



EUROPEAN COMMISSION
JOINT RESEARCH CENTRE
Directorate B: Growth and Innovation (Seville)
Circular Economy and Industrial Leadership Unit (DG JRC.B.5)
European IPPC Bureau

Seville, 7 March 2019

Standard text used in BREFs

A number of pieces of standard text have been used in the series of BAT reference documents (BREFs) under Directive 2010/75/EU on industrial emissions (IED) and under the preceding legislation (Directive 2008/1/EC).

This document presents the current version of the standard text. It builds on the previous version dated 20 July 2012 and the BREFs published by the Commission thereafter, and reflects the discussions held at the IED Article 13 forum meeting of 27 November 2018 and of 27 February 2019. The purpose of this document is to consolidate these changes into an updated version of the standard text. While the objective is to incorporate it literally into future (draft) BREFs, further adaptations to the standard text might be considered in specific and well-justified circumstances.

The text presented in blue in square brackets provides some instructions for the BREF authors and editors and should be removed or substituted when copying the standard text into the BREF.

PREFACE

1. Status of this document

Unless otherwise stated, references to ‘the Directive’ in this document refer to Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) (Recast).

[Author: in a draft BREF, please insert the following paragraph]

This document is a working draft of the European IPPC Bureau (of the Commission’s Joint Research Centre). It is not an official publication of the European Union and does not necessarily reflect the position of the European Commission.

[Secretariat: when the BAT conclusions have been adopted under the Directive, please replace the paragraph above by the following three paragraphs, in the case of a BREF review, and by the second and third paragraph only, in the case of a new BREF]

The original best available techniques (BAT) reference document (BREF) on [Author: insert the short BREF title] was adopted by the European Commission in [Author: insert the year the BREF was adopted]. This document is the result of a review of that BREF. The review commenced in [Author: insert the month and the year indicated on the EIPPCB letter inviting ‘initial positions’ for the review].

This BAT reference document for the [Author: please insert the title of the BREF] forms part of a series presenting the results of an exchange of information between EU Member States, the industries concerned, non-governmental organisations promoting environmental protection and the Commission, to draw up, review and, where necessary, update BAT reference documents as required by Article 13(1) of the Directive. This document is published by the European Commission pursuant to Article 13(6) of the Directive.

As set out in Article 13(5) of the Directive, the Commission Implementing Decision [Author: insert reference to the decision on the adoption of the BAT conclusions: yyyy/xx/EU] on the BAT conclusions contained in Chapter(s) [Author: please insert BAT chapter(s) number(s) here] was adopted on [date of decision] and published on [date of publication of decision in OJ and add reference to OJ in footnote]¹.

2. Participants in the information exchange

As required in Article 13(3) of the Directive, the Commission has established a forum to promote the exchange of information, which is composed of representatives from Member States, the industries concerned and non-governmental organisations promoting environmental protection (Commission Decision of 16 May 2011 establishing a forum for the exchange of information pursuant to Article 13 of the Directive 2010/75/EU on industrial emissions (2011/C 146/03), OJ C 146, 17.05.2011, p. 3).

Forum members have nominated technical experts constituting the technical working group (TWG) that was the main source of information for drafting this document. The work of the TWG was led by the European IPPC Bureau (of the Commission’s Joint Research Centre).

¹ OJ [series] [number], [dd.mm.yyyy], p. [starting page].

3. Structure and contents of this document

[Author: where text refers to chapters or chapter numbers, the following text may be amended to reflect the actual structure of the individual BREF]

Chapters [1] and [2] [Author: please note that heading numbers might differ depending on the BREF structure] provide general information on the [Author: insert the name of the industrial sector concerned] and on the industrial processes and techniques used within this sector.

Chapter [3] [Author: please note that heading numbers might differ depending on the BREF structure] provides data and information concerning the environmental performance of installations within the sector, and in operation at the time of writing, in terms of current emissions, the consumption and nature of raw materials, water consumption, use of energy and the generation of waste.

