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COMMISSION IMPLEMENTING DECISION (EU) 2026/2545

of 13 November 2026

amending Implementing Decision 2012/119/EU as regards the practical arrangements for the exchange of information referred to in Article 13(3), points (c) and (d), of Directive 2010/75/EU of the European Parliament and of the Council, the collection of data and the drawing up or review of BAT reference documents and their quality assurance

(notified under document C(2026) 7990)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/75/EU of the European Parliament and of the Council on industrial and livestock rearing emissions (integrated pollution prevention and control) ([1]), and in particular Article 13 thereof,

Whereas:

(1) Commission Implementing Decision 2012/119/EU ([2]) lays down rules concerning guidance on the collection of data and on the drawing up of best available techniques (BAT) reference documents (BREFs) and on their quality assurance referred to in Article 13(3), points (c) and (d), of Directive 2010/75/EU.

(2) Directive (EU) 2024/1785 of the European Parliament and of the Council ([3]) introduced substantial amendments to Directive 2010/75/EU. Those amendments provide, in particular, for: new environmental objectives; enhanced roles for the Commission — notably through the establishment of the Innovation Centre for Industrial Transformation and Emissions (INCITE) — as well as for the European Chemicals Agency (ECHA); a defined duration for the exchange of information and for the review cycle of BREFs; strengthened rules on the handling of confidential business information and commercially sensitive information; and new requirements for the permits that Member States grant to operators of industrial plants.

(3) Pursuant to Article 14(3) of Directive 2010/75/EU, BAT conclusions set out in BREFs must be the reference for setting permit conditions. Therefore, in order to ensure coherence with the amendments of Directive (EU) 2024/1785, and in accordance with Article 13(1a) of Directive 2010/75/EU, the provisions of Implementing Decision 2012/119/EU must be updated by 1 July 2026.

(4) In accordance with Article 13(3), point (c), of Directive 2010/75/EU, the Commission obtained the opinion of the forum on this Decision on 2 March 2026.

(5) The measures provided for in this Decision are in accordance with the opinion of the Committee established by Article 75 of the Directive,

([1]) OJ L 334, 17.12.2010, p. 17, ELI: http://data.europa.eu/eli/dir/2010/75/oj.

([2]) Commission Implementing Decision 2012/119/EU of 10 February 2012 laying down rules concerning guidance on the collection of data and on the drawing up of BAT reference documents and on their quality assurance referred to in Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (OJ L 63, 2.3.2012, p. 1, ELI: http://data.europa.eu/eli/dec_impl/2012/119/oj).

([3]) Directive (EU) 2024/1785 of the European Parliament and of the Council of 24 April 2024 amending Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) and Council Directive 1999/31/EC on the landfill of waste (OJ L, 2024/1785, 15.7.2024, ELI: http://data.europa.eu/eli/dir/2024/1785/oj).

HAS ADOPTED THIS DECISION:

Article 1

The Annex to Implementing Decision 2012/119/EU is replaced by the Annex to this Decision.

Article 2

This Decision is addressed to the Member States.

Done at Brussels, 13 November 2026.

For the Commission
Jessika ROSWALL
Member of the Commission

ANNEX

Guidance on the practical arrangements for the exchange of information referred to in Article 13(3), points (c) and (d), of Directive 2010/75/EU, the collection of data, the drawing up or review of BAT reference documents and their quality assurance

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1 CHAPTER 1: PROCEDURE FOR DRAWING UP AND REVIEWING A BEST AVAILABLE TECHNIQUES (BAT) REFERENCE DOCUMENT

1.1 Context

1.1.1 Legislative context

In 2024, Directive (EU) 2024/1785 ([1]) of the Parliament and the Council amended Directive 2010/75/EU ([2]) of the Parliament and the Council ('the revised IED'), which lays down rules on integrated prevention and control of pollution arising from industrial activities. It also lays down rules designed to prevent or, where that is not practicable, to reduce continuously emissions into air, water and land, prevent the generation of waste, improve resource efficiency, and promote the circular economy and decarbonisation, in order to achieve a high level of protection of human health and the environment taken as a whole (see Article 1 of the revised IED).

Article 13(1) of the revised IED, requires that the Commission organise an exchange of information between it and Member States, the industries concerned, non-governmental organisations promoting human health or environmental protection and the European Chemicals Agency in order to draw up, review and, where necessary, update BAT reference documents ('BREFs'). The Commission should also ensure that the European Environment Agency participates in the exchange of information, where the exchange of information would benefit from the Agency's expertise ([3]).

Article 13(1) also sets out 'that exchange of information shall aim at an eight-year review cycle of BAT reference documents prioritising the documents that have the highest potential to improve the protection of human health or the environment. The duration of the exchange of information … shall not exceed four years for each individual BAT reference document.'

The information exchange covers the steps between the kick-off meeting (KoM) and the final meeting of the technical working group (TWG). The preparatory activities for the information exchange (see Section 4.5) are expected to shorten this period to less than four years.

Article 13(2) of the revised IED requires that 'the exchange of information shall, in particular, address the following:

(a) the performance of installations and techniques in terms of emissions, expressed as short- and long-term averages, where appropriate, and the associated reference conditions, consumption and nature of raw materials, water consumption, use of energy and generation of waste;

(b) the techniques used, associated monitoring, cross-media effects, economic and technical viability and developments therein;

(c) best available techniques and emerging techniques identified after considering the issues mentioned in points (a) and (b).'

A BREF, resulting from this exchange of information, is defined in Article 3, point 11, of the revised IED. It is a document drawn up for defined activities describing, in particular, applied processes and techniques, present emission and consumption levels, techniques considered for the determination of BAT as well as BAT conclusions and any emerging techniques, giving special consideration to the criteria listed in Annex III to the revised IED ([4]). Therefore, by definition, a BREF is a descriptive document and it does not prescribe the use of any technique or specific technology, nor does it interpret the revised IED.

([1]) Directive (EU) 2024/1785 of the European Parliament and of the Council of 24 April 2024 amending Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions (integrated pollution prevention and control) and Council Directive 1999/31/EC on the landfill of waste; OJ L, 2024/1785, 15.7.2024; ELI: http://data.europa.eu/eli/dir/2024/1785/oj.

([2]) Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial and livestock rearing emissions (integrated pollution prevention and control), OJ L 334 17.12.2010, p. 17; ELI: http://data.europa.eu/eli/dir/2010/75/2024-08-04.

([3]) As explained in recital 21 of Directive (EU) 2024/1785.

([4]) Annex III has been amended by the IED revision and includes new criteria such as decarbonisation, impact of emissions on biodiversity, and the use of less hazardous substances, including less use of substances of very high concern.

'Best available techniques (BAT)' are defined in Article 3, point 10, of the revised IED as the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole:

a. 'Techniques' includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned.

b. 'Available techniques' means techniques developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, regardless of whether such techniques are used or produced in the Union, as long as they are reasonably accessible to the operator.

c. 'Best' means most effective in achieving a high general level of protection of the environment as a whole, including human health and climate protection.

Article 3, point 12, of the revised IED also defines **'BAT conclusions'** as the parts of a BREF laying down the conclusions on BAT and emerging techniques (ET), their description, information to assess their applicability, the emission levels associated with those techniques, the environmental performance levels associated with those techniques, the content of an environmental management system including benchmarks, associated monitoring, associated consumption levels and, where appropriate, relevant site remediation measures. The BAT conclusions are to be adopted through the procedure referred to in Article 75(2) of the revised IED. They shall be the reference for setting permit conditions for the installations covered by Chapter II of the IED (Article 14(3) of the revised IED). BAT conclusions should also identify ET and BAT that operators of industrial installations can implement to transform installations to be consistent with the Union's objective of a sustainable, clean, circular and climate-neutral economy.

'Emission levels associated with BAT' are defined in Article 3, point 13, of the revised IED as the range of emission levels obtained under normal operating conditions using a BAT or a combination of BAT, as described in BAT conclusions, expressed as an average over a given period of time, under specified reference conditions.

'Environmental performance levels associated with BAT' are defined in Article 3, point 13a, of the revised IED as the range of environmental performance levels, obtained under normal operating conditions using a BAT or a combination of BAT, as described in BAT conclusions.

'Environmental performance' is defined in Article 3, point 13aa, of the revised IED as the performance with regard to consumption levels, resource efficiency concerning materials, water and energy resources, the reuse of materials and water, and waste generation.

'Emerging techniques (ET)' are defined in Article 3, point 14, of the revised IED as novel techniques for an industrial activity that, if commercially developed, could provide either a higher general level of protection of human health and the environment or at least the same level of protection of human health and the environment and higher cost savings than existing BAT.

'**Emission levels associated with ET'** are defined in Article 3, point 48, of the revised IED as the range of emission levels obtained under normal operating conditions using an ET or a combination of ET, as described in BAT conclusions, expressed as an average over a given period of time, under specified reference conditions.

'**Environmental performance levels associated with ET**' are defined in Article 3, point 49, of the revised IED as the range of environmental performance levels, obtained under normal operating conditions, using an ET or a combination of ET as described in BAT conclusions.

Benchmarks are defined in Article 3, point 13b, of the revised IED as the indicative range of environmental performance levels associated with BAT, which is to be used as a reference in the environmental management system.

1.1.2 **Aim of a BREF**

The aim of a BREF is to determine BAT and ET, and to limit imbalances in the Union as regards the level of emissions from industrial activities. BREFs should provide information to the competent authorities of Member States, industrial operators, the Commission and the public at large on what BAT and ET are for the activities covered by Annex I to the revised IED. The process of determining BAT and ET should be transparent and objective, based on sound technical and economic information. A BREF is a driver towards improved protection of the environment and human health across the Union.

To serve its main aim and ensure its user-friendliness, the content of the BREF should be limited to the relevant information for enabling the determination of BAT conclusions as set out in Chapter 3 ([5]). A BREF is not meant to be a textbook on techniques to prevent and control pollution. Extensive literature exists on the subject to which the BREF can refer where needed. However, it is essential that the BREF provide information on the main techniques that were considered by the technical working group (TWG) (see Section 4.2 ([6])) for the determination of BAT and ET, and on the grounds for the BAT conclusions, together with key open issues or gaps in knowledge that need to be explored for the BREF's subsequent review.

1.1.3 **'Horizontal' and 'vertical' BREFs**

BREFs are generally restricted to issues related to particular industrial activities ('vertical' BREFs). In some cases, BREFs may also address cross-sectoral issues that are common to all or many IED activities ('horizontal' BREFs).

'Horizontal' and 'vertical' BREFs should be developed so as to be complementary for the purpose of setting permit conditions for installations covered by the revised IED.

'Vertical' BREFs are to include sector-specific information. Consequently, the BAT conclusions mentioned in Article 21(3) of the revised IED, i.e. BAT conclusions relating to the main activity of an installation, are to be part of 'vertical' BREFs only.

'Horizontal' BREFs are to include information of a generic nature that can be used across many activities which fall under the scope of the revised IED. Information should be included in 'horizontal' BREFs where this supplements the information contained in 'vertical' BREFs on aspects that cut across several industrial sectors.

This should not result in conflicting conclusions between 'vertical' and 'horizontal' BREFs. In order to facilitate the use of both 'vertical' and 'horizontal' BREFs in a complementary way, appropriate cross-references need to be made in a BREF to other relevant 'vertical' and 'horizontal' BREFs.

1.2 **Procedure for the drawing up and reviewing of BREFs**

The Commission organises and coordinates the exchange of information and preparatory activities (early front-loading). The stakeholders involved in the exchange of information as provided for in Article 13(1) of the revised IED (Member States, the industries concerned, NGOs promoting human health or environmental protection, the European Chemicals Agency and the Commission) oversee the process through the Forum established in accordance with Article 13(3) of the revised IED. They contribute to the drawing up and reviewing of BREFs by participating in the technical working groups (TWGs). More information on the role of the stakeholders and the functioning of the Forum and the TWGs is given in Sections 1.3 and 4.2, respectively.

The decision to draw up a BREF or to start reviewing a BREF is taken by the Commission and takes into account the opinion of the Forum on the work programme for the exchange of information, in accordance with Article 13(3), point (b), of the revised IED.

1.2.1 **General procedure for the drawing up of a new BREF**

Since new activities are included in Annex I to the revised IED, new BREFs must be drawn up. In addition, new BREFs may also be drawn up for activities that are not already covered by existing BREFs or following a reorganisation of existing BREFs (e.g. merging existing BREFs into a new BREF).

([5]) Unless otherwise specified, the term 'Chapter' refers to the chapters of this Annex.
([6]) Unless otherwise specified, the term 'Section' refers to the sections of this Annex.

The workflow for the drawing up of a new BREF presents many similarities with the workflow for the review of a BREF and is described in Section 1.2.5. However, for a new BREF, special attention should be paid to the preparatory activities described in Section 4.5: a substantial amount of information may have to be gathered in the front-loading phase, which may take slightly longer than for a BREF review.

1.2.2 **General procedure for the review of a BREF**

The reviewing of BREFs is a continuous process, due to the dynamic nature of BAT. Science and technologies are developing continuously, new techniques may emerge, new or emerging processes are being successfully introduced into the industry, new environmental concerns may arise and new knowledge on emitted substances and their hazardous properties may become available. In order to reflect such changes and their consequences for the BAT, BREFs have to be periodically reviewed and, if necessary, updated accordingly. This is explicitly addressed by Article 13(1) of the revised IED, which indicates that the exchange of information is to aim at an eight-year review cycle of BREFs.

The decision to review a BREF should take into account:

(i) information in the section of the BREF entitled 'Concluding Remarks and Recommendations for Future Work' (see Section 2.2); and

(ii) information coming from INCITE (see Section 4.4), together with other factors such as:

— an indication that new techniques might be available;

— the need to expand the scope of the BREF;

— the need to include products/substances or processes that were not yet covered; or

— the need to explore particular aspects more thoroughly.

1.2.3 **Partial review of a BREF**

When an existing BREF is reviewed as part of the programmed review cycle, it may be possible to review only a part of the BREF, focusing, for example, on a specific industrial process or subsector, on a specific environmental issue, or on a novel process that has emerged since the adoption of the BAT conclusions.

Although this approach allows for a faster review, this may only be possible if the conditions below are met.

— Some parts of the BREFs may remain unchanged, for example, if a subsector or production process has remained largely unchanged or if the performance of abatement techniques for a given pollutant observed in the field has not improved significantly.

— The integrated approach of the IED is safeguarded. For example, if the partial review focuses on a specific environmental issue (e.g. a specific pollutant), it should not be limited to the BAT or associated emission or performance levels related to that issue. The review should also include possible cross-media effects (e.g. potential impact of the abatement techniques used to reduce this pollutant on water or energy consumption, waste generation, or potential emissions of other pollutants) and other environmental issues arising from the reduction or prevention of this specific environmental issue.

— The overall consistency of the BAT conclusions is maintained. For example, if a BAT is developed for a novel process in a set of existing BAT conclusions, the conclusions regarding this new BAT must remain consistent with the conclusions on the BATs that are not part of the review (e.g. if the novel BAT is a generic BAT, it must be checked that it is applicable to all processes of the concerned industrial sector, and not only to this novel process).

