

## Revision of the standard texts used in BREFs to adapt them to the IED regime

Under the IPPC Directive 2008/1/EC, a number of pieces of standard text were developed through the BAT information exchange over the years and have been used in the series of BREFs. A compilation of these standard texts was presented at the Information Exchange Forum<sup>(1)</sup> (IEF) meeting of 3 December 2009.

With the entry into force of Directive 2010/75/EU on industrial emissions (IED) on 6 January 2011, the standard texts used in the BREFs have been adapted to be used in the BREFs developed and published under the new Directive.

This document presents the current version of the standard texts. It reflects the content of the BAT conclusions for the Manufacture of Glass and the BAT conclusions for Iron and Steel Production adopted by the Commission on 28 February 2012, respectively with Commission Decision 2012/134/EU<sup>(2)</sup> and Commission Decision 2012/135/EU<sup>(3)</sup>, as well as the full BAT reference documents as published by the Commission thereafter.

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

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<sup>(1)</sup> The Information Exchange Forum was, under the IPPC regime, the predecessor of the forum established under Article 13 of the Industrial Emissions Directive (IED).

<sup>(2)</sup> OJ L 70, 08.03.2012, p. 1.

<sup>(3)</sup> OJ L 70, 08.03.2012, p. 63.



# 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 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 of EIPPCB letter inviting “wish list” 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]<sup>4</sup>.

## 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).

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<sup>4</sup> 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 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 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, 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 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 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 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 available data 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. 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 strongly 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 Institute for Prospective Technological Studies at the following address:

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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] covers the following activities within the scope of Annex I of Directive 2010/75/EU:

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

In particular, this document covers the following processes and activities:

[Author: please provide a bullet-listed description of the processes and activities covered in the scope of the BREF]

[Author: if relevant, also mention activities (e.g. sub-sectors) which are not within the scope of the BREF]

Other reference documents which are relevant for the sector covered in this document are the following: [Author: please list the BREFs where those activities are covered, e.g.

Reference document	Activity
Energy Efficiency (ENE)	General energy efficiency
Economic and Cross-Media Effects (ECM)	Economics and cross-media effects of techniques
General Principles of Monitoring (MON)	Emissions and consumption monitoring
Emissions from storage (EFS)	Emissions from tanks, pipework and stored chemicals
Waste Incineration (WI)	Waste Incineration
Waste Treatments Industries (WT)	Waste Treatment

]

The scope of the 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, process-integrated techniques and end-of-pipe measures. 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 measures used to prevent or to limit the environmental consequences of accidents and incidents, as well as site remediation measures. They also cover measures taken to prevent or reduce emissions under other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations).

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 which 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 <b>main</b> 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 <b>plant-specific</b> 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"> <li>• how to design, operate, maintain, control and decommission the technique</li> <li>• emission monitoring issues related to the use of the technique</li> <li>• sensitivity and durability of the technique</li> <li>• issues regarding accident prevention.</li> </ul> <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 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"> <li>• consumption and nature of raw materials and water</li> <li>• energy consumption and contribution to climate change</li> <li>• stratospheric ozone depletion potential</li> <li>• photochemical ozone creation potential</li> <li>• acidification resulting from emissions to air</li> <li>• presence of particulate matter in ambient air (including microparticles and metals)</li> <li>• eutrophication of land and waters resulting from emissions to air or water</li> <li>• oxygen depletion potential in water</li> <li>• persistent/toxic/bioaccumulable components (including metals)</li> <li>• generation of residues/waste</li> <li>• limitation of the ability to reuse or recycle residues/waste</li> <li>• generation of noise and/or odour</li> <li>• increased risk of accidents.</li> </ul> <p>The Reference Document on Economics and Cross-media Effects (ECM) should be taken into account.</p>
Technical considerations relevant to applicability	<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"> <li>• an indication of the type of plants or processes within the sector to which the technique cannot be applied;</li> <li>• constraints to implementation in certain generic cases, considering, e.g.: <ul style="list-style-type: none"> <li>• 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</li> <li>• plant size, capacity or load factor</li> <li>• quantity, type or quality of product manufactured</li> <li>• type of fuel or raw material used</li> <li>• animal welfare</li> <li>• climatic conditions.</li> </ul> </li> </ul> <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>
Economics	<p>Information on the costs (capital/investment, operating and maintenance including details on how these costs 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 euro (EUR). If a conversion is made from another currency, the data in the original currency and the year when the data were collected is 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 in order to put costs of techniques into context.</p> <p>Information relevant to both newly built, retrofitted and existing plants. 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 their calculation can be reported.</p> <p>The Reference Document on Economics and Cross-media Effects (ECM) and the Reference Document on the General Principles of Monitoring (MON) are taken into account with regard to economic aspects and monitoring costs, respectively.</p>
Driving force for implementation	<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.</p> <p>This subsection should be very short using bullet point lists.</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 a large number of 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]