Chapter [4] [Author: please note that heading numbers might differ depending on the BREF structure] describes in more detail the techniques to prevent or, where this is not practicable, to reduce the environmental impact of installations in this sector that were considered in determining the BAT. This information includes, where relevant, the environmental performance levels (e.g. emission and consumption levels) which can be achieved by using the techniques, the associated monitoring and the costs and the cross-media issues associated with the techniques.

Chapter [5] [Author: please note that heading numbers might differ depending on the BREF structure] presents the BAT conclusions as defined in Article 3(12) of the Directive.

Chapter [6] [Author: please note that heading numbers might differ depending on the BREF structure] presents information on ‘emerging techniques’ as defined in Article 3(14) of the Directive.

Concluding remarks and recommendations for future work are presented in [Author: insert a cross-reference to the appropriate part of the BREF].

4. Information sources and the derivation of BAT

This document is based on information collected from a number of sources, in particular through the TWG that was established specifically for the exchange of information under Article 13 of the Directive. The information has been collated and assessed by the European IPPC Bureau (of the Commission’s Joint Research Centre) who led the work on determining BAT, guided by the principles of technical expertise, transparency and neutrality. The work of the TWG and all other contributors is gratefully acknowledged.

The BAT conclusions have been established through an iterative process involving the following steps:

- identification of the key environmental issues for the sector [Author: add details specific to the subject/sector covered];
- examination of the techniques most relevant to address these key issues;
- identification of the best environmental performance levels, on the basis of the data available in the European Union and worldwide;
- examination of the conditions under which these environmental performance levels were achieved, such as costs, cross-media effects, and the main driving forces involved in the implementation of the techniques;
- selection of the best available techniques (BAT), their associated emission levels (and other environmental performance levels) and the associated monitoring for this sector according to Article 3(10) of, and Annex III to, the Directive.

Expert judgement by the European IPPC Bureau and the TWG has played a key role in each of these steps and the way in which the information is presented here.

Where available, economic data have been given together with the descriptions of the techniques presented in Chapter [4] [Author: please note that heading numbers might differ depending on the BREF structure]. These data give a rough indication of the magnitude of the costs and benefits. However, the actual costs and benefits of applying a technique may depend greatly on the specific situation of the installation concerned, which cannot be evaluated fully in this document. In the absence of data concerning costs, conclusions on the economic viability of techniques are drawn from observations on existing installations.

5. Review of BAT reference documents (BREFs)

BAT is a dynamic concept and so the review of BREFs is a continuing process. For example, new measures and techniques may emerge, science and technologies are continuously developing and new or emerging processes are being successfully introduced into the industries. In order to reflect such changes and their consequences for BAT, this document will be periodically reviewed and, if necessary, updated accordingly.

6. Contact information

All comments and suggestions should be made to the European IPPC Bureau at the Joint Research Centre (JRC) at the following address:

European Commission
JRC Directorate B – Growth and Innovation
European IPPC Bureau
Edificio Expo
c/Inca Garcilaso, 3
E-41092 Seville, Spain
Telephone: +34 95 4488 284
E-mail: JRC-B5-EIPPCB@ec.europa.eu
Internet: <http://eippcb.jrc.ec.europa.eu>

SCOPE

[THE TEXT THAT FOLLOWS IS TO BE INSERTED AT THE BEGINNING OF THE CHAPTER]

This BREF for the [Author: please insert name of sector/activity] concerns the following activities specified in Annex I to Directive 2010/75/EU:

- [Author: please insert section number(s) of Annex I of Directive 2010/75/EU]: [Author: please insert the definition(s) from the Directive].

[Author: if relevant, provide a bulleted description of the issues covered in the scope of the BREF]

[Author: if relevant, also mention issues which are not within the scope of the BREF]

Other reference documents which could be relevant for the activities covered by this BREF are the following: [Author: please list the relevant BREFs, e.g.

- Energy Efficiency (ENE);
- Economics and Cross-Media Effects (ECM);
- Monitoring of Emissions to Air and Water from IED Installations (ROM);
- Emissions from Storage (EFS);
- Waste Incineration (WI);
- Waste Treatment (WT).]