Carrying out a partial review of a BREF published before 2026 is not intended as the TWG would need to ensure that also the part not addressed in the partial review aligns (through a specific data collection exercise) with the objectives and requirements of the revised IED, in particular the chapter on BAT conclusions.

The conclusions as to which parts of the BREF remain unchanged and which parts need to be reviewed are taken at the TWG's kick-off meeting (see Section 4.6.1.2).

1.2.4 **Objective of a BREF review**

The objective of a BREF review is to assess to what extent the previously adopted BAT conclusions are still fit for purpose, and, where necessary, to update these conclusions and identify evolutions in BAT and ET. This is achieved primarily by examining the parts of the BREF laying down the conclusions on BAT, by assessing how effective their implementation has been and by revising or updating those conclusions where new information is available that allows for doing so.

The review of a BREF is, therefore, not expected to involve a complete rewrite or modification of the whole BREF. It is, however, recognised that in some cases the first reviews of BREFs could involve substantially more modifications than subsequent reviews.

Clearly, the most relevant new information that needs to be identified, collected and submitted in the framework of the exchange of information for a BREF review is that which might lead to revised or updated BAT conclusions. For this purpose, it is crucial that data and information be collected on the basis of the guidance laid down in Chapter 5.

Additionally, the review of a BREF should include:

1. improving, updating and complementing existing information and BAT conclusions on the basis of more recent data and information;

2. removing obsolete and outdated information;

3. correcting errors and removing any inconsistencies with other BREFs.

The review of a BREF should mainly focus on the chapters of the BREF entitled 'Techniques to Consider in the Determination of BAT and ET', 'Best Available Techniques (BAT) Conclusions' and 'Current emission and consumption levels' and, to a lesser extent, on the chapters of the BREF entitled 'Applied processes and techniques' (in the event of important changes in this chapter). The review of the other chapters of the BREF should be given a lower priority.

Overall, there is a need to ensure that all the information that remains within the BREF is as up-to-date, as consistent and as accurate as reasonably achievable.

1.2.5 **Typical workflow for the drawing up and reviewing of BREFs**

The typical workflow for the drawing up and reviewing of BREFs includes as major milestones a kick-off meeting, a data and information collection phase, one draft of the BREF and a final meeting (see Section 4.6.1.4). The main steps for the drawing up and reviewing of BREFs are described in more detail in Table 1.

These steps take into account:

— the aim set out in Article 13(1) of the revised IED that a BREF is to be updated no later than eight years after the publication of the previous version;

— the aim set out in Article 13(1) of the revised IED that 'The duration of the exchange of information referred to in the first subparagraph shall not exceed four years for each individual BAT reference document'.

The exact steps and timing of the work for each BREF depends on a number of factors, including the scope of the BREF (and the possible extension of the scope in the case of BREF reviews), the number and complexity of topics that need to be addressed, the resources of the European Bureau for Research on Industrial Transformation and Emissions - EU-BRITE - given its central role in the information exchange process and, above all, the level of active and effective participation of the TWG. The flexibility that exists to adapt the workflow to the specifics of a particular BREF applies without prejudice to the overall objective to complete the work within the time limits indicated above while ensuring the high quality of the BREF produced.

It is expected that, in principle, two plenary TWG meetings should be held during the course of a BREF review (the kick-off meeting and the final meeting (see Section 4.6.1)). However, in certain cases (e.g. where a lot of new information has been provided, or when the determination of BAT is particularly controversial), interim TWG meetings (see Section 4.6.1.3) may be held. In addition to these plenary TWG meetings, data assessment workshops are organised (see Section 4.6.3.3) and subgroup meetings can be organised to facilitate the work (see Section 4.2.3).

In order to make the most efficient use of resources from all those involved in the drawing up or reviewing of a BREF, there needs to be a clear deadline for submission of the bulk information promised or identified in the conclusions of the kick-off meeting (see Section 4.6.1.2). Information submitted after this deadline can be accepted only in exceptional circumstances, after consultation with the TWG, and can only be taken into account by EU-BRITE when it contributes substantially to deriving or updating conclusions on BAT or to the resolution of controversial or technically complicated issues.

Should it be necessary, EU-BRITE will request additional information or clarifications from the TWG in order to collect any important missing information that is considered necessary, in particular for deriving BAT conclusions in accordance with the guidance laid down in Chapters 3 and 5.

Step No	BREF drawing-up / review step	Description
Preparatory activities before the information exchange		
0.1	Early front-loading	See Section 4.5.1.
0.2	TWG activation/reactivation	The TWG is activated/reactivated, with identification and confirmation of membership and contact details (see Section 4.2.1).
0.3	Front-loading	TWG members submit initial input (see Section 4.5.2).
Information exchange activities		
1.1	Kick-off meeting (KoM)	A KoM is organised (see Section 4.6.1.2) on the basis of a background paper provided to the TWG beforehand. KoM conclusions and a KoM report are circulated after the KoM.
1.2	Information/data collection and analysis	The TWG collects and submits the bulk information identified in the conclusions of the KoM (see Section 4.6.3.1). Bulk information refers to all information exchanged within the 'Sevilla process' except that received through questionnaires.
		A questionnaire (see Section 4.6.2) is prepared by EU-BRITE for the collection of installation-, plant- and process-specific data and finalised with the TWG (including through a questionnaire development workshop and a test phase). The questionnaire is sent to the installations or plants participating in the data/information collection (see also Section 4.6.3.1).
		Installation-, plant- and process-specific data are collected (see Section 4.6.3.1).
		Information and data are analysed (see Section 4.6.3.2) and discussed within the TWG (including through a first data assessment workshop).
1.3	First draft	A first draft (see Section 0) is drawn up and submitted for TWG comments.
1.4	Analysis of comments and update of the first draft	TWG comments are analysed and discussed with the TWG (including through a second data assessment workshop). The TWG comments are taken into account for the update of the BREF (or its relevant chapters) for the final meeting. Other data assessment workshops may be organised if necessary.
1.5	Final meeting	A background paper is developed for the TWG's final meeting. An updated version of the relevant chapters of the BREF is circulated to the TWG (see Section 4.6.1.4). A final meeting is organised (see Section 4.6.1.4). The conclusions of the final meeting are circulated after the final meeting.
Final draft		
2.	Final draft	Based on the final meeting conclusions, a final draft of the BREF is produced. This is made available for the opinion of the Art.13 Forum (see Section 1.3).

In order to increase efficiency in the preparation of work, EU-BRITE will inform the Forum (see Section 1.3) as far in advance as is reasonably possible of the dates/periods a TWG is expected to be reactivated or set up. In the same way, EU-BRITE will inform TWG members of the next steps and possible deadlines in good time.

1.3 Forum established pursuant to Article 13 of the revised IED

The Forum established under Article 13(3) of the revised IED is an expert group convened and chaired by the Commission and consists of representatives of Member States, the industries concerned and non-governmental organisations promoting the protection of human health or the environment. The appointment of members to the Forum is carried out in accordance with Commission Decision 2011/C 146/03 establishing the Forum ([7]), which also sets out the task of the Forum.

The Forum's role, as explained in recital 14 and described in Article 13(3) of the revised IED, is to ensure an effective, active and transparent exchange of information resulting in high-quality BREFs by discussing and giving its opinion on the practical arrangements for the exchange of information.

Specifically, in accordance with Article 13(3) of the revised IED, the Forum is to provide its opinion on the practical arrangements for the exchange of information, in particular, on:

1. the rules of procedure of the Forum;

2. the work programme for the exchange of information;

3. guidance on the collection of data;

4. guidance on the drawing up of BAT reference documents and on their quality assurance including the suitability of their content and format.

Forum members are responsible for the nomination of their representatives to TWGs (see in particular Section 4.2.2 which addresses the tasks and profile of TWG members) and for keeping in contact with them throughout the drafting process to ensure an active and effective exchange of information.

The Forum gives its opinion on the work programme for the exchange of information (i.e. the BREF work programme) at an early stage (e.g. two years in advance) to give stakeholders enough time to carry out preparatory work before the BREF review/drawing-up process starts, in particular the early front-loading (see Section 4.5.1).

The Forum is also the place where general issues relating to the exchange of information are discussed. Through the Forum, stakeholders can express their opinions on the information exchange process, including lessons learned from the process and quality assurance aspects. The Forum may, if deemed necessary, suggest specific improvements or aspects that should be addressed during the drawing up or reviewing of a BREF.

The main task of the Forum is to evaluate the outcome of the information exchange within TWGs, taking into account this guidance document, and to provide its opinion on the proposed content of the BREFs resulting from the work carried out at the technical level. To do so, following the finalisation of the work within the TWG, the updated final draft of a BREF will be sent to the Forum no later than eight weeks ahead of the Forum meeting where the document will be discussed ([8]). Members of the Forum should submit all their comments on the draft final version of the BREF in writing in advance of the meeting.

In accordance with Article 13(4) of the revised IED, 'the opinion of the Forum on the proposed content of the BREFs 'shall be submitted within six months of the final meeting of the technical working group' (see Section 4.6.1.4). Considering the minimum period of eight weeks mentioned above, this means that the final draft of a BREF should be sent to the Forum no later than four months after the final meeting.

([7]) 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 (OJ C 146, 17.5.2011, p. 3).

([8]) Rules of procedure of the Article 13 Forum.

The Forum may address, *inter alia*:

1. issues raised in the TWG for which the split view (see Section 4.6.1.4.2) of the TWG member concerned is not accurately reflected in the final draft text;
2. motivated proposals of Forum members to remove or modify a split view expressed by their own TWG representative;
3. clarification of text;
4. textual revisions that reflect more accurately the conclusion reached by the TWG;
5. corrections of typographic errors in the final draft;
6. proposals to bring important issues, which are already reported within the body of the BREF, to the 'Concluding remarks and recommendations for future work' section (see Section 2.3.9).

In accordance with Article 13(4) of the revised IED, the Commission l makes the opinion of the Forum on the proposed content of the BREF publicly available and takes it into account for the adoption of decisions on the BAT conclusions and for the final published BREF.

1.4 Committee established by Article 75(1) of the revised IED

Article 75(1) of the revised IED provides for the establishment of a committee, within the meaning of Regulation (EU) No 182/2011 of the European Parliament and of the Council ([9]), consisting of representatives from all Member States, to assist the Commission in the framework of the implementation of the Directive.

Pursuant to Article 13(3) of the revised IED, the committee is involved in the discussion and adoption of the 'guidance on the collection of data' and of the 'guidance on the drawing up of BAT reference documents and on their quality assurance including the suitability of their content and format' [(i.e. this document)].

Article 13(5) of the revised IED stipulates that decisions on BAT conclusions are to be adopted in accordance with the examination procedure as laid down in Article 75(2) of the revised IED. Hence, the committee is to be involved in the adoption of decisions on BAT conclusions resulting from the exchange of information.

After the adoption of the decision on the 'BAT conclusions', EU-BRITE will modify, if necessary, the BREF in accordance with the adopted decision on the BAT conclusions and will make the English version of the final BREF publicly available. The decisions on the BAT conclusions will be published in the Official Journal in the official languages of the Union.

In accordance with Article 13(6) of the revised IED, the final BREF and the decisions on the BAT conclusions must be made publicly available as soon as possible.

2 CHAPTER 2: BREF CONTENTS AND SCOPE

2.1 Introduction

A BREF is a technical document that presents factual technical and economic information, reflecting the outcome of the information exchange under Article 13 of the revised IED and containing the necessary elements leading to the BAT conclusions for the activities concerned.

If it serves the specific purpose of assisting the reader to seek further information on an issue, companies (i.e. installations or suppliers), trade names, contributors or TWG members can be named in a BREF unless this goes against competition laws or data protection rules.

2.2 BREF structure

The definition of a BREF given in Article 3, point 11, of the revised IED stipulates that a BREF describes, in particular, applied processes and techniques, present emission and consumption levels, techniques considered for the determination of BAT as well as BAT conclusions and any ET.

([9]) Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers, (OJ L 55, 28.02.2011, p.13, ELI: http://data.europa.eu/eli/reg/2011/182/oj).

A BREF should generally contain the parts given in the table below:

Preface
Scope
Chapter: General information about the sector concerned
Chapter: Applied processes and techniques
Chapter: Current emission and consumption levels
Chapter: Techniques to consider in the determination of BAT and ET
Chapter: Best Available Techniques (BAT) conclusions
Concluding remarks and recommendations for future work
References
Glossary of terms and abbreviations
Annexes (dependent upon relevance to the sector and availability of information)

The structure of all BREFs should follow the general principles set out in this section. However, the order of chapters given here is illustrative and any BREF may be structured differently where this is more appropriate to the subject of the BREF. The 'horizontal' BREFs (see Section 1.1.3) may depart substantially from this outline and some chapters may not be relevant at all. However, for 'horizontal' BREFs too, the TWG should try to agree on BAT conclusions insofar as they are relevant and possible.

If a BREF covers different subsectors or clearly distinct processes/process steps within a sector, it may be more appropriate to have separate chapters for each of these sectors or processes/process steps and apply the aforementioned structure ('General information' up to 'BAT conclusions') to each of those chapters.

2.3 BREF content

2.3.1 General information on the BREF content

The drawing up and reviewing of the BREFs should aim to release concise documents, focusing on the BAT conclusions and keeping the descriptive parts as short as possible. In order to minimise the duplication of information, cross-references to other BREFs can be made.

2.3.2 Preface

The concise standard section of the BREF entitled 'Preface' describes the structure of the document, recall briefly the legislative context, and the way in which the document was drafted (e.g. how information was collected and assessed). The text must be tailored to reflect the individual structure of each BREF.

2.3.3 Scope

The section of the BREF entitled 'Scope', which is generally concise, should describe as precisely as possible which activities are covered by the document. The scope must be set out in a way that prevents undesirable gaps or overlaps with the scope of other BREFs, particularly between the scopes of vertical BREFs.

This section must include at least a reference to the relevant categories of activities listed in Annex I to the revised IED. Where relevant, further details on the production processes and sub-processes belonging to those categories of activities should be included. It should also mention the main 'directly associated' activities covered by the document, even when these are not Annex I activities themselves.

This section should also indicate activities, production processes or sub-processes which are intentionally excluded from the scope of the BREF, while providing the reasons for such exclusions (e.g. to prevent gaps, or to avoid overlaps with other BREFs, regulations or pieces of legislation that may already cover those activities, processes or sub-processes).

The definition of the scope of a BREF does not constitute a legal interpretation of the activity descriptions in Annex I to the revised IED.

The scope of 'horizontal' and 'vertical' BREFs should follow the principles outlined in Section 1.1.3. For 'horizontal' BREFs, the issues covered should be described as well as their interface with 'vertical' BREFs for the activities mentioned in Annex I to the revised IED. The relevance of other BREFs should be mentioned when considered necessary, by cross-referencing these relevant BREFs.