<b>Headings within the sections</b>
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]).

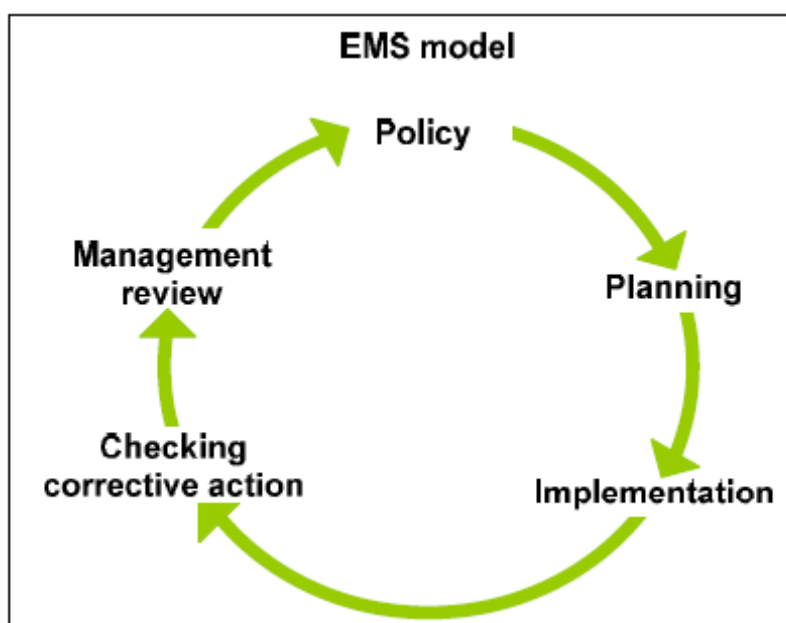


Figure [Author/Secretariat: insert the appropriate caption number]: Continuous improvement in an EMS model

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 14001:2004, can give higher credibility to the EMS especially when subjected to a properly performed external verification. EMAS 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 14001:2004 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/plants**.

An EMS can contain the following components:

1. commitment of management, including senior management;
2. definition of an environmental policy that includes the continuous improvement of the installation by the management;
3. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;
4. implementation of procedures paying particular attention to:
  - (a) structure and responsibility
  - (b) training, awareness and competence
  - (c) communication
  - (d) employee involvement
  - (e) documentation
  - (f) efficient process control
  - (g) maintenance programmes
  - (h) emergency preparedness and response
  - (i) safeguarding compliance with environmental legislation;
5. checking performance and taking corrective action paying particular attention to:
  - (a) monitoring and measurement (see also the Reference Document on the General Principles of Monitoring) [[Note for Author: The Reference Document on the General Principles of Monitoring \(MON\) is already lodged in BATIS with ID number 8779; please associate it with the BREF and insert the reference here](#)].
  - (b) corrective and preventive action
  - (c) maintenance of records
  - (d) independent (where practicable) internal and external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;
6. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management;
7. preparation of a regular environmental statement;
8. validation by a certification body or an external EMS verifier;
9. following the development of cleaner technologies;
10. consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life;
11. application of sectoral benchmarking on a regular basis.