The scope of this BREF does **not** include matters that only concern safety in the workplace or the safety of products because these matters are not covered by the Directive. They are discussed only where they affect matters within the scope of the Directive.

TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT

[THE TEXT THAT FOLLOWS IS TO BE INSERTED AT THE BEGINNING OF THE CHAPTER [OR SECTION IF THE BREF STRUCTURE IS DIVIDED INTO PARALLEL SUBSECTORS]]

This [chapter][section] describes techniques (or combinations thereof), and associated monitoring, considered to have the potential for achieving a high level of environmental protection in the activities within the scope of this document. The techniques described will include both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned.

It covers environmental management systems as well as process-integrated and end-of-pipe techniques. Waste prevention and management, including waste minimisation and recycling procedures, are also considered, as well as techniques that reduce the consumption of raw materials, water and energy by optimising use and reuse. The techniques described also cover the prevention or limiting of the environmental consequences of accidents and incidents, as well as site remediation. They also cover the prevention or reduction of emissions under other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations). [Author: please adapt this paragraph according to the techniques that are actually described in the chapter/section].

Annex III to the Directive lists a number of criteria for determining BAT, and the information within this chapter will address these considerations. As far as possible, the standard structure in Table [XYZ] is used to outline the information on each technique, to enable a comparison of techniques and the assessment against the definition of BAT in the Directive.

This chapter does not necessarily provide an exhaustive list of techniques that could be applied in the sector. Other techniques may exist, or may be developed, which could be considered in the determination of BAT for an individual installation.

Table [XYZ] Information for each technique

[Author: in a draft, use the following headings for each technique described in this chapter]

Heading within the sections	Type of information included
Description	A brief description of the technique with a view to being used in the BAT conclusions.
Technical description	A more detailed and yet concise technical description using, as appropriate, chemical or other equations, pictures, diagrams and flow charts.
Achieved environmental benefits	The main potential environmental benefits to be gained through implementing the technique (including reduced consumption of energy; reduced emissions to water, air and land; raw material savings; as well as production yield increases, reduced waste, etc.).
Environmental performance and operational data	Actual and plant-specific performance data (including emission levels, consumption levels – of raw materials, water, energy – and amounts of residues/wastes generated) from well-performing installations/plants (with respect to the environment taken as a whole) applying the technique accompanied by the relevant contextual

	<p>information.</p> <p>Any other useful information on the following items:</p> <ul style="list-style-type: none"> • how to design, operate, maintain, control and decommission the technique; • emission monitoring issues related to the use of the technique; • sensitivity and durability of the technique; • issues regarding accident prevention. <p>Links between inputs (e.g. nature and quantity of raw material and fuel, energy, water) and outputs (emissions, residues/wastes, products) are highlighted, in particular where relevant to enhancing an understanding of different environmental impacts and their interaction, for example where trade-offs have been made between different outputs such that certain environmental performance levels cannot be achieved at the same time.</p> <p>Emission and consumption data are qualified as far as possible with details of relevant operating conditions (e.g. percentage of full capacity, fuel composition, bypassing of the (abatement) technique, inclusion or exclusion of other than normal operating conditions, reference conditions), sampling and analytical methods, and statistical presentation (e.g. short- and long-term averages, maxima, ranges and distributions).</p> <p>Information is included on conditions/circumstances hampering the use of the (abatement) technique at full capacity and/or necessitating full or partial bypassing of the (abatement) technique and measures taken to restore full (abatement) capacity.</p>
Cross-media effects	<p>Relevant negative effects on the environment due to implementing the technique, allowing a comparison between techniques in order to assess the impact on the environment as a whole. This may include issues such as:</p> <ul style="list-style-type: none"> • consumption and nature of raw materials and water; • energy consumption and contribution to climate change; • stratospheric ozone depletion potential; • photochemical ozone creation potential; • acidification resulting from emissions to air; • presence of particulate matter in ambient air (including microparticles and metals); • eutrophication of land and waters resulting from emissions to air or water; • oxygen depletion potential in water; • persistent/toxic/bioaccumulable components (including metals); • generation of residues/waste; • limitation of the ability to reuse or recycle residues/waste; • generation of noise and/or odour; • increased risk of accidents. <p>The Reference Document on Economics and Cross-media Effects (ECM) should be taken into account.</p>