In BREF reviews where BAT conclusions have already been adopted, the scope of these BAT conclusions should remain the basis for the scope of the revised BREF. Adjustments to the scope should primarily focus on clarifying interactions with other BREFs (e.g. to prevent gaps or overlaps) and aligning the coverage with the production processes and sub-processes applied by the sector at the time of the review. This may include removing obsolete processes or sub-processes and incorporating new ones that have emerged since the adoption of the BAT conclusions.

2.3.4 **General information about the sector concerned**

The brief introductory chapter of the BREF entitled 'General information about the sector concerned' provides recent general information about the industry sector addressed by the BREF, for example in terms of number and size of installations, geographical distribution, production capacity and economics. It should give an indication of the key environmental issues for the sector, where possible, with some overall emission and consumption data as background information as well as, where possible, information on progress on climate neutrality and circularity.

2.3.5 **Applied processes and techniques**

The chapter of the BREF entitled 'Applied processes and techniques' briefly describes the production processes currently applied in the industrial sector(s) covered by the BREF along with an indication of the techniques used in the sector.

The activities covered should include the activities described in Annex I to the revised IED and directly associated activities while noting the relevance of other BREFs to certain aspects of some associated activities. There should be descriptions of process variants, developing trends and alternative processes to the extent that they are relevant for the determination of BAT and ET.

This chapter should reflect the sequential steps in a typical process. Some or all of the following issues (possibly adjusted to meet the peculiarity of processing units) should be included, as they might be relevant in the determination of BAT and ET:

— raw materials (including secondary/recycled) and consumables used, paying special attention to critical raw materials;

— energy and water consumption;

— chemicals, auxiliary substances/materials used;

— raw material preparation (including storage and handling);

— material processing;

— product manufacture;

— product finishing;

— intermediate and final product storage and handling;

— handling and fate of residues (including by-products).

The actual or possible relationships and linkages between various activities/process steps should be described, in particular where these may affect the overall environmental performance (for example where residues (including by-products) from one activity could be used as feedstock to another).

2.3.6 **Current emission and consumption levels**

The chapter of the BREF entitled 'Current emission and consumption levels' reports on the range of currently observed emission and consumption levels for the overall process (or processes) and its (their) sub-processes along with an indication of the techniques used to prevent/reduce emissions and increase resource efficiency. The information contained in the data sets referred to in Section 5.2 can be used for this purpose, as well as information on emissions from the Industrial Emissions Portal. To provide an idea of the relative environmental performance of comparable activities, information regarding production levels and the process configuration is needed so that emission/consumption levels can be expressed per process or production unit.

As far as possible, data are grouped in accordance with relevant contextual information, e.g. installation, plant or process type, product type, raw material (paying special attention to critical raw materials), size of installation.

Information should include currently observed usage of energy, water, chemicals and raw materials. Data should include emissions of the key pollutants to air and water and the generation of residues arising from the activities as well as information on emissions of greenhouse gases and on emissions of noise and odour, where relevant. Insofar as the information is available, inputs to and outputs from sub-processes should be indicated, thus highlighting the more environmentally significant sub-processes and addressing options for the recycling of waste and reuse of materials within the whole process or beyond. The information and data in this chapter provide the basis for assessing the key cross-media effects and interdependencies.

Emission and consumption data presented in this chapter of the BREF should be qualified as far as possible with details on process or product type, raw material used (paying special attention to critical raw materials), proportion of recycled waste or recovered/reused materials in the feedstock (if relevant for the emissions or consumption), operating conditions (e.g. percentage of full capacity, inclusion or exclusion of other than normal operating conditions, reference conditions), sampling and analytical methods. Statistical presentations (e.g. showing average, maxima, minima, ranges) could be used for the purpose.

Emission and consumption data should be presented in a way so that the data can be assessed easily and effectively (relevance to certain subsectors, activities, processes concerned, operational circumstances, etc.).

2.3.7 **Techniques to consider in the determination of BAT and ET**

2.3.7.1 **General information on techniques to consider in the determination of BAT and ET**

The chapter of the BREF entitled 'Techniques to consider in the determination of BAT and ET' is crucial in developing BAT conclusions. It provides a catalogue of relevant techniques and associated monitoring used for:

— preventing emissions to air, water (including groundwater) and soil or, where this is not practicable, for reducing emissions;

— improving resource efficiency, e.g. raw material, water and energy efficiency;

— promoting decarbonisation, including deep industrial transformation;

— preventing or reducing waste generation;

— promoting the circular economy, e.g. by improving waste recovery or the use of secondary raw materials (paying special attention to critical raw materials);

— preventing or reducing the use of hazardous substances;

— preventing or reducing the impact of emissions on biodiversity.

The techniques described in this BREF chapter (using the structure described in Section 2.3.7.2) are considered the most relevant for the determination of BAT and ET for the activities concerned. They should include both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned. For clarity, BAT and ET should be described in separate sections.

In the context of drawing up and reviewing BREFs, where BAT conclusions have already been adopted for the specific sector concerned by the BREF, the techniques that have already been established as BAT should remain the basis for developing this chapter. In that case, no further evaluation of those techniques, which are already considered BAT, is expected under the section 'Techniques to consider in the determination of BAT and ET'. Instead, the drawing-up or review process should focus solely on sector-specific changes, such as eliminating obsolete techniques or incorporating any new techniques that have emerged since the BAT conclusions were adopted.

The techniques described should also cover measures used to prevent or to limit the environmental consequences of accidents and incidents and, where appropriate, relevant site remediation measures. They should also cover measures taken to prevent or reduce pollution under other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations).

The section of the BREF entitled 'Techniques to consider in the determination of BAT and ET' should also identify ET.

As a minimum, information for each emerging technique must include its description, its potential performance compared to existing BAT, operational data, possible cross-media effects, a preliminary cost-benefit estimate, technical considerations relevant to applicability and an indication of its level of development, including the timescale of when the technique might become commercially 'available'.

Since BREFs are not meant to be textbooks on pollution prevention and control techniques, the techniques in this chapter should be described in a concise manner.

If a technique is already adequately described in another BREF, a cross-reference to that BREF can be made. When sector-specific variations exist, these should be reported under the 'Technical description' heading in the BREF being updated. The BREF should also include sector-specific information in accordance with the structure described in Section 2.3.7.2, i.e. under the headings 'Environmental performance and operational data', 'Technical considerations relevant to applicability', 'Economics, 'Cross-media effects' and 'Example installations, plants or processes'.

This pool of possible techniques should cover both prevention of environmental impact and control measures, recognising that prevention of environmental impact, where practicable, is preferred over its reduction. Good operating practices should be addressed and consideration should be given to (preventive) maintenance systems, process control methods and contingency provisions. Techniques which are emerging in practice within the sector and are established techniques in other sectors may be included where relevant and if this is supported by sufficient information (see Section 4.4).

This chapter of the BREF should aim to include as much information as needed in order to assess whether or not the technique may qualify, alone or in combination with others, as a BAT or ET for the sector concerned, as well as to assess its applicability within the sector. In particular, information related to operational data and environmental performance, cross-media effects, technical considerations relevant to applicability, economics and example installations, plants or processes are important for this assessment. In this chapter, each technique should be discussed without prejudging whether it meets all the BAT or ET criteria (See Articles 3, points 10 and 14, of the revised IED and Annex III to that Directive).

2.3.7.2 **Information provided on each technique**

Information on each technique should preferably include all of the elements shown in the table below.

Description
Technical description
Achieved environmental benefits (or expected environmental benefits in the case of ET)
Environmental performance and operational data
Cross-media effects
Technical considerations relevant to applicability
Economics
Driving force for implementation
Example installations, plants and processes (pilot or test installations, plants and processes in the case of ET)
Reference literature
Level of technological maturity (only relevant for ET)

The general principles for gathering data including the aforementioned information are set out in Chapter 5.

2.3.7.2.1 **Description**

A brief description of the technique with a view to being used in the BAT conclusions (see Section 3.2) should be included.

2.3.7.2.2 **Technical description**

A more detailed and yet concise technical description using, as appropriate, chemical or other equations, pictures, diagrams and flow charts should be included.

2.3.7.2.3 **Achieved environmental benefits (or expected environmental benefits in the case of ET)**

The main potential environmental benefits to be gained through implementing the technique should be reported. This includes, for example, reduced consumption of energy and water; reduced emissions to water, air and soil; reduced emissions of greenhouse gases; reduced consumption of raw materials – especially of critical raw materials –; reduced used of chemicals or substitution by/increased use of safer chemicals; minimisation of waste generation; increased circularity.

For ET, the expected environmental benefits should also set out how the technique's environmental performances compare with those of BAT.

2.3.7.2.4 **Environmental performance and operational data**

Actual installation-, plant- and process-specific performance data ([10]) (including emission levels ([11]), consumption levels – of raw materials (especially critical raw materials), water, energy – and amounts of residues generated) from well-performing installations, plants or processes (with respect to the environment taken as a whole) applying the technique accompanied by the relevant contextual information as outlined in Section 5.4, should be mentioned.

([10]) Subject to the conditions imposed by competition laws and the protection of confidential business information, see Section 5.3.
([11]) Both the concentration and specific load of pollutants (if available) or the data needed to derive this information including monitoring methods used and reference conditions. For specific load data, the product referred to should be clearly defined.

For ET, information on environmental performance and operational data may not be available to the same extent as for techniques considered in the determination of BAT. In such cases, available information, for example, from pilot, test or first-of-a-kind (FOAK) installations, plants or processes, may be accompanied or completed by considerations on the expected environmental benefits and environmental performance (including in comparison with the current performance of BAT).

Any other useful information on the following items should be included:

— how to design, operate, maintain, control and decommission the technique (see also Section 5.4);

— emission monitoring issues related to the use of the technique (see also Section 5.4.8);

— sensitivity and durability of the technique;

— issues regarding environmental accident prevention.

Linkages between inputs (e.g. nature and quantity of raw material and fuel, energy, water, chemicals) and outputs (emissions, residues, products) should be highlighted, in particular where they are relevant to enhancing an understanding of different environmental impacts and their interaction, for example where some trade-off has been made between different outputs such that certain environmental performance levels cannot be achieved at the same time.

Emission and consumption data should be qualified as far as possible with details of relevant operating conditions (e.g. percentage of full capacity, fuel composition, bypassing of the technique, inclusion or exclusion of other than normal operating conditions, reference conditions), sampling and analytical methods, and statistical presentations (e.g. short- and long-term averages, maxima, ranges and distributions; see in particular Section 5.4.8).

In the case of data for emissions to water, contextual information on the location/characteristics of sampling is useful (e.g. stand-alone or combined/mixed waste water flow, upstream associated activities, point of final discharge).

Information on conditions or circumstances hampering the use of the technique (including abatement technique) at full capacity, necessitating full or partial bypassing of the technique and measures taken to restore its full operational effectiveness should be included.

The information in this part of the BREF is key for deriving emission levels and environmental performance levels associated with BAT and ET.

2.3.7.2.5 **Cross-media effects**

Relevant negative environmental effects due to the implementation of the technique or, for ET, the expected cross-media effects, allowing a comparison amongst techniques in order to assess the impact on the environment as a whole, should be mentioned. This may include issues such as:

— consumption and nature of raw materials (especially critical raw materials) including chemicals;

— consumption of water;

— energy consumption;

— contribution to climate change;

— stratospheric ozone depletion potential;

— photochemical ozone creation potential;

— acidification resulting from emissions to air;

— 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 and type of residues;

— limitation of the ability to reuse, recover residues or recycle waste;

— generation of noise, vibrations or odour;

— impact on biodiversity;

— impact on human health;

— increased risk of accidents.

The Reference Document on Economics and Cross-media Effects (ECM) is to be taken into account where there are significant cross-media effects.

2.3.7.2.6 **Technical considerations relevant to applicability**

Unless a technique can be applied throughout the industrial sector covered by the BREF (see Section 2.3.3), the main general technical restrictions on the use of the technique within the sector should be indicated.

The main sector-specific restrictions expected to be cited are:

— an indication of the type of installations, plants or processes within the sector to which the technique cannot be applied;

— constraints to implementation in certain generic cases, considering, e.g.:

  — whether it concerns a new or an existing installation, plant or process, taking into account factors involved in retrofitting (e.g. space availability) and interactions with techniques already installed;

  — installation, plant or process size, capacity (large or small) or load factor, and operating regime;

  — quantity, type or quality of product manufactured;

  — type of fuel or raw material used (especially critical raw materials);

  — local conditions such as: availability of raw materials, access to renewable electricity or other necessary infrastructure (e.g. CO_2 transport and storage);

  — safety issues;

  — human health;

  — climatic conditions.

These restrictions should be indicated together with the reasons for them.

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 installation, plant or process.

2.3.7.2.7 **Economics**

Information on the costs of techniques (capital/investment, operating and maintenance including details on how these costs have been calculated/estimated) and any possible savings following from their application (e.g. increased raw material or energy/water efficiency, waste charges, reduced payback time compared to other techniques), revenues or other benefits including details on how these have been calculated/estimated should be included. In addition, contextual information on parameters affecting the cost data, such as local conditions (e.g. water/energy pricing) should be included.

For ET, preliminary cost estimates - including assumptions and uncertainties - should be provided where available.

Cost data should preferably be given in euros. If a conversion is made from another currency, the data in the original currency and the year when the data were collected should be indicated, as conversion rates vary over time. The price/cost of the equipment or service should be accompanied by the year it was purchased. When information on the costs of a technique is sourced from installations located outside the Union, it should be accompanied by an estimation of what the equivalent cost would be, on average, for implementing this technique within the Union.

Cost data should preferably be given in the form of marginal costs in order to allow the assessment of the change in total cost.

Information on the market for the sector should be indicated where available in order to put costs of techniques into context.

Information relevant to both new and existing installations, plants or processes should be included. This should allow for assessing, where possible, the economic viability of the technique for the sector concerned and possible economic limitations to its applicability.

Information on the cost-effectiveness of the technique (e.g. in EUR per abated mass of pollutant) should be reported where relevant in order to allow the assessment of the economic viability, in accordance with Article 3, point 10(b) and point 14, of the revised IED.

The Reference Report on Monitoring of emissions to air and water from IED installations (ROM) can be taken into account with regard to monitoring costs.

Where confidentiality issues arise, they should be dealt with as set out in Section 5.3.

2.3.7.2.8 **Driving force for implementation**

Where applicable, specific local conditions, requirements (e.g. legislation, safety measures), sustainability pledges and commitments, or non-environmental triggers (e.g. increased yield, improved product quality, economic incentives – e.g. subsidies, tax breaks or other funding) which drive or stimulate the implementation of the technique should be included.

2.3.7.2.9 **Example installations, plants or processes**

References to installations, plants or processes where the technique has been implemented and from which information has been collected and used to draft the section of the BREF concerning that technique should be listed, including an indication of the degree to which the technique is in use in the Union or worldwide.

For ET, references to pilot, test or first-of-a-kind (FOAK) installations, plants or processes should be listed. Information from INCITE (see Section 4.4) may also be used.

