



JOINT RESEARCH CENTRE
Institute for Prospective Technological Studies (IPTS)
Sustainable Production and Consumption Unit
European IPPC Bureau

Seville, 30 January 2015

KICK-OFF MEETING
FOR THE REVIEW OF THE
REFERENCE DOCUMENT ON BEST AVAILABLE TECHNIQUES
FOR FOOD, DRINK AND MILK INDUSTRIES

SEVILLE, 27 - 30 October 2014

MEETING REPORT

INTRODUCTION

The Technical Working Group (TWG) for the review of the Reference Document on Best Available Techniques (BAT) for Food, Drink and Milk Industries (FDM BREF) held its first plenary meeting at Hotel Melia Lebreros in Seville, Spain on 27 – 30 October 2014. This record represents a summary of the results of this first plenary TWG meeting.

TWGs are set up to facilitate the exchange of information under Article 13(1) of Directive 2010/75/EU on Industrial Emissions (Integrated Pollution Prevention and Control), having originally been conceived under Article 17(2) of Directive 96/61/EC (which was subsequently recast as Directive 2008/1/EC).

The existing FDM BREF (available on the European IPPC Bureau (EIPPCB) website at <http://eippcb.jrc.ec.europa.eu/reference/>) was formally adopted by the European Commission in 2006 under Directive 96/61/EC. The FDM BREF currently serves to provide information and guidance for regulators within the procedure of issuing permits to FDM installations.

This first plenary TWG meeting, also called the kick-off meeting (KoM), officially started the work on the review of the FDM BREF document based on an exchange of information between the members of the TWG set up for the purpose. By virtue of Article 14(3) of Directive 2010/75/EU, the BAT conclusions that will be included in the revised FDM BREF will be the reference for setting permit conditions for activities within the FDM sector.

The Head of the EIPPCB chaired the meeting and the FDM BREF co-authors (the FDM BREF review team of the EIPPCB) led the technical discussions.

The FDM TWG is made up of more than 140 experts representing EU Member States, Industry, Environmental non-governmental organisations and Commission services. The kick-off meeting was attended by 71 TWG members.

The meeting agenda included presentations and discussions on the exchange of information on best available techniques (as stipulated in Article 13 of Directive 2010/75/EU), on the definition of the scope of the work to

review the FDM BREF, on the key environmental issues to consider, on issues related to the data and information collection and on the structure and content of the FDM BREF and the BAT conclusions (BATC). These discussions were covered during the first two and a half days of the meeting. The final half day covered the information exchange tools (i.e. BATIS) as well as the conclusions of the meeting.

In order to facilitate discussions at the meeting, a background paper highlighting the items to be discussed was prepared by the EIPPCB and sent to the TWG members in advance of the meeting (26 September 2014). The items had been derived from about 1000 initial positions sent by the TWG. In this context, an 'initial position' stands for suggestions, comments or wishes provided by the members of the TWG on the basis of the '*expression of the positions on the review on the FDM BREF*', sent by the EIPPCB by 16 April 2014, and of the documents attached to this. The term 'EIPPCB proposal' used in this document refers to the way forward that the EIPPCB proposed to the TWG after taking into account the TWG members' 'initial positions'.

Meeting and structure of this meeting report

During the meeting, discussions on the TWG members' initial positions and on the EIPPCB proposals made base on these were held. The key issues for which agreements were sought in the meeting were the scope and structure of the revised FDM BREF and the key environmental issues of the FDM sector. Furthermore, an agreement was expected on what information and data would be provided to the EIPPCB in order to revise and improve the FDM BREF (data and information collection) and on the basic principles of this collection.

The items were discussed by following a common pattern at the meeting. The EIPPCB gave a presentation based on the background paper and proposed a way to take the issue at stake forward. The participants then had the opportunity to discuss each issue and ultimately reach conclusions.

This document presents the main issues discussed for each item and the conclusions reached at the meeting. Under some items, an indication is given on when a task was assigned to the TWG in connection with the item.

All presentations delivered at the meeting are accessible to TWG members on the BAT Information System (BATIS) workspace together with the conclusion slides presented on the last day of the meeting.