<p>Technical considerations relevant to applicability</p>	<p>It is indicated whether the technique can be applied throughout the sector. Otherwise, the main general technical restrictions on the use of the technique within the sector are indicated. These may be:</p> <ul style="list-style-type: none"> • an indication of the type of plants or processes within the sector to which the technique cannot be applied; • constraints to implementation in certain generic cases, considering, e.g.: <ul style="list-style-type: none"> ○ whether it concerns a new or an existing plant, taking into account factors involved in retrofitting (e.g. space availability) and interactions with techniques already installed; ○ plant size, capacity or load factor; ○ quantity, type or quality of product manufactured; ○ type of fuel or raw material used; ○ animal welfare; ○ climatic conditions. <p>These restrictions are indicated together with the reasons for them.</p> <p>These restrictions are not meant to be a list of the possible local conditions that could affect the applicability of the technique for an individual plant.</p>
<p>Economics</p>	<p>Information on the costs (capital/investment, operating and maintenance costs including details on how they have been calculated/estimated) and any possible savings (e.g. reduced raw material or energy consumption, waste charges, reduced payback time compared to other techniques), or revenues or other benefits including details on how these have been calculated/estimated.</p> <p>Cost data are preferably given in euros (EUR). If a conversion is made from another currency, the data in the original currency and the year when the data were collected are indicated. The price/cost of the equipment or service is accompanied by the year it was purchased.</p> <p>Information on the market for the sector is given in order to put costs of techniques into context.</p> <p>Information relevant to both newly built, retrofitted and existing plants is included. This should allow assessment, where possible, of the economic viability of the technique for the sector concerned.</p> <p>Information on the cost-effectiveness of the technique (e.g. in EUR per mass of pollutant abated) and related assumptions for its calculation can be reported.</p> <p>The Reference Document on Economics and Cross-media Effects (ECM) and the Reference Report on Monitoring of Emissions to Air and Water from IED Installations (ROM) are taken into account with regard to economic aspects and monitoring costs, respectively.</p>
<p>Driving force for implementation</p>	<p>Where applicable, specific local conditions, requirements (e.g. legislation, safety measures) or non-environmental triggers (e.g. increased yield, improved product quality, economic incentives – e.g. subsidies, tax breaks) which have driven or stimulated the implementation of the technique to date are provided.</p> <p>This subsection should be very short and use a list of bullet points.</p>

Example plants	Reference to a plant(s) where the technique has been implemented and from which information has been collected and used in writing the section. An indication of the degree to which the technique is in use in the EU or worldwide.
Reference literature	Literature or other reference material (e.g. books, reports, studies) that was used in writing the section and that contains more detailed information on the technique. When the reference material consists of many pages, reference will be made to the relevant page(s) or section(s).

[Secretariat: when the BAT conclusions have been adopted under the Directive, please replace in the BREF final draft the table above by table XYZ in the following form]

Headings within the sections
Description
Technical description
Achieved environmental benefits
Environmental performance and operational data
Cross-media effects
Technical considerations relevant to applicability
Economics
Driving force for implementation
Example plants
Reference literature

4.[x] Environmental management systems

Description

A formal system to demonstrate compliance with environmental objectives.

Technical description

The Directive defines ‘techniques’ (under the definition of ‘best available techniques’) as ‘both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned’.

In this respect, an environmental management system (EMS) is a technique allowing operators of installations to address environmental issues in a systematic and demonstrable way. EMSs are most effective and efficient where they form an inherent part of the overall management and operation of an installation.

An EMS focuses the attention of the operator on the environmental performance of the installation; in particular through the application of clear operating procedures for both normal and other than normal operating conditions, and by setting out the associated lines of responsibility.

