reveal that the waste can be treated only to a small extent by biological treatment, it seems obvious that another type of treatment is to be undertaken. No specific addition seems needed in the text of the BAT conclusions.
- In addition, the risks which individual waste treatment installations may pose to a receiving water body and/or to soil are implementation issues in the domain of the competent authority.
- Concerning the COD elimination of > 70% in 7 days, it is not clear where this criterion comes from. There is a reference to 70% after 14 days in the standard EN ISO 9988:1999 but it corresponds to the COD elimination in the reference sample.
- Moreover, there are more possible tests for bioeliminability which are listed in the technical report CEN ISO/TR 15462:2009.

- In any case, the existing text of BAT 52bis gives already some examples of bioeliminability tests and the additional level of detail proposed seems to pertain more to the rest of the BREF than to the BAT conclusions part.
- It is therefore proposed to add information about the bioeliminability tests in the chapter on "Techniques to consider in the determination of BAT", namely Section 5.7.3.1 in the Pre-Final Draft of the WT BREF.

Proposal 3

3. Proposal for new BAT 52ter (as uploaded in in [>BATIS >Forum >Waste Treatment >Review of the Waste Treatment BREF 2013 - >11 Final meeting >05 Task force contributions](#)):

"BAT 52ter:

In order to improve the overall environmental performance, BAT is to monitor acute toxicity in the effluent at the point of discharge.

The lower end of the BAT-AEL for direct or indirect emissions to water may apply in case there is residual toxicity in the effluent."

EIPPCB assessment

- The proposed BAT is a combination of monitoring provisions ("to monitor acute toxicity") and an explanation of when the lower end of a BAT-AEL range applies.
- The monitoring of effluent parameters is addressed in BAT 3 and it is there where the monitoring of acute toxicity parameters could be added (as this was done in the CWW BREF).
- Moreover, the data collection provided little information on effluent toxicity measurements: only 4 plants treating water-based liquid waste (out of the 7 plants that reported this parameter in the entire data collection) reported toxicity measurements, using different EN or national standard (see also Background Paper p. 38).
- The residual toxicity of an effluent could be considered when stipulating under which circumstances the lower end of a BAT-AEL range applies. However, the proposal does not specify for which parameter(s) this is relevant.
- Taking these considerations into account, it is proposed that a recommendation for collecting information on residual effluent toxicity is added in the chapter on "Concluding remarks and recommendations for future work" of the Pre-Final Draft of the WT BREF. See also the EIPPCB assessment of the split view on Footnote 3bis to Table 6.3, as submitted by Belgium (see Split view assessment, Section 4.3.2).