The presentation given by the DG Environment (DG ENV) representative stressed the importance of focusing the information exchange so that BAT conclusions are developed or updated for the key environmental issues of the FDM sector. Any information that cannot be used to develop or update BAT conclusions would be assigned a lower priority. The Head of the EIPPCB gave a general introduction on BREF reviews.

During the meeting, some TWG members explained their key point of view with opening presentations. AT presented its general considerations for best practices in waste water treatment in the FDM sector. FoodDrinkEurope gave an overview of the food and drink industry in Europe and highlighted some issues from the background paper. EEB stressed the importance of also considering prevention measures for waste water reduction.

All these presentations are accessible to TWG members on BATIS.

As clarified at the kick-off meeting, the BREF Guidance for the exchange of information under the IED (Commission Implementing Decision 2012/119/EU of 10 February 2012) is an essential document for the future work of the FDM TWG.

DISCLAIMER

This document should not be considered as representative of the Commission's official position. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of the following information.

Acronyms

BAT	Best Available Technique(s)
BAT-AEL	BAT-Associated Emission Level(s)
BAT-AEPL	BAT-Associated Environmental Performance Level(s)
BOD _x	Biochemical oxygen demand. Amount of oxygen needed for the biochemical oxidation of the organic matter to carbon dioxide in x days (normally 5 or 7). BOD is an indicator for the mass concentration of biodegradable organic compounds.
BREF	Reference Document on Best Available Techniques
BP	Background Paper
Cl ⁻	Chloride ion
COD	Chemical oxygen demand. Amount of oxygen needed for the total oxidation of the organic matter to carbon dioxide. COD is an indicator of the mass concentration of organic compounds.
CLM BREF	Best Available Techniques (BAT) Reference Document for the Production of Cement, Lime and Magnesium Oxide
EFS BREF	Reference Document on Best Available Techniques on Emissions from Storage
EIPPCB	European IPPC Bureau
ENE BREF	Reference Document on Best Available Techniques for Energy Efficiency
EMAS	EU Eco-Management and Audit Scheme
ICS BREF	Reference Document on the application of Best Available Techniques to Industrial Cooling Systems
KoM	Kick-off Meeting
LCP BREF	Reference Document on Best Available Techniques for Large Combustion Plants
MS	Member State
NH ₄ -N	Ammonium
NO _x	The sum of nitrogen (II) oxide (NO) and nitrogen dioxide (NO ₂)
OTNOC	Other Than Normal Operating Conditions
SA BREF	Reference Document on Best Available Techniques in the Slaughterhouses and Animals By-products Industries
SRD	Sectoral Reference Document (issued under the EMAS Regulation)
TOC	Total organic carbon. Total organic carbon, expressed as C, includes all organic compounds.
TN	Total nitrogen. Total nitrogen, expressed as N, includes free ammonia and ammonium, nitrites and nitrates and organic nitrogen compounds.
TP	Total phosphorous. Total phosphorous expressed as P, includes all inorganic and organic phosphorous compounds, dissolved or bound to particles.
TSS	Total suspended solids. Mass concentration of all suspended solids, measured via filtration through glass fibre filters and gravimetry.
TVOC	Total volatile organic compounds (in air), expressed as C (EN 12619)
WT BREF	Reference Document on Best Available Techniques for Waste Treatment

Member States and Organizations (as officially named as participants in the Kick-off Meeting)

AT	Austria
BE	Belgium
HR	Croatia
DE	Germany
DK	Denmark
FI	Finland
FR	France
IT	Italy
PL	Poland
PT	Portugal
RO	Romania
SK	Slovakia
ES	Spain
SE	Sweden
UK	United Kingdom
AVEC	Association of Poultry Processors and Poultry Trade in the EU countries
CLITRAVI	Liaison Centre for the Meat Processing Industry in the EU
COPA-COGECA	Committee of Professional Agricultural Organisations and General Committee for Agricultural Cooperation in the European Union
EEB	European Environmental Bureau
FEDIOL	EU Vegetable Oil and Proteinmeal Industry
FEFAC	European Feed Manufacturers Federation
FDE	FoodDrinkEurope

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1 SCOPE

1.1 Scope of activities and sectors

1.1.1 General positions

In Annex I to Directive 2010/75/EU (IED), the industrial activities related to food, drink and milk industries are defined under points 6.4 (b) (i) (ii) (iii) and c).