2.3.7.2.10 **Reference literature**

Literature or other reference material (e.g. books, reports, studies, websites) that was used in writing the section and that contains more detailed information on the technique should be included. When the reference material consists of a large number of pages, reference should be made to the relevant pages or sections.

Reference literature should be made available via the BAT information system (see Section 4.7.1) where possible.

2.3.7.2.11 **Level of technological maturity of ET**

Information on the maturity of the ET should be included, such as:

— the current and expected technology readiness level (TRL) on completion of technological development;

— the limitations and potential for scaling up the technique;

— the expected timeframe for market readiness (e.g. expected commissioning date in a full-scale industrial installation);

— the availability of environmental performance data obtained from industrial field trials, and demonstration pilot plants.

2.3.8 **Best available techniques (BAT) conclusions**

The chapter of the BREF entitled 'Best Available Techniques (BAT) conclusions' sets out the conclusions on what are BAT for the sector based upon the information exchange as reflected in the previous chapters and taking account of the definition of 'best available techniques' in Article 3, point 10, of the revised IED together with the criteria listed in Annex III to that same Directive.

BAT conclusions also contain conclusions on ET for the sector. These conclusions are based on the information exchange reflected in the previous chapters and take account of the definition of 'emerging techniques'. BAT conclusions should clearly distinguish between BAT and ET.

A specific section of the BAT conclusions also mentions the identified BAT and ET that may enable deep industrial transformation to be achieved, and the circumstances in which such transformation may be possible (see also Section 3.6).

In the process of establishing these BAT conclusions, the overarching criteria of the environmental performance of the techniques, including cross-media implications, applicability, and their costs, are considered in relation to the industrial sector concerned by the BREF.

It should be noted that evidence (i.e. solid technical and economic information) to support a technique as being BAT can come from one or more installations applying the technique somewhere in the world. In cases where the information on the technique comes from only one installation or only from installations located outside the Union, a thorough assessment of the applicability within the sector should be carried out by the TWG.

More information on BAT conclusions and the elements they should contain in accordance with Article 3, point 12, of the revised IED is given in Chapter 3.

2.3.9 **Concluding remarks and recommendations for future work**

The short section of the BREF entitled 'Concluding remarks and recommendations for future work' states the start date and duration of the process by which the BREF has been drawn up or reviewed as well as the key milestones (e.g. TWG meetings, draft documents issued).

Mention is made of the institutions and organisations represented in the TWG which have actively contributed to the information exchange and of the key sources of information on which the BREF was based, highlighting any particularly noteworthy reports or submissions which have contributed to the confidence in the results.

The degree of consensus reached in the information exchange should be indicated by reporting the valid ([12]) split views expressed by TWG members and their degree of support by TWG members.

A reference to the opinion of the Forum on the proposed content of the BREF and an indication of any issues that had to be resolved during the adoption procedure of the BAT conclusions should be provided in this section.

Any key open issues or gaps in knowledge should be identified. Recommendations should be included for further research or information gathering in view of the next review of the document.

2.3.10 **References**

The section of the BREF entitled 'References' lists the sources of information used by EU-BRITE in drafting the document and in particular the documents provided by the TWG members in the information exchange. These documents should also be made available to the members of the TWG through BATIS (see Section 4.7.1), unless they contain confidential information (see Section 5.3) or may not be further distributed because of copyright.

2.3.11 **Glossary of terms and abbreviations**

The section of the BREF entitled 'Glossary of terms and abbreviations', with a standard structure and introduction, summarises and defines the specific technical terms and define all acronyms used in the document.

([12]) The term 'valid' refers to the approach set out in Section 4.6.1.4.2.

2.3.12 **Annexes**

Dependent upon the relevance to the sector and the availability of information, the main part of the BREF may be supplemented by annexes containing supporting information taken from literature or case studies.

Summaries of legislation are not to be included in the BREF.

3 **CHAPTER 3: BAT CONCLUSIONS**

3.1 **Introduction**

As mentioned in Section 1.1.1, 'BAT conclusions' are defined in Article 3, point 12, of the revised IED as 'a document containing the parts of a BAT reference document laying down the conclusions on BAT and ET, their description, information to assess their applicability, the emission levels associated with those techniques, the environmental performance levels associated with those techniques, the content of an environmental management system including benchmarks, associated monitoring, associated consumption levels and, where appropriate, relevant site remediation measures'.

The BREF chapter entitled 'Best Available Techniques (BAT) conclusions' must therefore be drafted to cover all of the aforementioned aspects and that the text can be used directly for the establishment and the adoption of the decision on BAT conclusions pursuant to Article 13(5) of the revised IED.

For the sake of clarity, the activities subject to the BAT conclusions must be unambiguously defined in the document. In addition, it should be mentioned that the list of techniques described in the BAT conclusions is neither prescriptive, nor exhaustive. Other techniques may be used that ensure at least an equivalent level of environmental protection and human health. Sector-specific definitions may also be included if necessary.

The BAT conclusions should consist of a number of individual BAT or ET indicating which technique or combination of techniques are BAT or ET for achieving a particular environmental objective. Those techniques are described in the chapter of the BREF entitled 'Techniques to consider in the determination of BAT and ET'.

Each individual BAT may be featured with or without associated emission levels, associated environmental performance levels or benchmarks.

The BAT conclusions can also contain, when considered useful for competent authorities and operators, statements which indicate when certain techniques are not BAT and thus have been deliberately excluded from the BAT conclusions due to factors such as poor or non-credible environmental performance, lack of availability, economics, technical or economic considerations for retrofitting, cross-media effects, or operational reliability.

As per Article 3, point 12, of the revised IED, BAT conclusions should also address monitoring associated with BAT (frequency and methods of monitoring). BAT conclusions also specify the content of an environmental management system (see Section 3.4) and, where appropriate, relevant site remediation measures.

As per Article 3, point 12, of the revised IED, BAT conclusions may also contain ET, with or without associated emission levels or associated environmental performance levels. More details are given in Section 3.5.

As per Article 3, point 9a, and Article 27 of the revised IED, BAT conclusions are to identify BAT or ET enabling deep industrial transformation. More details are given in Section 3.6.

BAT conclusions should address other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations) when these are considered of concern with respect to the protection of environment or human health.

The BAT conclusions are structured in such a way that several individual BAT are grouped by common features, e.g. environmental issues, production process steps, or final products, as considered appropriate.

3.2 Elements in an individual BAT or ET

3.2.1 General

Each individual BAT or ET should be presented using a standard format, the structure of which essentially depends on whether or not an emission level, an environmental performance level or a benchmark is associated with BAT or ET.

Each individual BAT or ET should be numbered so as to facilitate referencing and should start with the indication of the environmental objectives/benefits pursued (e.g. prevent/reduce dust emissions, prevent/reduce water consumption, prevent/reduce the generation of waste) followed by 'BAT is to' or 'ET is to' and the technique or combination of techniques that can be used to achieve these objectives.

Each BAT or ET should contain a description of the techniques or combination of techniques to satisfy the environmental objectives/benefits referred to and should include information to assess its applicability in the sector concerned.

3.2.2 Description of techniques

The description of the techniques should be short but informative enough to be useful to the competent authorities and operators. Undefined acronyms and technical jargon should be avoided. The brief descriptions of techniques included in the chapter of the BREF entitled 'Techniques to consider in the determination of BAT and ET' (see Section 2.3.7) should provide the basis for the descriptions in the BAT conclusions.

When relevant, this description should also cover aspects mentioned in the BAT definition (e.g. maintenance, design, operation, decommissioning).

3.2.3 Information to assess the applicability of techniques

Unless otherwise stated, techniques mentioned in the BAT conclusions are generally applicable for the activity concerned. 'Generally applicable' means that the techniques are suitable for use under most conditions and for most installations in the industrial sector concerned, even though there may be specific situations or circumstances where the implementation of these techniques may not be feasible or practical.

Where there are restrictions on applicability for a certain technique, this should be explicitly mentioned. The information included in the chapter of the BREF entitled 'Techniques to consider in the determination of BAT and ET' (see Section 2.3.7, especially information under the 'Technical considerations relevant to applicability', 'Economics' and 'Cross-media effects' headings) should provide the basis for indicating applicability issues in the BAT conclusions.

Information to assess the applicability of techniques should in particular address the following, if relevant: 'new' versus 'existing' installations, plants or processes, size of the installation or plant, type of process used, type of fuel or raw material used (paying special attention to critical raw materials), consumption levels, load factor, number of operating hours, yield or productivity, climatic conditions and space requirements. No cross-media effects should be mentioned unless they result in restrictions on applicability.

3.3 Individual BAT with associated emission levels, environmental performance levels or benchmarks

3.3.1 General

An emission level associated with BAT, an environmental performance level associated with BAT or a benchmark should be included where there is a sound basis for doing so. This should be done based on the information exchanged by the TWG taking into account the quantity and quality of the installation-, plant- and process-specific data received during the exchange of information.

Environmental performance levels associated with BAT and benchmarks may include:

— resource efficiency levels for materials, water and energy;

— levels of water reuse, levels of reuse and recovery of residues or recycling of waste;

— waste generation and waste-water discharge levels;

— other levels (e.g. abatement efficiency).

These environmental performance levels and benchmarks should be presented with the associated reference conditions.

The emission levels/environmental performance levels associated with BAT and benchmarks should be expressed as ranges, rather than as single values. A range may reflect the differences within a given type of process or installation (e.g. differences in the grade/purity and quality of the final product, differences in design, differences in applied processes, construction, size and capacity of the installation) that result in variations in the environmental performance achieved when applying BAT.

It is preferable to use a true range rather than an expression of the type '<*X*', because this gives less information.

EU-BRITE and the TWG should assess the data collected during the exchange of information (see Chapter 5) to derive both the strictest and the least stringent end of the range.

When establishing the environmental performance levels associated with BAT, rounded values may be used to take into account limitations of the data collection or technical issues (e.g. use of different monitoring methods, uncertainty of measurements, fluctuations of data under normal operating conditions).

3.3.2 **Individual BAT with associated emission levels**

An individual BAT with associated emission levels (BAT-AELs) contains a numerical range of emission levels. The units, the reference conditions (e.g. flue-gas oxygen level, temperature, pressure) – if applicable – and the averaging period (e.g. hourly/daily/weekly/monthly/yearly average) must be unambiguously defined. If considered necessary, and if the data submitted allow for doing so, the BAT-AEL range may be expressed as short-term and long-term averages (see also Section 5.4.8).

For establishing the strictest end of the BAT-AEL range, it is necessary to take the performance of installations, plants or processes applying BAT and obtaining the best overall environmental performance under normal operating conditions, as provided in the information exchange (chapter of the BREF entitled 'Techniques to consider in the determination of BAT and ET').

The strictest end of the BAT-AEL range should be accurately defined, with special attention paid to the quality and reliability of the supporting data. It should be quantifiable with sufficient accuracy and as far as possible consistently achievable under normal operating conditions for a representative sample of comparable installations, plants or processes applying BAT.

BAT conclusions should contain, as far as possible, information on the circumstances in which lower emission levels within the BAT-AEL range can be achieved for categories of installations with similar characteristics. The circumstances to be considered include: the nature of the process, raw material characteristics, product specifications, operating conditions, applied techniques, operational constraints, possible cross-media effects.

The information on the circumstances in which lower levels within the BAT-AEL range can be achieved aims to support the implementation of this range in permits and general binding rules. The lower levels referred to in those circumstances are provided for information only and do not change the BAT-AEL range.

The least stringent end of the BAT-associated emission level range and environmental performance level range is derived by considering the range of performance associated with the application of the BAT ([13]) under normal operating conditions.

The BAT-AEL unit can be expressed in one or more ways depending on the information that is available, including the ways given below.

— As concentrations (mass of pollutant released per volume). This is generally the most common way of expressing emission levels, but reference conditions and averaging periods are crucial for their comparability.

— As specific loads (mass of pollutant released per mass of product manufactured or mass of raw material used). In certain cases, specific loads are a better indicator of performance than concentrations, for example where pollutant concentrations are increased as a result of measures to reduce effluent volumes and to conserve energy, e.g. closing water circuits. Also in this case, averaging periods are crucial for comparability.

Unless stated otherwise, BAT-AELs for emissions to water refer to both direct and indirect releases.

([13]) Including both the technology used and the way in which the installation, plant or process is designed, built, maintained, operated and decommissioned.

3.3.3 Individual BAT with associated environmental performance levels or with benchmarks

BAT-AEPLs and benchmarks may be expressed in one or more ways, depending on the information available. For instance, as regards consumption levels (e.g. of raw material, energy, water) and waste generation, BAT-AEPLs and benchmarks may, for example, be expressed per mass of product manufactured or per mass of raw material (e.g. in kg/t, MJ/t, m^3/t).

In particular, for BAT-AEPLs and benchmarks, the process boundaries and the parameters influencing the performance should be agreed on and defined as precisely as possible at the kick-off meeting in order to maximise the comparability between processes with similar characteristics.

An example of an individual BAT that includes environmental performance levels associated with BAT is provided below.

BAT YY. In order to increase the overall energy efficiency, BAT is to use one or a combination of the techniques given below.

	Technique	Description	Applicability
a	aa	[description aa]	Generally applicable.
b	bb	[description bb]	Generally applicable.
c	cc	[description cc]	Only applicable to new installations, plants or processes and major upgrades to installations, plants or processes.

Table YY: BAT-associated environmental performance levels (BAT-AEPLs) for specific net energy consumption

Process	BAT-AEPL (yearly average)	Unit
Process 1	X - Y	kWh/t of product manufactured
Process 2	W - Z	

3.4 Environmental management system (EMS)

Installation operators are required to establish and implement an environmental management system (EMS) in accordance with the revised IED and relevant BAT conclusions. An EMS enables environmental issues to be addressed in a systematic and demonstrable way, with the aim of continuously improving an installation's environmental performance and safety. Improvements can include preventing waste generation, optimising resource use and water reuse, and preventing or reducing risks associated with the use of hazardous substances.

In accordance with Article 3, point 12, of the revised IED, BAT conclusions describe the content of an EMS, including benchmarks. The EMS, to be established and implemented by the operator, is to include the minimum elements listed in Article 14a(2) of the revised IED and must comply with the relevant BAT conclusions that determine aspects to be covered in the EMS. In particular, the EMS contains indicators that take into account benchmarks set out in BAT conclusions (see Section 3.3.3).

In order to support the preparation and implementation of the EMS, BAT conclusions may determine aspects to be covered in the EMS and that are specific to the sector concerned.

As mentioned in Article 14a(3) of the revised IED, the level of detail of the EMS should be consistent with the nature, scale and complexity of the concerned installations, and the range of environmental impacts it they could have.

During the exchange of information, EU-BRITE and the TWG must collect and assess the data and information needed to define, in the BAT conclusions, benchmarks (see Section 3.3.3), and additional aspects relevant to the sector.

3.5 Emerging techniques

In general, what is described in Sections 3.2 and 3.3 for individual BAT also apply to ET, except for benchmarks as they are only associated with BAT (Article 3, point 13b, of the revised IED).