All effective EMSs incorporate the concept of continuous improvement, meaning that environmental management is an ongoing process, not a project which eventually comes to an end. There are various process designs, but most EMSs are based on the plan-do-check-act cycle (which is widely used in other company management contexts). The cycle is an iterative dynamic model, where the completion of one cycle flows into the beginning of the next (see Figure [Author/Secretariat: cross-reference the appropriate caption number]).

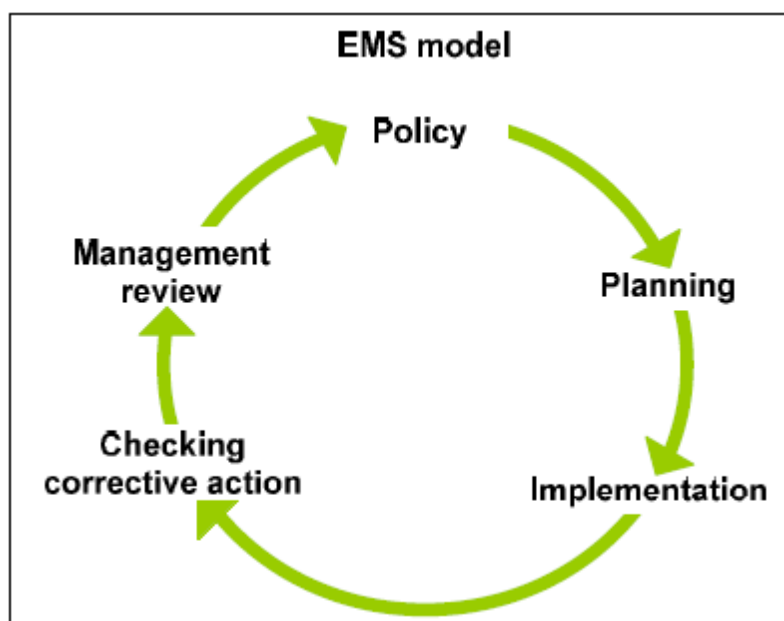


Figure [Author/Secretariat: insert the appropriate caption number]: Continuous improvement in an EMS model

An EMS can take the form of a standardised or non-standardised ('customised') system. Implementation and adherence to an internationally accepted standardised system, such as EN ISO 14001:2015, can give higher credibility to the EMS especially when subjected to a properly performed external verification. The European Union eco-management and audit scheme (EMAS) according to Regulation (EC) No 1221/2009 provides additional credibility due to the interaction with the public through the environmental statement and the mechanism to ensure compliance with the applicable environmental legislation. However, non-standardised systems can, in principle, be equally effective provided that they are properly designed and implemented.

While both standardised systems (EN ISO 14001:2015 or EMAS) and non-standardised systems apply in principle to organisations, this document takes a narrower approach, not including all activities of an organisation, e.g. with regard to their products and services, due to the fact that the Directive only regulates installations.

An EMS can contain the following features:

- i. commitment, leadership, and accountability of the management, including senior management, for the implementation of an effective EMS;
- ii. an analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment;
- iii. development of an environmental policy that includes the continuous improvement of the environmental performance of the installation;
- iv. establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements;
- v. planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;
- vi. determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;
- vii. ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);
- viii. internal and external communication;
- ix. fostering employee involvement in good environmental management practices;
- x. establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;
- xi. effective operational planning and process control;
- xii. implementation of appropriate maintenance programmes;
- xiii. emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;
- xiv. when (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;
- xv. implementation of a monitoring and measurement programme; if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;
- xvi. application of sectoral benchmarking on a regular basis;
- xvii. periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;

- xviii. evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;
- xix. periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;
- xx. following and taking into account the development of cleaner techniques.

Achieved environmental benefits

An EMS promotes and supports the continuous improvement of the environmental performance of the installation. If the installation already has a good overall environmental performance, an EMS helps the operator to maintain the high performance level.