The initial positions from the TWG members asked for clarification on the scope of activities covered by the BREF with an emphasis on a more detailed scope. Specific issues in relation to the FDM BREF scope, were discussed later as separate items.

The EIPPCB proposed to include activities 6.4 (b) (i) (ii) (iii) and c) of Annex I to the IED, to maintain the current exclusion of activities in the revised FDM BREF and to specify any necessary further exclusions.

During the discussion this proposal was broadly accepted, taking into account that further clarifications about the FDM BREF scope and its possible overlapping with information already sufficiently covered in the BREF series would follow.

Conclusions reached by the TWG for the revised FDM BREF

- The activities specified in points 6.4 (b) (i) (ii) (iii) and c) of Annex I to the IED are included in the scope of the revised FDM BREF.
- The current exclusion of activities is maintained in the revised FDM BREF and any necessary further exclusions will be specified.
- Relevant interfaces with other BREFs will be taken into consideration and a reference to other BREFs or REF documents will be included in the scope of the FDM BREF and in the FDM BAT conclusions.
- Any legal references to EU legislative acts will not be explained or reinforced in the BAT conclusions' scope. Factual references to EU legal acts can be made in the BREF, where deemed necessary.

1.1.2 Animal feed

The initial positions highlighted a need for more clarifications about the activities covered by the term animal feed, also taking into account that such activities are only briefly described in the current BREF.

The EIPPCB proposal was that the production of animal feed of animal and vegetable origin is within the scope of the FDM BREF but the descriptions of products, processes and techniques in the production of animal feed should be further developed.

The discussion showed that the production of animal feed of animal and vegetable origin should be maintained in the scope of the FDM BREF. The need to improve and further develop the related descriptions in the current FDM BREF was also recognised (e.g. for drying of green fodder).

Conclusions reached by the TWG for the revised FDM BREF

- The production of animal feed of animal and vegetable origin is maintained in the scope of the FDM BREF.

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- The descriptions of the product ranges, processes and related in-process and end-of-pipe techniques in the production of animal feed will be further developed.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- Information on drying of green fodder will be provided by Copa-Cogeca.

1.1.3 Ethanol production

There were various views in the initial positions of the TWG members regarding the inclusion of the production of ethanol in the scope of the FDM BREF.

Ethanol production is included the reviewed LVOC BREF (Draft 1, 2014) as a thumbnail description and with a reference to the FDM BREF for further general information about fermentation processes.

The EIPPCB proposal was to collect more information on the ethanol sector in general and to include in the FDM BREF related descriptive information on the fermentation and raw materials used.

There was a lengthy discussion regarding this issue and initially participants were asked to give more information about their experience for (bio)ethanol production sites and specifically whether it is common practice that these, when based on agricultural raw materials are integrated with a FDM plant. The responses showed that this is quite common and mostly in relation to sugar and starch plants. Moreover most of the participants stressed the point that these installations should not be grouped together with chemical activities. One MS referred to that some very large producers in Europe of bioethanol are generally stand-alone dedicated production sites and related to chemical platforms.

For the key environmental issues to be covered by the review in relation to production of ethanol on a 6.4 (ii) installation, please see Section 2.9.17.

Conclusions reached by the TWG for the revised FDM BREF

- More information on the ethanol production sector in general (e.g. number, size/capacity and location of plants) will be collected.
- Related descriptive information on the fermentation process and the raw materials used will be included in the FDM BREF.
- A cross-reference to the LVOC BREF will be added.
- Ethanol production taking place on an installation covered by the activity description in 6.4 (b) (ii) of Annex I to the IED or as a directly associated activity is included in the scope of the FDM BREF.

1.1.4 Starch plants

In the initial positions there was a wish to include starch hydrolysis in the starch sector activities, e.g. to produce glucose syrup, dextrose, maltodextrine, since this is performed in several starch plants.

The EIPPCB proposal was to provide only descriptive information on the related production processes of secondary products derived from starch (e.g. hydrolysed products).