The difference between ET and BAT is the degree of their development, as ET are not yet commercially developed (see Section 2.3.7.1).

It is essential that ET are clearly identified as such in BAT conclusions.

3.5.1 Emission levels associated with emerging techniques (ET-AELs) or environmental performance levels associated with emerging techniques (ET-AEPLs)

The terms 'emerging techniques', 'associated emission levels' and 'associated environmental performance levels' are explained in Section 1.1.1. Emission levels associated with emerging techniques (ET-AELs) or environmental performance levels associated with emerging techniques (ET-AEPLs) are generally defined using a similar approach to that used for BAT-AELs and BAT-AEPLs (see Section 3.3), with the fundamental difference being the more limited availability of data.

By definition, ET are not commercially developed, which necessarily restricts the availability of data to support the determination of emission levels or environmental performance levels significantly. The TWG must assess whether the data are sufficiently reliable, even if only a few figures are available from a prototype demonstration in a relevant environment (at least TRL 6-7). The TWG should derive sound ET-AELs and ET-AEPLs from the data and information collected or through the use of expert judgement if necessary.

Information from INCITE (see Section 4.4) about the technique's environmental performance is to be considered when available.

3.6 Deep industrial transformation

'Deep industrial transformation' is defined in Article 3, point 9a, of the revised IED as 'the implementation by industrial operators of ET or BAT involving a major change in the design or technology of all or part of an installation or the replacement of an existing installation by a new installation, which allows an extremely substantial reduction of emissions of greenhouse gases in line with the objective of climate neutrality and optimises environmental co-benefits, at least to the levels that can be achieved by techniques identified in the applicable BAT conclusions, taking into account cross-media effects'.

It is therefore essential that the BAT conclusions include a specific section that identifies those BAT and ET that may enable deep industrial transformation to be achieved, and the circumstances in which such transformation may be possible.

4 CHAPTER 4: INFORMATION EXCHANGE

4.1 Introduction

The different steps in the process of the exchange of information and the adoption of the BAT conclusions set out in Article 13 of the revised IED are described in Section 1.2.5.

This information exchange process is often referred to as the 'Sevilla process'.

The roles of the main participants involved in this process are described in Sections 4.2 and 4.3.

Important milestones of the information exchange process, information exchange tools and personal data security issues are described in Sections 4.6, 4.7 and to 4.8.

4.2 The role of technical working groups (TWGs)

4.2.1 Establishment of TWGs

For the drawing up or reviewing of a BREF, a TWG is set up (or reactivated) by the Commission. Each TWG consists of technical experts representing Member States, the industries concerned, non-governmental organisations (NGOs) promoting human health or environmental protection, experts from the European Chemicals Agency and experts from the Commission.

TWG members are nominated to participate in the information exchange primarily based on their technical, economic, environmental or regulatory expertise (especially in permitting or inspecting industrial installations) as well as on their ability to bring to the information exchange process the BREF end-user perspective.

The experts for each TWG are nominated by the representatives in the Forum. To this end, Forum members send the names and contact details of their TWG nominees to EU-BRITE.

In order to enhance the efficiency of participation of the industrial sectors and of the NGOs promoting human health or environmental protection in TWGs, their nomination may be coordinated by the relevant European associations.

During TWG meetings, Member State delegations must be led by a civil servant or a public employee who is present for the entire duration of the meeting.

4.2.2 **TWG responsibilities and tasks**

The TWG is the main source of information for the drawing up and reviewing of a BREF. It is therefore essential that the TWG members are active in the exchange of information. By joining the TWG, the members commit to actively collecting and delivering information by the deadlines agreed by the TWG or proposed by EU-BRITE, while respecting competition rules.

The TWG members are responsible for reporting back to the Forum representative that nominated them, in particular when issues arise with the information exchange.

The main tasks of a TWG member are:

1. to gain an awareness and understanding of the guidance in this document;

2. to identify and list new/updated key data and issues relevant for deriving or updating BAT conclusions for the sector;

3. to actively collect targeted technical and economic information important for the drawing up/reviewing of a BREF, including in particular new/updated emission and environmental performance level data from installations covered by the BREF (for the sector/Member State that the TWG members representing), in accordance with the process agreed by the TWG based on the general guidance of EU-BRITE in line with the principles set out in Chapter 5 of this document, also with a view to dealing with issues like confidential business information, sensitive information under competition law, conflict of interests and other related matters;

4. to check the quality of the data and information collected before submitting them to EU-BRITE, in particular the completeness and consistency of data contained in filled-in templates/questionnaires used to gather installation-, plant- and process-specific information (see Sections 5.4 and 5.5);

5. to share the data collected with other TWG members and EU-BRITE by posting the information directly on BATIS (see Section 4.7.1), with the possible exception of confidential business information or sensitive information under competition law;

6. to respond within the set deadlines to requests for additional information or clarifications from EU-BRITE (see Section 1.2.5);

7. to comment within the set deadlines on draft BREFs and other documents prepared by EU-BRITE;

8. to attend the TWG meetings and actively participate in them;

9. to share experience with EU-BRITE and other TWG members (e.g. during site visits);

10. to identify and establish contacts/networks with non-TWG members (e.g. groups of experts, competent authorities, operators or groups of operators, national groups, technique providers) to gain more experience to be shared with the rest of the TWG and EU-BRITE; to this end, TWG members may establish and coordinate 'shadow groups', i.e. groups of experts whose task is to support the TWG members in gathering information and preparing contributions to drawing up or reviewing BREFs;

11. to lead or co-lead specific tasks or subgroups (see Section 4.2.3) and report back to the TWG.

Most of the work for TWG members can be expected to take place outside the TWG meetings in submitting information and reviewing draft text proposals. In particular, the successful development of a BREF requires the TWG to respond in detail to substantial draft documents within a limited time period. Whilst broad consensus of the TWG is sought throughout the work, it is not a prerequisite and it is the task of EU-BRITE to reflect the relevant available information in the BREF, taking into account the TWG discussions.

4.2.3 **TWG subgroups**

To address specific issues within the scope of the work, the TWG may establish subgroups in order to undertake specific tasks such as to collect, analyse, structure and discuss information and data, discuss comments on proposed draft texts, or to prepare and develop templates or documents. The functioning of such subgroups is managed in a transparent way by EU-BRITE, which ensures drawing up a clear subgroup mandate and enables all TWG members to have access to the subgroups and follow and understand the subgroups' activities and their outcome (e.g. meeting agendas and minutes and reports are uploaded on BATIS in a timely manner).

Meetings of TWG subgroups can be held in hybrid format (in person and online) or online. Discussions and work in the subgroups must not replace the TWG meetings.

4.2.4 **The role of the European Chemicals Agency**

The European Chemicals Agency (ECHA) has a formal role in the TWGs' activities, supporting the information exchange process during the front-loading phase and subsequent steps, including by:

1. identifying chemicals used in different sectors or processes, e.g. by providing relevant lists from ECHA's database (i.e. REACH ([14]), CLP ([15]) and BPR ([16]) data), especially in the front-loading phase of the BREF drawing-up or review process, and prioritising these chemicals based on hazard/risk profiles (in relation to environment and human health) and other aspects (e.g. volume/uses/emission levels) as relevant;

2. providing input on sector-specific techniques and practices for the management and use of chemicals, where relevant, including information on chemicals' regulatory status (e.g. harmonised classification, restriction);

3. providing expertise on information on chemicals, including safer alternatives (where available), in different BREF chapters.

4.2.5 **The role of the European Environmental Agency**

Recital 21 of Directive (EU) 2024/1785 explains that the Commission should ensure that the European Environment Agency (EEA) participates in the exchange of information, where the exchange of information would benefit from the EEA's expertise.

The EEA's participation is particularly beneficial for drawing up or reviewing the BREF, as it can provide information about emissions, production volumes or other environmental performance indicators (e.g. consumption of water, energy, raw material) related to the sectors covered by the BREF and reported to the Industrial Emissions Portal. This should inform the discussions at the kick-off meeting, and further discussions during the BREF review or drawing-up process, as new information is reported to the Industrial Emissions Portal. In addition to its expertise on industrial emissions data, the EEA may also contribute to the exchange of information through its broader knowledge.

4.2.6 **Site visits**

Site visits may be instrumental in gathering and validating information for drawing up and reviewing BREFs. Site visits may be proposed by TWG members to EU-BRITE and other TWG members. Information on site visits is shared with the whole TWG sufficiently in advance of the dates of the visits to allow the participation of representatives of the local competent authorities and interested TWG members to the extent possible and avoiding any conflict of interest. Brief reports of such site visits are prepared by EU-BRITE and made available to the whole TWG through BATIS (see Section 4.7.1).

([14]) Regulation EC 1907/2006 on the registration, evaluation, authorisation and restriction of chemicals.
([15]) Regulation EC 1272/2008 on Classification, Labelling and Packaging.
([16]) Regulation (EU) 528/2012 on Biocidal Products Regulation.

4.2.7 **Involvement of technique providers (e.g. equipment suppliers) in the exchange of information**

'Technique providers' (e.g. equipment suppliers) which can provide valuable technical and economic data and information for the drawing up and reviewing of BREFs should be invited to actively participate in the exchange of information, either directly as TWG members or indirectly as experts providing information to EU-BRITE or to other TWG members.

The term 'technique providers' should be understood in a rather broad sense in order to extend the knowledge boundaries of the information exchange. The main criterion for their involvement in the information exchange process is that they should have the relevant technical and economic knowledge/information that could be beneficial to the information exchange on BAT, ET and associated emission/environmental performance levels, benchmarks and monitoring. This may include, for instance, specialised experts in a given BAT or ET. 'Technique providers' should, in principle, exclude the mere commercial intermediaries (wholesalers) that sell equipment or services to the operators/owners of the installations for a profit without necessarily having a sufficient technical understanding of the technique and knowledge of its operational performance.

The technical and economic knowledge/information held by the 'technique providers' may apply to a broad range of activities such as the conception, design, licensing, manufacture/construction, supply, operation, maintenance, monitoring and decommissioning of an installation/plant or part thereof (e.g. process, system, component). The information should be provided in a neutral way and not advertise specific commercial products or trademarks.

A representative of a 'technique provider' company nominated to a TWG should de facto act as a representative of 'technique providers' in general or of a particular subsector (not solely as a representative of the company which employs him/her) in order to ensure appropriate representation of the sector.

It is therefore recommended to involve representatives of associations of technique providers, whenever possible, through which individual companies could provide information.

4.3 **The role of EU-BRITE**

The role of EU-BRITE is to coordinate the exchange of information and to ensure that information is collected and processed in accordance with the guidance in this document in order to draw up or review the BREFs.

For each BREF, the scientific staff of EU-BRITE leads the work of the TWG established for the purpose.

EU-BRITE steers the work on determining BAT, as defined in the revised IED, guided by the principles of technical expertise, transparency and neutrality. Its work entails the independent verification and analysis of the information collected to derive BAT conclusions.

If TWG members provide incomplete or insufficient information, EU-BRITE informs the TWG of this and asks for completion. Additionally, EU-BRITE tries to close information gaps by actively looking for missing or incomplete data (e.g. during site visits – see Section 4.2.6 – or by contacting persons/institutions which are not directly represented in the TWG). Furthermore, phone or video conferences or online expert meetings/workshops may be organised by EU-BRITE if there is a need to discuss certain issues regarding the drawing up or reviewing of a BREF, especially in case of controversial, new or complex issues.

To fulfil its role, EU-BRITE carries out, in particular, the following tasks:

1. actively participates in and supports the collection of information and drafts the BREFs;

2. checks/verifies the data/information submitted and asks for complements/clarifications from the provider of the data/information as deemed necessary;

3. leads technical discussions in TWG meetings, subgroup meetings and data assessment workshops and chairs those meetings (see also Sections 4.6.1 and 4.2.3);

4. ensures the overall management of the BATIS collaborative tool (see Section 4.7.1) to ensure the transparency of the exchange of information;

5. presents the final draft BREFs at Forum meetings (see Section 1.3).

Other tasks carried out by EU-BRITE are mentioned in other parts of this document, in particular Section 4.5.

EU-BRITE staff members leading the information exchange on a specific BREF are expected to have a very good understanding of process engineering, environmental issues, industry regulations, environmental permitting processes, environmental policy in the Union and a particular knowledge and understanding of the relevant industrial sector.

The key skills needed are technical knowledge, organisational skills, communication skills, drafting skills, neutrality, integrity and an ability to work and write technical documents in English.

4.4 The role of the Innovation Centre for Industrial Transformation and Emissions

In accordance with Article 27a(2) of the revised IED, the Innovation Centre for Industrial Transformation and Emissions (INCITE) collects and analyses information on innovative techniques, which contribute, among other things, to the minimisation of pollution, decarbonisation, resource efficiency and a circular economy using fewer or safer chemicals. This information is related to the environmental performance of the techniques, their level of development, and other relevant information, e.g. on economic data, possible applicability restrictions, cross-media considerations. Innovative techniques encompass both those that are already commercially developed and those that are still in development. This includes ET enabling deep industrial transformation.

INCITE was set up for this purpose and is responsible for maintaining a global and publicly available information platform enabling the collection of a continuous stream of information on innovative techniques ([17]). This platform also enables the mapping of demonstration and first-of-a-kind (FOAK) installations, plants or processes.

INCITE directly engages with all the key stakeholders specified in Article 27a(3) of the revised IED to trigger the submission of information either directly in written form or through the information platform. These stakeholders assist INCITE in collecting data on innovative techniques and include technique providers, research and technology organisations, industry associations, research institutes and Member States' representatives.

The role of INCITE is to gather all the information received, to analyse it and to publish the findings in regular reports that should be used by, for example, the Article 13 Forum to give its opinion on the work programme for the exchange of information in the BREF process.

The findings of INCITE are used by the TWG to guide their assessment of the innovative techniques to be considered in the scope of a BREF, for the determination of BAT or ET and potential associated levels or benchmarks in the BREF and in the BAT conclusions. This assessment takes into account their degree of development, environmental benefits and cost-effectiveness. For the innovative techniques selected, a data collection is to be carried out during the BREF drawing-up or review period using relevant industrial installations, including FOAK. Information available to INCITE for other sectors linked to innovative techniques may also be useful for the active TWG.

Pursuant to Article 27a(4) of the revised IED, the detailed working arrangements for INCITE will be set out in a Commission implementing act.

4.5 Preparatory activities for the information exchange

4.5.1 Early front-loading

The early front-loading phase starts with the drawing-up of the BREF work programme and ends with the activation or reactivation of the TWG (see Section 4.5.2).

As soon as the BREF work programme is defined, the members of the Article 13 Forum (see Section 1.3) will be invited to provide information useful for developing/reviewing all BREFs included in the work programme, ahead of the start of the information exchange. Forum members will make this information available in specific folders on BATIS (see Section 4.7.1).

This information can include:

(i) the scope;

(ii) the processes carried out;

(iii) the techniques applied;

([17]) INCITE information platform for submission of information on innovative techniques.