Environmental performance and operational data

[Author: please add any operational data available for the sector on the implementation of an EMS]

Cross-media effects

None reported. The systematic analysis of the initial environmental impacts and scope for improvements in the context of the EMS sets the basis for assessing the best solutions for all environmental media.

Technical considerations relevant to applicability

The components described above can typically be applied to all installations within the scope of this document. The level of detail and the degree of formalisation of the EMS will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.

[Author: add technical considerations relevant to applicability issues to fit the specificities of the sector]

Economics

It is difficult to accurately determine the costs and economic benefits of introducing and maintaining a good EMS. There are also economic benefits that are the result of using an EMS and these vary widely from sector to sector.

External costs relating to verification of the system can be estimated from guidance issued by the International Accreditation Forum [Author: the website is already lodged in BATIS with ID number 10152; please associate it with the BREF and then insert the reference here].

Driving forces for implementation

The driving forces for the implementation of an EMS include:

- improved environmental performance;
- improved insight into the environmental aspects of the company which can be used to fulfil the environmental requirements of customers, regulatory authorities, banks, insurance companies or other stakeholders (e.g. people living or working in the vicinity of the installation);
- improved basis for decision-making;
- improved motivation of personnel (e.g. managers can have confidence that environmental impacts are controlled and employees can feel that they are working for an environmentally responsible company);
- additional opportunities for operational cost reduction and product quality improvement;
- improved company image;
- reduced liability, insurance and non-compliance costs.

[Author: please insert any available information on customer demand for an EMS in the whole sector or an identifiable sub-sector]

Example plants

EMSs are applied in a number of installations throughout the EU. [Author: you may wish to mention the percentage of the sector of concern]

Reference literature

[Author: add the relevant references here using BATIS]

BEST AVAILABLE TECHNIQUES (BAT) CONCLUSIONS

[AUTHOR: AT THE BEGINNING OF THE STAND-ALONE DOCUMENT ON BAT CONCLUSION, PLEASE INSERT A TABLE OF CONTENTS]

[THE TEXT THAT FOLLOWS IS TO BE INSERTED AT THE BEGINNING OF THE CHAPTER ON BAT CONCLUSIONS]

Scope

These BAT conclusions concern the following activities specified in Annex I to Directive 2010/75/EU:

- [Author: please insert section number(s) of Annex I of Directive 2010/75/EU]: [Author: please insert the definition(s) from the Directive].

[Author: if relevant, provide a bullet-listed description of the issues covered in the scope of the BAT conclusions]

[Author: if relevant, also mention issues which are not within the scope of the BAT conclusions]

Other BAT conclusions and reference documents which could be relevant for the activities covered by these BAT conclusions are the following:

[Author: please list the relevant BREFs, e.g.

- Energy Efficiency (ENE);
- Economics and Cross-Media Effects (ECM);
- Monitoring of Emissions to Air and Water from IED Installations (ROM);
- Emissions from Storage (EFS);
- Waste Incineration (WI);
- Waste Treatment (WT).]

Definitions

For the purposes of these BAT conclusions, the following **definitions** apply:

[Author: insert the definitions of words, concepts and acronyms (e.g. new/existing plant/installation or unit, pollutants or substances) that are essential to unambiguously understand the BAT conclusions taken as a standalone document]

General considerations

Best Available Techniques

The techniques listed and described in these BAT conclusions are neither prescriptive nor exhaustive. Other techniques may be used that ensure at least an equivalent level of environmental protection.

Unless otherwise stated, the BAT conclusions are generally applicable.