During the discussion it was pointed out that the majority of the starch plants also produce hydrolysed starch products. This production significantly contributes to the overall pollution load of the waste water. The majority of the participants were in favour of including the production of secondary products derived from starch in the FDM BREF scope

Conclusions reached by the TWG for the revised FDM BREF

- The production of secondary products derived from starch, e.g. hydrolysed products, is included in the scope of the FDM BREF.

1.1.5 Anaerobic digestion

The initial positions asked for an expansion of the coverage of anaerobic digestion techniques within the current FDM BREF. Also, a distinction should be made between those anaerobic digestion processes used primarily to produce renewable energy and those for waste treatment.

The EIPPCB proposal was to make a cross-reference to the Waste Treatment (WT) BREF for general information on the anaerobic digestion of waste and to include descriptions of raw materials, process equipment and operations specific to the FDM sector, to the extent that these are not already covered in the WT BREF.

In the discussion it was made clear that anaerobic digestion of waste is covered by the WT BREF, but it is doubtful that the related data collection will cover anaerobic digestion taking place in FDM sites. It was also pointed out that there are sufficient differences in the FDM sector to include an information and data collection in the FDM BREF. The further combustion of biogas and air emission or energy efficiency of combustion processes are not covered unless the heat is used for direct heating, see also Section 1.3.

Conclusions reached by the TWG for the revised FDM BREF

- A cross-reference will be made to the WT BREF for general information on the anaerobic digestion of waste.
- Descriptions of raw materials, process equipment and operations specific to the FDM sector will be included in the scope of the FDM BREF, if these are not already covered in the WT BREF.
- The necessary sector-specific information and data on the anaerobic digestion process will be collected.

1.1.6 Other issues

Some detailed clarifications were requested in the initial positions, for example on whether soft drinks production is outside the scope when no vegetable (or animal) raw materials are used or into which category Annex I installations fall, using milk as the primary raw material with ingredients of vegetable origin, i.e. cacao. Also, there was a request for clarification on whether an installation of lime production within the sugar industry is covered by the Cement, Lime and Magnesium Oxide (CLM) BREF.

The EIPPCB proposal excluded from the FDM BREF scope activities where no animal and vegetable raw materials are used. And a cross reference to the CLM BREF concerning lime production in sugar plants should be made.

During the discussion there was a question as to whether soft drinks production (e.g. in the case of using sugar as raw material) is generally within the scope of the FDM BREF. It was concluded that in such a case soft drinks production is included. It was remarked that it is necessary to clarify that activities not using processed or unprocessed animal and vegetable raw materials should be excluded.

Questions were raised about categorisation of installations in Annex I of the IED, but it was stressed that this is a legal issue, not within the merit of a TWG.

Conclusions reached by the TWG for the revised FDM BREF

- Activities where no animal and vegetable raw materials, whether previously processed or unprocessed, are used are excluded from the scope of the FDM BREF.
- Off-site sludge treatment or valorisation of sludge is excluded from the scope of the FDM BREF.
- A cross-reference to the CLM BREF concerning lime production in sugar plants will be made.

A note was added that further clarification about the implementation of Annex I to the IED could be given by the Commission.

1.2 Interface with the Slaughterhouses and Animals By-products Industries (SA) BREF

The initial positions asked for a clearer interface in the scope between the FDM BREF and the Slaughterhouses and Animals By-products Industries (SA) BREF should be further clarified.

As a general remark, BAT reference documents (BREFs) are developed to be used complementarily when setting permit conditions for installations covered by the IED. In order to facilitate the use of those documents, appropriate cross-references need to be made in a BREF to other relevant reference documents.

The EIPPCB proposed a specific clarification of the interface between the FDM and SA BREFs and to include this in the scope of the FDM BREF.

It was agreed that the FDM BREF should cover meat processing activities following slaughtering and there was a discussion about defining the ending point of the slaughtering activity. Moreover, also for avoiding overlapping with the SA BREF, the FDM BREF should not cover the production of primary products produced from animal by-products, such as rendering and fat melting; fish-meal and fish oil production; blood processing and gelatine manufacturing.