(iv) key environmental issues (see Section 4.6.1.2.1);

(v) lessons learned from the implementation of the existing BAT conclusions (if relevant);

(vi) information on emissions that is made publicly available under Article 24(3)(b) of the revised IED;

(vii) information from the Industrial Emissions Portal; and

(viii) any issue specific to the sectors concerned.

This does not preclude that information from being provided on BATIS or to INCITE (see Section 4.4) at any other time, independently of a BREF review.

This information will help EU-BRITE in activating or reactivating the TWG and calling for initial input. This will optimise the front-loading phase and shorten its duration (see Section 4.5.2).

4.5.2 **Front-loading**

When drawing up or reviewing a BREF, at the time of activating or reactivating the TWG, Forum members will be requested to nominate their TWG representative(s). Along with the activation/reactivation letter, or after the letter is sent, EU-BRITE will send a request for 'initial input' or a 'front-loading request' (e.g. a survey). This information will be used to organise and structure the discussions at the kick-off meeting (see Section 4.6.1.2).

The 'call for initial input' or 'front-loading request' contains proposals and requests for information on the topics that are expected to be discussed at the kick-off meeting. These topics usually include:

— the BREF's scope;

— the key environmental issues for the industrial sector concerned (e.g. in terms of emissions to air, water and soil, use of water and energy consumption, generation of waste, the circular economy, decarbonisation, use of chemicals), see Section 4.6.1.2.1; in a review of an existing BREF, this should include at least the key environmental issues already identified in the existing BREF;

— the type and format of the plant- or installation-specific data that should be collected;

— the procedure for data and information collection;

— the BREF's structure.

In a BREF review, the request may also build on information available in the chapter on 'Concluding remarks and recommendations for future work', which is available in the existing BREF.

In general, EU-BRITE should create clear proposals with relevant rationale in relation to the topics mentioned above. When there are doubts about some issues, clear questions (requests) should be asked in order to clarify the proposals.

Moreover, the 'call for initial input' or 'front-loading request' could include requests for information on the following:

— general information about the sector concerned, e.g. number and size of related installations;

— an overview of the main/typical processes used in the sector;

— an overview of techniques used to achieve a high level of protection of human health and the environment taken as a whole; such techniques could aim to prevent and reduce emissions, to prevent the generation of waste, to improve resource efficiency, and to promote the circular economy and decarbonisation;

— existing techniques and new techniques to consider in the determination of BAT as well as new ET and processes, the implementation of which would bring environmental or economic benefits to the sector;

— improvements to existing techniques and processes with respect to the protection of human health and the environment or to economic aspects, such as the use of safer chemicals; information may also be provided on obsolete techniques.

4.6 **Milestones in the information exchange**

4.6.1 **TWG meeting**

4.6.1.1 **General**

TWG meetings are organised and chaired by EU-BRITE and preferably held in a hybrid format (in person and online). English is the working language used in these meetings. The kick-off and final meetings are each supported by a background paper prepared by EU-BRITE laying down the issues proposed for discussion and sent in advance of the meeting to all TWG members (see Sections 1.2.5, 4.6.1.2 and 4.6.1.4).

4.6.1.2 **Kick-off meeting**

The background paper should be the basis on which to organise and structure the discussions at the kick-off meeting. It should take into account the information collected in the early front-loading (see Section 4.5.1) and front-loading (see Section 4.5.2) phases and be distributed to the TWG at least four weeks in advance of the meeting.

The kick-off meeting should in particular address and reach conclusions on the following items.

1. The scope and structure of the BREF.
2. The key environmental issues of the related sector (See Section 4.6.1.2.1).
3. The nature and extent of the information to be collected during the development or review of the BREF.
4. A process for the TWG to identify where relevant and make clear in the BREF:
    i. what are considered 'normal' and 'other than normal' operating conditions for the activities under the scope of the BREF;
    ii. what the measures are to prevent or, where this is not practicable, to reduce pollution under other than normal operating conditions (such as start-up or shutdown operations, malfunctions, momentary stoppages and definitive cessation of operations; see also Section 2.3.7).
5. A general timeline for the work, based on the typical workflow indicated in Section 1.2.5, in particular on the deadline to receive the bulk information after the kick-off meeting.
6. The specific tasks to be carried out by the TWG, including any TWG subgroups, if relevant (see Section 4.2.3), especially indicating which TWG member promised to deliver what information.
7. The kick-off meeting should also provide the opportunity to inform TWG members of issues that need to be treated consistently among BREFs, in particular the following:
    i. Ways to deal with potentially confidential business information and sensitive information under competition law, conflicts of interests and related matters (see Section 5.3).
    ii. The interactions with other BREFs.
    iii. The specific tools that the TWG will use to collect, exchange and analyse information. In particular, BATIS (see Section 4.7.1) will be presented to the TWG as well as the procedures to submit information identified at the kick-off meeting.

The conclusions of the kick-off meeting and the meeting report are circulated afterwards. The meeting report is made publicly available.

4.6.1.2.1 **Identification of key environmental issues (KEIs)**

To facilitate an effective and efficient process, the development of a BREF focuses on the key environmental issues (KEIs) that need to be addressed in the exchange of information and in the BAT conclusions. KEIs can relate to, for example, the emission of a given pollutant, waste generation or resource efficiency such as water efficiency, energy efficiency.

A KEI is understood to be an environmental issue that is considered sufficiently important in the context of a certain BREF to justify the collection of information through installation-, plant- and process-specific questionnaires and, if needed, as bulk information. The aim of collecting such information is to derive BAT and, where possible and appropriate, BAT-AELs, BAT-AEPLs or benchmarks to address these issues.

A BREF aims to address issues that are relevant at European level and cannot address all local issues across the Union. This principle should also guide the TWG in identifying the KEIs. In this context, an issue not identified as a KEI for the purpose of developing a BREF (and consequently for which no BAT-AEL/BAT-AEPL/benchmarks are set) may still be important at national, local or installation level and may need to be addressed by the competent authorities ([18]).

The identification of KEIs should be done at the earliest possible stage of the information exchange process. Broad consensus of the TWG on the KEIs should be sought at the kick-off meeting and should be the basis for building a detailed questionnaire to gather the data and contextual information needed to determine BAT conclusions. The TWG may include additional environmental issues in the data collection and assess their relevance for the sector at a later stage. The inclusion of such additional data should be supported by robust arguments and ensure that their subsequent assessment should not create disproportionate workload for the TWG.

The identification of KEIs takes into account criteria and information sources such as:

— the relevance of the pollution caused by the activity or process as well as other impacts it may have on human health or the environment as a whole (e.g. impacts on resources, waste generation);

— the significance of the activity (number of installations impacted by the KEI, geographical spread, contribution to total (industrial) emissions in the Union);

— the potential for identifying new or additional techniques that would further reduce pollution;

— the potential to set BAT-AELs, BAT-AEPLs or benchmarks that would improve the level of environmental protection compared with current emission levels;

— information from environmental permits, results of emission monitoring as set out in Article 24(3), point (b), of the revised IED and information from the Industrial Emissions Portal;

— the general related Union's objectives/priorities.

The above criteria may not be sufficient to identify hazardous chemicals or emerging pollutants used or emitted in a sector, for example, due to the limited availability of monitoring data. In such cases, the identification of KEIs could take into account the following:

— a systematic identification of chemicals/emerging pollutants, e.g. an inventory of the main chemicals used in production processes in a sector and information on their emission pathways and expected release ([19]);

— the outcome of a related dedicated front-loading exercise involving chemical experts;

— information provided by ECHA;

— information provided by INCITE.

In cases of limited available data, the TWG may consider including specific BAT conclusions on monitoring in the BREF, to ensure that data are available for future BREF reviews.

For a BREF review, the KEIs previously identified by existing BAT conclusions are generally expected to remain relevant. Excluding an existing KEI or adding a new one during a BREF review should be supported by sound rationales.

([18]) See IED Article 14(1)(a) and Case C-626/22, paragraph 122.
([19]) For further information, see the 'HAZBREF' report (Hazardous industrial chemicals in the IED BREFs - Interreg Baltic Sea Region).

4.6.1.3 **Interim TWG meetings**

If needed, interim TWG meetings can be organised before the final meeting to enable the TWG to reach conclusions on crucial elements for the development of the BREF, for example, KEIs, the scope or elements of the proposed BAT conclusions, thereby easing the agenda of the final meeting. In all cases, it must be made clear before interim meetings that conclusions will be reached and on which topics. Meeting documents are distributed to the TWG at least three weeks in advance of the meetings and TWG conclusions reached at the meetings are duly recorded (e.g. in 'meeting conclusions'). Split views (see Section 4.6.1.4.2) may also be expressed during these meetings.

4.6.1.4 **Final meeting**

4.6.1.4.1 **General**

The final meeting aims at resolving outstanding issues with a view to concluding the technical discussions within the TWG.

It should in particular address and reach conclusions on the items listed below:

1. the content and structure of the BAT conclusions (see Chapter 3);

2. any modifications to be made to the content of the chapters of the BREF entitled 'Techniques to consider in the determination of BAT and ET' (see Section 2.3.7);

3. issues to be mentioned in the section of the BREF entitled 'Concluding remarks and recommendations for future work' (see Section 2.3.9).

The main issues to be discussed at the final meeting and proposals from EU-BRITE must be outlined in a detailed background paper.

The background paper should be distributed to the TWG at least six weeks in advance of the meeting. Where interim meetings have already taken place before the final meeting and crucial elements for the development of the BREF have already been agreed, the background paper should be distributed at least four weeks in advance of the meeting.

The background paper must include at least an assessment of the major comments received (see Section 0). EU-BRITE must also provide the TWG with at least the latest version of the chapters of the BREF entitled 'Techniques to consider in the determination of BAT and ET' (see Section 2.3.7) and 'Best Available Techniques (BAT) conclusions' (see Section 2.3.8), together with a compilation of graphs or a data visualisation tool to support discussions during the final meeting.

In the final meeting, the objective is to reach conclusions by broad consensus among the TWG members present. However, consensus is not a prerequisite and when there are split views, these should be recorded as indicated in Section 4.6.1.4.2 below.

4.6.1.4.2 **Split views**

BAT as well as emission levels and environmental performance levels (see Section 3.3) associated with BAT should be drafted by EU-BRITE on the basis of information available at the time of distributing the draft to the TWG for its final meeting (see Section 4.6.1.4). Such information may include any specific proposals for BAT or associated emission levels, environmental performance levels or benchmarks received from the TWG.

TWG members are expected to provide sound technical and economic arguments as relevant to their case when they do not agree with the draft BAT conclusions. Such arguments should be submitted initially as comments on the draft BREF within the consultation period set (see Section 1.2.5).

If the TWG in the end reaches no consensus on an issue, the split views and their rationale should be reported in the 'Concluding remarks and recommendations for future work' section of the BREF only if both the following conditions are fulfilled:

1. The split view is based on information already made available to the TWG at the time of drafting the conclusions on BAT for the BREF or has been provided within the commenting period corresponding to such a draft.

2. A valid rationale supporting the split view is provided by the TWG members concerned, supported by appropriate technical or economic data.

A split view needs to be expressed during the relevant discussion at the final meeting or at other TWG meetings where conclusions are reached (see Section 4.6.1.3) and must subsequently be confirmed in writing, together with an explanation of its rationale.

Member States, NGOs promoting human health or environmental protection or industry associations that put forward or support the split view should be clearly named in the document (see Section 2.3.9).

4.6.2 Development of the questionnaire for data collection

Installation-, plant- and process-specific data and contextual information are collected using a sector-specific questionnaire prepared by EU-BRITE. The questionnaire is intended to collect information on technique performance in order to consider it in the determination of BAT or ET. As far as possible, EU-BRITE drafts the questionnaire in a user-friendly manner so that operators can easily understand it.

The questionnaire and the data collection process should be designed to minimise the administrative burden by being user-friendly, efficient and suitable for collaborative completion within companies. Further improvements through digitalisation (e.g. integrated QA/QC procedures, pre-filled data fields and other digital functionalities) should support these objectives. The questionnaire should be sufficiently flexible for accommodating targeted complementary data updates.

EU-BRITE drafts a first questionnaire and shares it with the TWG for a first round of comments. This can be done at the kick-off meeting if the front-loading is sufficiently advanced; otherwise, it should take place afterwards.

On the basis of TWG's comments, EU-BRITE fine-tunes the questionnaire with the help of the TWG. There may be one or more intermediate drafts, depending on the TWG's comments and feedback. The final questionnaire is then agreed on, for example, in a dedicated TWG workshop.

Once the TWG has agreed on the questionnaire's content and format, a few industrial operators identified by the TWG may be asked to test it before the data collection officially starts. This is to ensure that the questionnaire is suited to the specific features of the installations, plants or processes.

4.6.3 Data and information collection and analysis

4.6.3.1 Data and information collection

Data and information collection includes both general ('bulk') information about the sector and installation-, plant- and process-specific data and contextual information.

The typical steps for the installation, plant- and process-specific data and contextual information collection are the following:

— TWG members (typically Member States, possibly with the support of the industry) identify a number of well-performing installations or plants and distribute the questionnaire to the operators. The list of well-performing installations or plants is aimed at maximising the representativeness of the sector and quality/robustness of the data. Well-performing installations or plants may not necessarily perform equally well regarding all environmental media.

— The operators fill in the questionnaires (possibly with the support of Member State or industry representatives).

— The filled-in questionnaires are checked for completeness and consistency by Member States' representatives and competent authorities. EU-BRITE may provide checklists to facilitate this procedure.

— Member States' competent authorities return the filled-in questionnaires.

— In the event of confidential information, see Section 5.3.

As regards 'bulk' information promised or identified in the conclusions of the kick-off meeting, this is posted by the TWG directly on BATIS.

4.6.3.2 **Data and information analysis**

The compiled data and information are displayed and analysed using a business intelligence and visual analytics platform for data discovery.

A set of relevant visualisations (e.g. graphs, tables, lists, maps, calculated values, contextual information), called a sheet, is made available to the TWG through the data visualisation tool. The different sheets are grouped together in a related application. The application, when created, is shared with the whole TWG and can be used to analyse data and information, in addition to other relevant documents shared on BATIS (see Section 4.7.1). If there is confidential information, Member State representatives in the TWG will be granted access after signing a non-disclosure agreement (see Section 5.3).

4.6.3.3 **Data assessment workshops**

At least two data assessment workshops should take place during the BREF drawing-up/review process: one before the first draft of the BREF is released for comments and another before the final meeting. Additional workshops can be organised to tackle specific targeted issues.

The main objective of the data assessment workshop held before the first draft is issued is to review and check the collected data and contextual information. This involves evaluating the data's completeness, accuracy and consistency, as well as understanding the environmental significance of the installations involved in the data collection. The workshop discussions should take into account the data together with contextual information, such as the techniques applied and environmental performance. These discussions should also aim to clarify issues left unresolved at the kick-off meeting, for example, about KEIs, and should allow appropriate conclusions to be drawn on those pending issues in subsequent meetings. Where appropriate, the workshop should also provide an opportunity for the TWG to discuss the methodological approach for analysing, grouping and interpreting the collected data, including establishing the link between techniques, operational conditions and environmental performance, in preparation for the determination of BAT, BAT-AELs and BAT-AEPLs. The workshop should also discuss if some questionnaires need to be updated and how to be take them into account in the data assessment.