#### **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 scope (e.g. level of detail) and nature of the EMS (e.g. standardised or non-standardised) will 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 determine accurately 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**

EMAs 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**

EMAS Regulation (EC) No 1221/2009 [Author: the Regulation is already lodged in BATIS with ID number 10039; please associate it with the BREF and then insert the reference here]

DG Environment EMAS website. [Author: the website is already lodged in BATIS with ID number 10149; please associate it with the BREF and then insert the reference here]

**EN ISO 14001: 2004**

ISO 14000 family of standards website. [Author: the website is already lodged in BATIS with ID number 10150; please associate it with the BREF and then insert the reference here]

ISO 14000 technical committee. [Author: the website is already lodged in BATIS with ID number 10151; please associate it with the BREF and then insert the reference here]

# 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, namely:

'[Author: please insert the definition or definitions from Annex I of the Directive]', /which involve [Author: please insert (where necessary) a definition for the sub-sector covered].

In particular, these BAT conclusions cover the following processes and activities:

[Author: please provide a bullet-listed description of the relevant processes and activities covered in the BAT conclusions]

These BAT conclusions do not address the following activities:

[Author: where relevant, also include parts of sector not covered]

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

Reference documents	Activity
[Author: please insert titles of relevant reference documents]	[Author: please describe the related activities covered]

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.

## 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

[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 standalone document]

## GENERAL BAT CONCLUSIONS

Unless otherwise stated, the BAT conclusions presented in this section are generally applicable.

The process-specific BAT included in Sections [Author: insert the number of the appropriate sections] apply in addition to the general BAT mentioned in this section.

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

### ENVIRONMENTAL MANAGEMENT SYSTEMS

**1) In order to improve the overall environmental performance of [Author: insert the type of plant/installation covered in the scope] BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:**

- i. commitment of the management, including senior management;
- ii. definition of an environmental policy that includes the continuous improvement of the installation by the management;
- iii. planning and establishing the necessary procedures, objectives and targets, in conjunction with financial planning and investment;
- iv. implementation of procedures paying particular attention to:
  - (a) structure and responsibility
  - (b) training, awareness and competence
  - (c) communication
  - (d) employee involvement
  - (e) documentation
  - (f) efficient process control
  - (g) maintenance programmes
  - (h) emergency preparedness and response
  - (i) safeguarding compliance with environmental legislation;
- v. checking performance and taking corrective action, paying particular attention to:
  - (a) monitoring and measurement (see also the Reference Document on the General Principles of Monitoring)
  - (b) corrective and preventive action
  - (c) maintenance of records
  - (d) independent (where practicable) internal and external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;
- vi. review of the EMS and its continuing suitability, adequacy and effectiveness by senior management;
- vii. following the development of cleaner technologies;
- viii. consideration for the environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life;
- ix. application of sectoral benchmarking on a regular basis.

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. If not the case, please remove this paragraph.]



**Applicability**

The scope (e.g. level of details) and nature of the EMS (e.g. standardised or non-standardised) will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.

## **DESCRIPTION OF TECHNIQUES**

[Author: if needed to avoid repetitions insert a descriptive list of techniques that are frequently used in the BAT conclusions and need be described to the understanding of the BAT conclusions taken as standalone 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 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 that [high][very high] degree of consensus was reached within 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	View expressed by	Split view
[Author: insert BAT conclusion No]	[Author: list the organisation/delegations that support the view]	[Author: add description of the split view; add as many lines as necessary]

## 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 adoption procedure indicating any issues that had to be resolved at that stage; please indicate:

- the dates of
  - Forum meeting during which opinion on draft BREF was delivered
  - IED Article 75 Committee meeting during which vote on draft Commission Implementing Decision was held
  - formal adoption by the Commission of the BAT conclusions
- the main outcome of the Forum and Committee in terms of resolved issues, with neither specifications nor 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).