Conclusions reached by the TWG for the revised FDM BREF

- The following clarification will be included in the scope of the FDM BREF on the interface between the FDM and SA BREFs:
 - This FDM BREF covers meat processing activities following slaughtering. The slaughtering activity is considered to end with the making of standard cuts for large animals and cuts for poultry.
 - This FDM BREF covers the production of feed from processed animal by-products.
 - This FDM BREF does not cover the production of primary products produced from animal by-products, such as rendering and fat melting; fish-meal and fish oil production; blood processing and gelatine manufacturing.

1.3 Combustion plants and interface with the Large Combustion Plants (LCP) BREF

The initial positions expressed in general a preference that only combustion plants which are an integrated part of the production process should be included in the scope of the FDM BREF. Some MS shared the opinion that some combustion plants in the FDM sector (e.g. integrated with sugar plants) should also be included.

The EIPPCB proposed that only combustion processes where the products of combustion are directly used in the production process should be included in the scope of the FDM BREF.

During the discussion it was pointed out that in the scope should be included those combustion plants generating hot gases that are used for direct treatment of objects or materials, in view of avoiding duplication with the Large Combustion Plants (LCP) BREF and the proposed EU Directive on Small and Medium Combustion Plants and for consistency with other BREFs. One MS asked for inclusion of combustion plants integrated with sugar plants, but these are covered by the LCP BREF. Another MS asked for inclusion of the (usually small) combustion units peculiar to the food and drink sector (e.g. using biogas generated with production residues or from waste water treatment) but these are covered by the proposed EU Directive on Small and Medium Combustion Plants. Finally it was suggested that the TWG should consider including the cross-references to the LCP BREF.

Conclusions reached by the TWG for the revised FDM BREF

- On-site combustion plants generating hot gases that are used for direct contact heating, drying or any other treatment of objects or materials are included in the scope of the FDM BREF.
- The TWG will examine possible cross-references to the LCP BREF.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- Information on drying of green fodder will be provided by Copa-Cogeca.

1.4 Cooling, freezing and refrigeration and interface with the Industrial Cooling Systems (ICS) BREF

The initial positions stressed the importance of avoiding overlaps with the Industrial Cooling Systems (ICS) BREF, but also diverged from indicating a preference to generally exclude cooling and freezing from the scope of the FDM BREF to a desire to focus on the cooling and refrigeration processes.

The ICS BREF focuses on the cooling systems commonly used within IED activities and provides a review of available techniques for industrial cooling systems. The ICS BREF does not cover issues in specific industrial sectors.

The EIPPCB proposal was that FDM-specific cooling, freezing and refrigeration operations should be included in the scope of the FDM BREF in the interest of avoiding duplication with the ICS BREF.

There was a general agreement in favour of the EIPPCB proposal.

Conclusions reached by the TWG for the revised FDM BREF

- FDM sector-specific cooling, freezing and refrigeration operations are included in the scope of the FDM BREF.
- TWG members will collect information on cooling, refrigeration and freezing operations applied in FDM sectors and on the related techniques used to protect the environment.
- Duplication in the FDM BREF of information already covered by the ICS BREF will be avoided and appropriate cross-references to the ICS BREF for general information about industrial cooling systems will be made.
- Appropriate cross-references to Regulation (EC) No 1005/2009 on substances that deplete the ozone layer and Regulation (EU) No 517/2014 on fluorinated greenhouse gases of the European Parliament and of the Council will be included in the FDM BREF and duplication will be avoided.

1.5 Energy efficiency and interface with the Energy Efficiency (ENE) BREF

The initial positions underlined the importance of avoiding overlaps with the Energy Efficiency (ENE) BREF and diverged from wishing to generally exclude energy efficiency from the scope of the FDM BREF to wanting to focus on energy efficiency as an important environmental issue.

The ENE BREF contains generic BAT conclusions for all IED installations, but does not include information specific to production processes and activities in sectors covered by other BREFs (e.g. FDM) and does not define sector-specific BAT.

The EIPPCB proposal was that energy efficiency should be included in the FDM BREF scope, but the focus should be on the sector-specific issues, which are not covered by the ENE BREF.

There was a general agreement on the EIPPCB proposal.