The data analysis or workshop discussions may also trigger requests for additional data or information.

During the data assessment workshop before the final meeting, the TWG can discuss important issues arising from the comments on the first draft. If necessary, other data assessment workshops may be organised before the final meeting, for example, where the BREF covers many different processes, or where significant changes to the first draft resulting from the data analysis need to be explained.

It should be noted that no conclusions on BAT-AELs/BAT-AEPLs or benchmark ranges are reached during these data workshops.

4.6.3.4 **Identification of BAT and derivation of BAT-AELs/BAT-AEPLs**

The identification of BAT and derivation of related BAT-AELs follow a cooperative and iterative approach used in drawing up and reviewing all BREFs. The approach includes the following steps:

1. identifying the key environmental issues for the sector;

2. examining the techniques most relevant to addressing those issues;

3. identifying the associated emission levels, on the basis of the available data and information in the Union and worldwide, using an integrated approach;

4. examining the conditions under which these emission levels were achieved, e.g. costs, cross-media effects, environmental benefits;

5. selecting BAT and their associated emission levels.

The TWG is involved in each and every one of these steps. EU-BRITE proposes draft BAT and BAT-AELs to the TWG at various steps of the process (e.g. in the first draft of the BREF and in updated proposals based on TWG comments on the revised draft of the BAT conclusions before the final meeting). The proposals are then discussed and concluded upon by the whole TWG at the final meeting.

The TWG derives sound BAT-AELs from the data and information collected, using expert judgement if necessary. The derivation of BAT-AELs cannot only be based on a statistical assessment of the reported emission values. Crucial elements that are used to derive BAT-AELs include the following:

— the availability of sound data taking into account, for example, the monitoring method, the sampling time, the point of monitoring;

— the identification of the origin/sources and factors influencing the emission levels for the pollutant concerned;

— the existence of techniques suitable for preventing/reducing the pollutant concerned;

— whether the techniques are properly designed, maintained and operated;

— the conditions under which the techniques are applied, also taking into account economic considerations;

— the use of EN or ISO monitoring standards and the associated uncertainty;

— the monitoring frequencies of the reported data;

— the averaging periods of the reported data;

— the existence of peaks in the reported data and fluctuations in the data under normal operating conditions (e.g. in batch processes);

— any related cross-media effects.

Reported emission data or environmental performance data should not be taken into consideration when:

— they are not associated with techniques or a combination of techniques;

— they do not comply with emission limits or performance limits set in the permit.

Where there are restrictions on the applicability of a technique, these should be described in as much detail as possible.

Expert judgement is particularly important when the available data are limited, for example, in relation to techniques enabling deep industrial transformation, hazardous chemicals or new pollutants.

BAT-AEPLs are determined for individual processes that have similar characteristics, such as energy carriers, raw materials (especially critical raw materials), production units and final products, and a high degree of homogeneity across the Union, where the data made available in the exchange of information in support of the determination of BAT are sufficiently robust. BAT conclusions may also include indicative benchmarks to be included by operators in their EMS, where environmental performance is highly dependent on the specific circumstances of the processes.

4.6.4 **BREF drafts and TWG comments**

Each draft of a revised BREF should be in the form of a consolidated version, highlighting the new information and changes carried out in comparison with:

1. the version of the BREF published previously;

2. the information contained in the previous drafts elaborated during the review process.

Drafts are distributed by EU-BRITE to the TWG with a view to having the document peer-reviewed and to gather missing information. Comments are to be submitted to EU-BRITE within a fixed deadline (see Section 1.2.5) and using specific formats.

Following the distribution of each draft of a BREF, there should be a commenting period of at least eight weeks so that TWG members can provide their comments and suggestions on the document (see Section 1.2.5).

The main objective of the consultation is to invite TWG members to peer-review and validate the information included in the document, as well as to fill in gaps in the information by submitting additional data. In exceptional and justified cases, when more detailed information needs to be collected to support the comments submitted, this should be clearly indicated with the comments and such information should be submitted no later than one month after the deadline for submitting comments.

In order to focus and accelerate the review of the BREF, the comments submitted on the drafts should be divided into two groups:

1. a first group should include comments considered 'major' by the TWG members (i.e. comments that have a bearing on the BAT conclusions, on the scope of the BREF, on the structure of the BREF);

2. the second group should include 'minor' comments (e.g. typos, comments that have no bearing on the BAT conclusions).

TWG members should ensure that each comment they make is classified into one of these two groups before sending their comments to EU-BRITE. EU-BRITE should in turn collate and disseminate statistics on the basis of that distinction to provide a rough indication of the workload involved and to help identify major issues at an early stage of the process.

The comments considered 'major' should be treated with priority by EU-BRITE.

Detailed feedback is provided by EU-BRITE to the TWG on how their **major** comments have been taken into account in the background paper for the final meeting (see Section 4.6.1). Feedback is provided by EU-BRITE to the TWG on how all the comments have been taken into account before presenting the BREF to the Forum (see Section 1.3).

4.7 Information exchange tools

4.7.1 BAT information system (BATIS)

BATIS is a web-based software application set up to facilitate the exchange of information on BAT as well as the internal process carried out within EU-BRITE in order to produce or review BREFs. In addition to EU-BRITE staff, only nominated Forum and TWG members have access to BATIS. Contact details of TWG members are available in BATIS in order to facilitate the exchange of information within each TWG.

The key objective of the system is to help EU-BRITE to organise and manage BREF-related information, to enable transparency and to produce high-quality BREFs.

BATIS helps maintain transparency in the BREF drawing-up and reviewing process. To this end, all information collected in the framework of the drawing up or reviewing of a BREF is available on BATIS, except for confidential or sensitive information (see Section 5.3).

EU-BRITE is responsible for the overall management of information within BATIS. EU-BRITE structures the information/documents in BATIS (for example by relocating documents uploaded directly by TWG members) in such a way that they can easily be found, especially by TWG and Forum members.

In particular, EU-BRITE is responsible for making available on BATIS, when it is not directly posted on BATIS, information related to TWG meetings and subgroup meetings (e.g. background papers, meeting minutes, meeting slides) as well as TWG comments received on draft BREFs and EU-BRITE's feedback on those comments (see Section 0).

TWG members are responsible for uploading their individual contributions to BATIS. An online user manual is available on BATIS.

BATIS has a functionality which allows TWG members to know automatically (i.e. daily) if new information has been uploaded.

4.8 Security of personal data

The personal data of TWG and Forum members, which consists of each member's name and contact details, are collected by EU-BRITE upon their appointment as a TWG or Forum member with the exclusive purpose of allowing EU-BRITE to manage TWG and Forum member participation in the drawing up/reviewing of a BREF and to allow TWG and Forum members to access management tools for the editing and reviewing of BREFs and other documents.

The Commission is committed to user privacy. The privacy policy on the protection of individuals with regard to the processing of personal data is based on Regulation (EU) 2018/1725 of the European Parliament and of the Council ([20]). For further information, a privacy statement is available for TWG and Forum members on EU-BRITE's website.

At any time, TWG and Forum members may exercise their right to access and modify their data by contacting EU-BRITE.

5 CHAPTER 5: Data AND INFORMATION collection and submission

5.1 Introduction

This chapter presents guidance on the collection of data and bulk information for the exchange of information as referred to in Article 13(3), point (c), of the revised IED.

5.2 General principles for collecting and submitting data and information for the drawing up and reviewing of BREFs

The data and information to be collected and submitted to EU-BRITE regarding the environmental performance of installations, plants and processes and applied techniques as well as their technical and economic viability should allow for drawing up, reviewing and, where necessary, updating the BREFs and the BAT conclusions therein as described in Chapter 3.

The general principles that TWG members should follow for collecting and submitting data are outlined below:

1. Data sets at the level of single installations, plants and processes, indicating both the environmental performance achieved and the techniques used to achieve it, are essential for determining BAT and ET.

2. It is therefore crucial that TWG members supply complete data sets at least at the installation, plant or process level as is detailed in Section 5.4. Data aggregated from several plants/installations are usually not sufficient to support conclusions on BAT, ET, BAT-AELs and BAT-AEPLs (see Sections 3.3.2, 3.3.3 and 3.5.1).

3. Both in-process and end-of-pipe techniques utilised in the installation, plant or process to minimise its impact on the environment and human health should be mentioned and documented. Where relevant, a full description of the techniques should be submitted (together with the data sets) following the structure described in Section 2.3.7.2.

4. The data submitted should be accompanied by clear indications on whether they relate to normal or other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations); see Section 4.6.1.2.

5.2.1 Type of data/information

The main data/information should be collected down to at least the installation, plant or process level or even at a more detailed level (e.g. production line, unit, process, furnace), making clear reference to the techniques applied and other contextual or process-related data (e.g. consumption of energy, water, raw materials).

For ET, data can be collected from a demonstration prototype in a relevant environment, i.e. testing an engineering-scale or system prototype in conditions that closely mimic its intended final operational environment (at least TRL 6-7). Information from INCITE (see Section 4.4) about the environmental performance of ET should be considered.

Information providing a global overview of the sector – which might include industry capacity, production levels, market information, prices and other possibly sensitive information – can be provided in an aggregated form, but this should be mainly useful for developing or updating the chapters of the BREF entitled 'General information' and 'Current emission and consumption levels' (see Sections 2.3.4 and 2.3.6).

([20]) Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, pp. 39–98, ELI: http://data.europa.eu/eli/reg/2018/1725/oj).

The information submitted on techniques should address, as much as possible, all aspects mentioned in Section 5.4, in order to allow for drafting the chapter of the BREF entitled on 'Techniques to consider in the determination of BAT and ET' (see Section 2.3.7). Performances of techniques should be put into context and supported in particular by the relevant operational and economic data (see Section 5.4).

Information from what are considered best performing installations (with respect to the protection of human health and the environment taken as a whole) should be provided. For these installations, the information referred to in Section 5.4 should include sufficient detail in order to help understand how the observed high level of environmental performance and protection of human health has been achieved. This does not mean that only information on best performing installations, plants or processes should be collected and submitted. Updating Chapter 3 of a BREF entitled 'Current consumption and emission levels' (see Section 2.3.6) necessitates that information be submitted on the range of currently observed emission and consumption levels for the overall process and its sub-processes. This information should take into consideration, among other things, the variance in the applied processes, and the size and age of the installations.

5.2.2 **Format of data**

Information at the installation, plant or process level should usually be submitted to EU-BRITE using a common template, including via dedicated online tools, the content of which is discussed and agreed on with the TWG. This does not preclude the submission of additional supporting documents via other means if considered useful (e.g. process flow diagrams). To minimise the work involved in collecting data, the TWG is encouraged to take into account periodic reporting requirements (e.g. in the frame of the Industrial Emissions Portal) and the availability of data. Templates are particularly useful for gathering a great deal of information, to enable a comparison of data as well as to identify gaps and anomalies. This does not exclude the use of supplementary data (e.g. case studies, technical and cost data concerning specific techniques) if considered instrumental for deriving BAT conclusions.

The essential data/information that a template for gathering complete data sets at the installation-, plant- and process- (or a more discrete) level should contain is indicated in Section 5.4 (detailing the environmental performance and operational data needed).

5.2.3 **Quality of data**

The information collected should be at a sufficient level of detail so as to enable its assessment and comparison with other data and finally to be used to conclude on BAT and ET (see Chapter 3).

The data provided (especially emission and consumption data) should be from recent years.

All figures submitted should be given in SI units or in units commonly used within the sector and agreed on by the TWG preferably at the kick-off meeting.

All data should be carefully checked before being submitted to EU-BRITE in order to ensure accuracy, completeness and to identify and correct errors and inconsistencies.

If a questionnaire is deemed to be of insufficient quality for data assessment (due to, for example, incomplete data or missing information, when compared with other questionnaires), TWG members responsible for the questionnaire will be asked to complete or update it.

Submitted data which are considered largely incomplete or containing too many errors should not be taken into account.

5.3 **Confidentiality issues**

It may happen that confidential business information and sensitive information under competition law are needed/useful to EU-BRITE for its assessments (e.g. cost, production volume). In accordance with Article 13(2) of the revised IED, the exchange of information considered to be confidential business information or commercially sensitive information must remain strictly limited to what is technically required to draw up, review and, where necessary, update BREFs, and such confidential business information or commercially sensitive information must not be used for other purposes. Confidential business information and sensitive information do not include emission data, as they are in the public domain.

If any information submitted to EU-BRITE is considered confidential business information or sensitive information under competition law and should therefore not be reported in the BREF, this should be clearly stated when sending the information and the reason/justification for the confidentiality/sensitivity should be given. Without prejudice to Union's competition law, information considered to be confidential business information or commercially sensitive information is only to be shared with the Commission and, after having signed a confidentiality and non-disclosure agreement, with civil servants and other public employees representing Member States or Union agencies. When shared with the other TWG members, information must be anonymised in such a way that it does not refer to a particular operator or installation. Non-anonymised information may only be shared where anonymising the information would prevent an effective exchange of information on BAT, with NGOs promoting human health or environmental protection and the industries concerned, as appropriate, and provided that the representatives of those organisations and associations have signed a confidentiality and non-disclosure agreement.

Confidential business information and sensitive information under competition law must not be reported in the BREF, unless the information provides an important basis for BAT conclusions. In such cases, the provider of the information must have checked compliance with competition law and specifically authorised EU-BRITE to report the information in the BREF.

There are several ways to deal with confidential/sensitive data in BREFs such as the aggregation or the anonymisation of information. This can be done by EU-BRITE if necessary with the help of those who supplied the information.

The period when a questionnaire template is developed (see Sections 4.6.1.2 and 5.4) is the time to discuss in detail which information is needed, the degree of confidentiality (if any) of the data requested and the practicalities to deal with potentially confidential business information, sensitive information under competition law, conflicts of interest and related matters, based on the procedure discussed at the kick-off meeting.

5.4 Environmental performance and operational data needed for the 'Techniques to consider in the determination of BAT and ET' and 'Best Available Techniques (BAT) conclusions' chapters

5.4.1 General information on environmental performance and operational data

This section deals with environmental performance and operational data. However, in order to draw up, review and, where necessary, update BAT conclusions, all techniques to be considered in determining BAT and ET should be presented in the BREF in accordance with the standard structure set out in Section 2.3.7, where other data needed to draw BAT conclusions (especially on economics, cross-media effects and technical considerations relevant to applicability) are given.

The TWG should conclude - preferably at the kick-off meeting - on the format and content of the questionnaire for the sector it is addressing (see Sections 4.6.1.2 and 5.5).

The main types of environmental performance and operational data that a template for gathering installation-, plant- and process-specific data should contain are outlined in the sections below.

5.4.2 Resource efficiency

5.4.2.1 General information on resource efficiency

The information submitted should include data on the use of raw and auxiliary materials/chemicals, water and energy in the relevant processes. Resource efficiency data include information on the level of detail and the system boundaries considered.