[Author: insert general considerations (e.g. on adopted units of measures, reference conditions, averaging periods) that are essential to the understanding of the BAT conclusions taken as a stand-alone document]

General BAT conclusions

[THE TEXT THAT FOLLOWS IS TO BE INSERTED WITHIN THE BAT CONCLUSIONS CHAPTER]

Environmental management systems

BAT x: In order to improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features:

- i. commitment, leadership, and accountability of the management, including senior management, for the implementation of an effective EMS;
- ii. an analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment;
- iii. development of an environmental policy that includes the continuous improvement of the environmental performance of the installation;
- iv. establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements;
- v. planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;
- vi. determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;
- vii. ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);
- viii. internal and external communication;
- ix. fostering employee involvement in good environmental management practices;
- x. establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;
- xi. effective operational planning and process control;
- xii. implementation of appropriate maintenance programmes;
- xiii. emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;
- xiv. when (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;
- xv. implementation of a monitoring and measurement programme; if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;
- xvi. application of sectoral benchmarking on a regular basis;
- xvii. periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;
- xviii. evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;
- xix. periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;

xx. following and taking into account the development of cleaner techniques.

Specifically for [the industry sector], it is also important to consider the following potential features of the EMS: [Author: please include other appropriate features here, if needed, e.g. energy management plan (see BAT XX); waste management plan, noise management plan (see BAT XY); odour management plan (see BAT YY); inventories of water, energy and raw material consumption and waste water and waste gas streams (see BAT ZZ). If this is not the case, please remove this paragraph.]

Note

Regulation (EC) No 1221/2009 establishes the European Union eco-management and audit scheme (EMAS), which is an example of an EMS consistent with this BAT.

Applicability

The level of detail and the degree of formalisation of the EMS will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.

Monitoring

BAT y: BAT is to monitor emissions to [Author: include as appropriate air/water] with at least the frequency given below and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.

Substance/Parameter	Standard(s)	Minimum monitoring frequency	Monitoring associated with
[e.g. NO _x]	[e.g. EN XXXX]	[e.g. continuous, once every month]	[Author: add reference to the BAT number(s)]

BAT conclusions for [Author: add the name of the (sub)sector(s) concerned]

The BAT conclusions in this section apply to [Author: add the name of the concerned (sub)sector(s)] and apply in addition to the general BAT conclusions given in Section [Author: insert the number of the appropriate section].

Description of techniques

[Author: if necessary, to avoid repetition, insert a descriptive list of techniques that are frequently used in the BAT conclusions and that need to be described for the purpose of understanding of the BAT conclusions taken as a stand-alone document; if not, remove the paragraph]

CONCLUDING REMARKS AND RECOMMENDATIONS FOR FUTURE WORK

Timing of the review process

[Author: summarise the main milestones of the BREF drawing up or review process]

Sources of information and information gaps

[Author: summarise the sources of information and information gaps]

Degree of consensus reached during the information exchange

[Author: add a sentence indicating the degree of consensus that was reached within the TWG for the whole document]

[Author: if any valid split views have been expressed and accepted, insert the following sentence and table]

Table Z.1 shows the split views expressed by TWG members.

Table Z.1: Split views

BAT conclusion / table number	Split view	View expressed by	Alternative proposed level (if any)
[Author: insert BAT conclusion or table N ^o]	[Author: add description of the split view; add as many lines as necessary]	[Author: list the organisation(s)/delegation(s) that tabled and support the view]	[Author: add proposed alternative level, if relevant]

Consultation of the Forum and subsequent formal adoption procedure of the BAT Conclusions

[Author: insert in this short section (no more than 10 lines) the outcome of the adoption procedure indicating any issues that had to be resolved at that stage; please indicate:

- the dates of:
 - the Forum meeting during which the opinion on the draft BREF was delivered;
 - the IED Article 75 Committee meeting during which the vote on the draft Commission Implementing Decision was held;
 - the formal adoption by the Commission of the BAT conclusions;
- the main outcome of the Forum and Committee in terms of resolved issues, but without specifications or positions of individual members.]

Recommendations for future work

[Author: insert here the Recommendations for future work]

Suggested topics for future R&D work

The Commission is launching and supporting, through its Research and Technological Development programmes, a series of projects dealing with clean technologies, emerging effluent treatment and recycling technologies and management strategies. Potentially, these projects could provide a useful contribution to future BREF reviews. Readers are therefore invited to inform the European IPPC Bureau of any research results which are relevant to the scope of this document (see also the fifth section of the Preface of this document).