Conclusions reached by the TWG for the revised FDM BREF

- Duplication of valid information already covered by the ENE BREF will be avoided in the FDM BREF.
- Appropriate cross-references to the ENE BREF for general information about energy efficiency will be made in the FDM BREF.
- Energy efficiency is included in the FDM BREF scope, but with a focus on FDM sector-specific issues, which are not covered by the ENE BREF.

1.6 Packaging

The initial positions ranged from being in favour of generally excluding packing, as it is regulated under the Packaging and Packaging Waste Directive, to wishing to extend the focus on it.

The EIIPCB proposal was that the selection of packaging materials should be excluded from the scope of the BAT conclusions (could be dependent on non-environmental criteria), but packing activities which take place on the premises of a FDM plant should be within the FDM BREF scope, with a focus on those with relevant associated environmental issues.

During the discussion it was confirmed that packing activities could involve significant emissions and/or consumption. It was also stated that duplication of EU legislation on packaging should be avoided.

Conclusions reached by the TWG for the revised FDM BREF

- The selection of packaging materials is excluded from the scope of the BAT conclusions.
- Packing activities that take place on a FDM plant are included within the FDM BREF scope, but with a focus on those that may involve significant emissions and/or consumption (e.g. washing of reused bottles).
- The FDM BREF will avoid duplication of EU legislation on packaging.

1.7 Waste water treatment and discharge

There were TWG members' initial positions for and against including both direct and indirect waste water discharges in the FDM scope.

The EIPPCB proposal was to include both direct and indirect waste water discharges in the FDM BREF scope.

The discussion illustrated the value of collecting data on both direct and indirect discharges of waste water and especially information on the techniques applied to prevent and control pollution to water.

Conclusions reached by the TWG for the revised FDM BREF

- Both direct and indirect waste water discharges are included in the FDM BREF scope.

1.8 Waste water landspreading

Landspreading as an alternative to waste water treatment was requested by one MS to be discussed during the KoM. The initial positions indicated that landspreading of some waste water fractions is an efficient technique to be considered as BAT.

The EIPPCB proposal was that TWG members should provide additional relevant information from the sectors where landspreading is applied.

The participants were invited to provide information on the application of waste water landspreading in the FDM sector. From the responses it was clear that waste water landspreading is applied in some MS (at least in DE, DK, ES, FI, FR and IE), especially in the starch and sugar sector, but more information should be provided.

Conclusions reached by the TWG for the revised FDM BREF

- Landspreading, as a waste water discharge option, is included in the scope of the FDM BREF.
- TWG members will provide information on the use of landspreading (e.g. in which Member States this technique is used and by how many plants).

2 KEY ENVIRONMENTAL ISSUES

2.1 General key environmental issues

The initial positions expressed by TWG members asked in general to focus on both preventive, in-process and end-of-pipe techniques and stated that energy and water consumption, emissions to water and emissions to air are the major key environmental issues for most FDM sectors.

The EIPPCB proposal echoed in general the TWG positions.

There was a general agreement on the EIPPCB proposal but the participants commented that odour should also be considered a general key environmental issue for the FDM sector.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will strengthen resource efficiency by including documented in-process prevention and reduction techniques as much as possible as candidate BAT.
- The TWG will collect information and data to support the development of BAT conclusions in the following main areas: energy and water consumption, emissions to water and air and odour.
- The TWG will collect information and data at the FDM sector level.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- FoodDrinkEurope will provide information on LCA studies.

2.2 Cleaning, hygiene and the use of chemicals for cleaning

The initial positions expressed by the FDM TWG members pointed out that that cleaning is a key operation for the FDM sector and hygiene standards are crucial to ensure product quality and food safety. There were also some more specific positions in favour of the substitution of some chemicals (e.g. EDTA).

The EIPPCB proposed that contextual information about implemented cleaning techniques should be collected, taking into account the relevant provisions of the "Concluding remarks" chapter of the current FDM BREF (cleaning techniques associated with high-, medium- and low-pressure cleaning, substitution of EDTA), and generally for the substitution of other risky substances (e.g. triclosan). Moreover hygiene requirements when defining BAT should be taken into account.