5.4.2.2 Consumption of raw and auxiliary materials/

To the extent that it is relevant for the activities concerned, information should include the following at installation, plant or process level:

1. the type and quantity of raw and auxiliary materials used (including secondary material, chemicals, and recycled waste);

2. an indication of the techniques used to maximise the efficient use of resources and to prevent/minimise the use of hazardous substances or substances of very high concern; information on techniques can include both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned.

5.4.2.3 **Water use**

The information submitted should distinguish between types of water used, such as cooling water and process water, and indicate whether water is reused and, if so, how much. Data/information should include, where relevant to the activities concerned, the items specified below:

1. Information about the origin of the water used and about the receiving water body (e.g. name, type – rainwater, surface water, i.e. lake, river, stream, sea, or ground water; when relevant, also temperature, flow, quality).

2. Information on the system boundaries (i.e. parts/processes of the installation using the water for which the data are reported), accompanied by a flow chart diagram if possible.

3. Whether treatment of supply waters is carried out on site and an indication of the type of treatment performed (e.g. desalination, filtration).

4. An indication of the techniques used (including both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned) to reduce the consumption of water. If efforts made to reduce water consumption lead to more concentrated effluents, this should be indicated as well as measures taken to minimise the environmental impact of more concentrated effluents.

5.4.2.4 **Energy use**

The information collected should include the following, where relevant to the activities concerned:

1. Inputs:

   i. The type and quantity of fuel/energy used (e.g. fuel oil, liquefied petroleum gas, natural gas, steam, electricity (including the source of electricity), waste, biogas, biofuel or biomass used as fuel), including cooling and technical gases (e.g. N_2, O_2). If steam is used, the temperature and pressure of the steam should be indicated.

   ii. Fuel/energy consumption (per type), making a distinction between thermal and electrical energy.

2. Outputs:

   i. Whether energy is produced (e.g. electricity production) and, if so, how much. If steam is produced, the temperature and pressure of the steam should be indicated.

   ii. Whether energy is sold or heat energy is used on or off site (e.g. district heating).

3. Other:

   i. Whether there is recovered energy and, if so, in which part of the installation, under which form and how much.

   ii. Whether there are exothermic reactions and, if so, in which part of the installation and how much.

   iii. Whether there are heat losses and, if so, in which part of the installation and how much.

4. System boundaries (parts/processes of an installation or plant using the energy for which the data are reported), monitoring methodology and reference conditions should be provided when presenting energy consumption/ efficiency values.

5. The techniques used to reduce the consumption of energy and to increase energy efficiency; information on techniques can include both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned.

Energy data should be expressed in kWh or MJ per mass of product (or per mass of raw materials), indicating whether net or gross calorific values were used to determine this.

5.4.3 **Emissions to water**

The information submitted should distinguish between various types of waste water, such as cooling water and process water, and indicate whether water is reused and, if so, how much. Data/information should include the items listed below, where relevant to the activities concerned:

1. The amount and flow rate of discharged process waste waters as well as an indication of whether exceptional discharges are included.

2. Information on the sources (e.g. unit processes) of discharged process water or other waste water streams for each reference/sampling point. To help assess possible cases of mixing polluted with less polluted or unpolluted waste water streams, a waste water flow chart would be useful. It is also preferable to collect, for each pollutant, information on the mass flows or specific loads of the associated emissions, so that any potential dilution effect can be taken into account.

3. The amount, flow rate and temperature of discharged non-process (e.g. cooling) water.

4. Whether rainwater is collected and treated in the installation and how.

5. Whether waste waters coming from other installations or plants (including municipal waste waters) are treated in the installation and how.

6. The emission levels (as concentrations or loads - including specific loads - whenever relevant ([21]); see Section 3.3.2) of discharged pollutants for each waste water stream considered and whether the waste water is discharged directly or indirectly to the receiving waterbody. The information should also specify whether or not other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations) are included. This information should be submitted together with the relevant reference information indicated in Section 5.4.8.

7. An indication of whether the water effluents are treated in a waste water treatment plant (WWTP) located on site or off site (e.g. municipal or central for a whole industrial site) of the installation.

8. An indication of the techniques used (including both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned) to prevent, and where this is not practicable, to reduce emissions to water. For abatement techniques, the targeted pollutants should be mentioned.

9. Information on pollutant abatement efficiency or the quantity of pollutants before and after the techniques in order to determine abatement efficiency.

10. Information on conditions or circumstances hampering the use of the technique (including abatement technique) at full capacity, necessitating full or partial bypassing of the technique and measures taken to restore its full operational effectiveness should be included.

5.4.4 **Emissions to air**

Data/information submitted should include the items listed below, where relevant to the sector concerned:

1. The emission levels (as concentrations or loads - including specific loads - whenever relevant[22], see Section 3.3.2) of pollutants emitted, making a distinction between channelled (e.g. stack) emissions and non-channelled (e.g. diffuse/fugitive) emissions, specifying whether emissions under other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations) are included. For specific load data, the product referred to should be clearly defined. This information should be submitted together with the relevant reference information indicated in Section 5.4.8.

2. An indication of whether the gas effluents are treated in a central waste gas treatment plant located on site or off site.

3. An indication of the sources (e.g. unit processes) of both diffuse/fugitive and stack emissions.

([21]) Information on loads (e.g. mass of pollutants released per year) may assist in identifying priorities on pollution reduction.

4. Flue-gas flow rate, converted if necessary to standard conditions (dry gas at a temperature of 273,15 °K and a pressure of 1 013 hPa).

5. Reference conditions (e.g. concentration data should refer to dry waste gases at a temperature of 273,15 °K and a pressure of 1 013 hPa – if not, this should be indicated – and the reference oxygen content should be mentioned, if applicable). Particularly for combustion processes, reference conditions should include the actual O_2 content of undiluted effluent, sampling point temperatures (flame temperature, chamber temperature, effluent temperature), type of heating (direct, indirect).

6. An indication of the techniques used (including both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned) to prevent, and where this is not practicable, to reduce emissions to air. For abatement techniques, the targeted pollutants are mentioned.

7. The quantity of pollutants before and after the techniques in order to determine abatement efficiency.

8. Information on conditions or circumstances hampering the use of the technique (including abatement technique) at full capacity, necessitating full or partial bypassing of the technique and measures taken to restore its full operational effectiveness capacity should be included.

5.4.5 **Emissions to soil and groundwater**

Information submitted should include, where relevant to the sector concerned, the items listed below:

1. The potential sources (processes, material, substances) that may cause soil or groundwater contamination.

2. Information on the techniques used to prevent or, where that is not practicable, to reduce emissions to soil and groundwater.

5.4.6 **Residues**

Information submitted should include, where relevant to the sector concerned, at installation, plant or process level, the items listed below:

1. The types and quantities of residues (e.g. sludge) generated/created by the activity, including, where available and relevant, the corresponding EU waste codes.

2. The (physical/chemical) characteristics of the residues generated/created by the activity (e.g. metals content, average dry solid content).

3. The specific weight of organic and inorganic waste disposed of and the specific weight of waste that is recycled, or weight of residues that are reused or recovered, whether this takes place inside or outside the installation, plant or process.

4. An indication of the techniques used (including both the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned) to prevent the generation of residues or, when this is not practicable, to reuse and recover the generated residues, or to recycle waste at the installation-, plant- or process-level.

5.4.7 **Other information**

The environmental performance and operational data provided should be accompanied by all the relevant general information such as, where applicable:

1. the year the installation or plant was built and commissioned, and an indication of the nature and dates of major retrofits;

2. the type of production processes, catalysts, process equipment (e.g. mill, heat exchanger and furnace) used;

3. the main operating conditions of the process (e.g. continuous or batch process, recurring events such as furnace decoking, catalyst regeneration, production load, process temperature);

4. the different types of products manufactured and how their quality/composition may affect the consumption/ emissions;

5. measures taken to prevent or, where this is not practicable, to reduce pollution during other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations);

6. measures taken to reduce the likelihood (frequency) or environmental effects of incidents/accidents.

5.4.8 **Reference information that must accompany emission data**

5.4.8.1 **General**

For emission data, in addition to the value and unit for the parameter monitored, the information submitted should include, where applicable:

1. the emission source (e.g. reactor, furnace);

2. an indication of the type of emission pattern (e.g. minimum/maximum values, percentiles or a graphic presentation; see Section 5.4.8.3).

5.4.8.2 **Monitoring**

For emission monitoring data, the information submitted should include, where applicable, the items listed below:

1. The frequency of the measurement/sampling/monitoring.

2. The averaging period used to report the data (see detailed information below).

3. The type of monitoring method used (e.g. direct measurement, indirect measurement, mass/heat balances, emission factors) and an indication of the EN/ISO (or other) monitoring standards used including the sampling method and sample pretreatment as well as information on whether and how measurement uncertainties were considered. If available, the limit of detection (LOD) and the limit of quantification (LOQ) should be given for the parameter monitored. In cases where the monitoring standard used is not an EN/ISO standard, a description of the standard should be provided.

4. An indication of the measurement/sampling/monitoring uncertainties.

5. Details of the data source, e.g. who collected, analysed and submitted the data.

6. Whether the measurements were taken during normal operation or under other than normal operating conditions (such as start-up and shutdown operations, leaks, malfunctions, momentary stoppages and the definitive cessation of operations).

The Reference Report on Monitoring of Emissions to Air and Water from IED Installations (ROM) should be taken into account with respect to the expression of monitoring results and how to deal with uncertainties, direct measurements and monitoring requirements.

5.4.8.3 **Averages, ranges and distributions of emission values**

When providing emission monitoring information, the period over which the values have been collected and averaged should be unambiguously indicated. Information collected during other than normal operating conditions should be reported separately.

The exchange of information should address the performance of installations, plants or processes sand techniques in terms of emissions, expressed both as short- and long-term averages, where appropriate (see Section 1.1.1). The availability of both types of information, the relevance as well as the feasibility of their collection and subsequent analysis should be discussed at the kick-off meeting (see Section 4.6.1.2).

A set of data containing short-term averages (e.g. half-hourly, hourly, daily averages) covering a longer time span (e.g. one or several years) allows for subsequent calculations of short- and long-term averages and percentiles. In particular, the variation range and distribution functions (e.g. maximum, mean, standard deviation from the spot measurements) of daily or hourly averages collected over a long period of time (e.g. one year or more) are necessary to identify the emission pattern and possible peak emissions that may occur.

Yearly averages generally give a good picture of the environmental performance related to a process/technique, independently of local disturbances or short-term variations, as they include emissions at installation level for all sources and conditions throughout the year, i.e. in a relative steady-state situation. Yearly averages are also of interest in the context of assessing candidate techniques. For yearly averages, it is important to indicate how they were derived or calculated (e.g. from continuous or spot measurements and, if the latter, how many) and if emissions during other than normal operating conditions are included.

5.5 Specific issues under the remit of each technical working group

The TWGs set up for the drawing up or reviewing of a BREF should adhere to the general principles indicated in Section 5.4. For the purpose of the information exchange, as defined in Article 13(1) and (2) of the revised IED, **TWG members should therefore provide information (especially consumption and emission data) at least down to the activity-, installation-, plant-, or process-level.** The TWG should determine whether or not to go to a more disaggregated level (e.g. reactor, furnace, unit operation, process). However, data aggregated from several installations, plants or processes can be used to draft Chapter 3 of the BREF entitled 'Current emissions and consumption levels'.

The TWG members should suggest during the front-loading phase the type and format of sector-specific data that should be collected to draw-up/review the BREF in question. The background paper prepared by EU-BRITE for the kick-off meeting should present the TWG suggestions and make concrete proposals for the outline of a **sector-specific** data collection questionnaire template and for discussions regarding the type and format of data to be collected and submitted.

The TWG should discuss at the kick-off meeting whether the general principles provided in this guidance document on data collection should have to be supplemented by sector-specific aspects for the BREF in question.

The TWG should discuss and develop a **sector-specific questionnaire template** for collecting and submitting information to EU-BRITE following the general principles given in Section 5.2. The TWG should in particular determine the type of data, averages, ranges, distributions, units and reference conditions to be used/submitted, taking into account the data available and the units and reference conditions used by the producers. Agreeing on these issues should therefore be one of the objectives of the kick-off meeting and there should be enough time foreseen for this.

Important: the questionnaire template should be created in a format to allow for easy data compilation and analysis such as Excel, XML or other statistical tools. Online tools may also be used. Preference should be given to multiple-choice questions. The use of questions allowing open answers should be limited as much as possible because they inherently lead to the need for clarifications because the terminology used is inconsistent. An option to facilitate data validation is to be built into the templates. The template could be tested during site visits for further improvements.

The TWG should define at the kick-off meeting the schedule for gathering and submitting data and information to EU-BRITE (in accordance with the typical workflow for the drawing up and reviewing of BREFs set out in Section 1.2.5). Last-minute data/information should be avoided because it is difficult for the whole TWG to peer-review them. Data/information submitted after the deadline may not be taken into account (see also Section 1.2.5).

For emissions data, the TWG should conclude, on the basis of the concentration and (specific) load data gathered (if both data are available, they should both be submitted), if one or both types of data would contribute to deriving useful BAT conclusions.

Specific loads (e.g. mass of pollutants released per mass of product manufactured) allow for the comparison of the environmental performance of installations irrespective of their different production volumes and are not influenced by mixing or dilution.

Concentrations (accompanied by reference conditions and averaging periods) generally give more information on the short-term performance of individual processes or unit operations and thus can reveal fluctuations and peak emissions. They also establish the environmental performance at any given moment. Combining them with flow data allows the pollution load at any given moment to be established. When continuous measurements are used, concentrations can be used to provide information on performance over a longer time period (e.g. one year).

6 CHAPTER 6: QUALITY ASSURANCE OF THE DRAWING UP AND REVIEWING OF THE BREFS

Ensuring the quality of the process of drawing up and reviewing of the BREFs largely rests on the adherence to the guidance contained in this document, in particular regarding the BREF content and boundaries and the collection of data for deriving BAT and ET.

The quality of a BREF depends upon both the participants involved in the process (a high level of technical expertise and involvement is required) and the quality of the 'Sevilla process' itself. To guarantee this quality, Member States, industries concerned, non-governmental organisations promoting human health or environmental protection, the European Chemicals Agency and the Commission are each expected to have in place a quality system that includes:

1. clear definitions of responsibilities and allocation of tasks;
2. methods and procedures;
3. the allocation of sufficient resources (in particular staff);
4. an internal control system leading to continuous improvements.

Ensuring the BREF is of good quality is a day-to-day activity which is based on the personal commitment of all those involved in the exchange of information. Generally, at the origin of the information collected, each individual TWG member has, as a **first-level controller**, a special role to play to guarantee the quality of his/her contributions.

The EU-BRITE staff members who draft the BREFs based on contributions from the TWG are **second-level controllers** of the quality of the information submitted.

The quality assurance process should be kept under constant review and the Forum will be asked to contribute to this.