During the discussion, TWG members emphasised that division of cleaning techniques should not be into low-, medium- and high-pressure cleaning but rather to closed and open systems. Furthermore, a more appropriate wording (relevant hazardous substances) was established instead of the term 'risky substances'. The hygiene requirements of the FDM sector were highlighted and additionally it was pointed out that energy efficiency aspects of cleaning should also be taken into account when defining BAT.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect contextual information on implemented cleaning techniques, and on the usage of alternative, less harmful substitutes to EDTA or other relevant hazardous substances (e.g. triclosan).
- The TWG will especially take into account hygiene requirements and energy efficiency aspects of cleaning when defining BAT.

2.3 Water and energy consumption and resource efficiency

The initial positions expressed by TWG members were manifold. Water and energy consumption are recognised as relevant issues. In general, sector/product specific ratios on energy and water consumption are relevant in the BREF, but not as part of the general BAT conclusions. Moreover, techniques that facilitate the further utilisation of co-products/by-products should be described.

The EIPPCB proposal was to collect data and contextual information on water consumption, energy efficiency and generation of residues/waste via questionnaire.

The discussion highlighted that these data and contextual information should not be collected only via questionnaire. Also, information should be collected for energy consumption with a particular focus on techniques for reducing the quantity of waste sent for disposal.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect data and contextual information for relevant FDM sectors and product ranges using in particular the questionnaire covering:
 - the consumption of water, including reuse and recycling techniques for the reduction of fresh water use;
 - the consumption of energy and energy efficiency techniques;
 - the generation of residues/waste and techniques for reducing the quantity of waste sent for disposal.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- Euromalt will provide information on resource efficiency projects.

2.4 Diffuse emissions, odour and noise

Initial positions expressed by the FDM TWG members pointed out the need to collect information on diffuse emissions, odour and noise but there was a general preference neither to collect measurement data nor to develop BAT-AELs.

The EIPPCB proposal was to collect information on diffuse emissions, odour and noise.

The discussion stressed the importance to focus on the collection of information only on techniques to prevent and reduce diffuse emissions, odour and noise, as monitoring and data assessment is not easily compared between sites.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect information on techniques to prevent and reduce diffuse and fugitive emissions as well as on techniques to prevent and reduce odour and noise.

2.5 Accidental releases

The general positions expressed by TWG members were divided between covering environmental accidents as a general topic and not covering this at all in the FDM BREF. The positions also referred to specific risks (e.g. accidental emission to air of refrigerants) encountered in the FDM sector that would be relevant.

The EIPPCB proposal was that information in the current FDM BREF on the major environmental risks should be improved by describing operational techniques to prevent and reduce the identified risks for environmental accidents and accidental releases. This would allow the inclusion of relevant techniques, at least in the general part of the BAT conclusions. Also, appropriate cross-references to the Emissions from Storage (EFS) BREF and relevant legislation (e.g. the Seveso Directive) should be made in the FDM BREF.

There was a general agreement in favour of the EIPPCB proposal, while at the same time the participants commented that some FDM installations fall under the scope of the Seveso Directive. It was emphasised that overlaps with the Emissions from Storage (EFS) BREF and relevant legislation (e.g. the Seveso Directive) should be avoided.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will improve information in the current FDM BREF on the major environmental risks encountered in the sector by collecting specific information.
- Operational techniques to prevent and reduce the identified risks of environmental accidents and accidental releases including of refrigerants will be described in the FDM BREF.
- The TWG will include in the FDM BREF techniques for the prevention of environmental accidents and accidental releases, at least in the general part of the BAT conclusions, e.g. for the environmental management system and for storage if applicable.
- Appropriate cross-references to the EFS BREF will be made in the FDM BREF and appropriate cross references to the Seveso Directive and Regulations (EC) No 1005/2009 and (EU) No 517/2014 of the European Parliament and of the Council will be included and duplication will be avoided.

2.6 General issues for emissions to air and water

2.6.1 Emissions to air

The initial TWG positions confirmed that emissions to air are a key environmental issue for the FDM sector and asked for collection of relevant information and data.

The EIPPCB proposal was to collect information on both in-process and end-of-pipe applied techniques for reducing emissions to air of key pollutants but to give priority to prevention. Data and information on emissions to air should be collected following the identification of specific parameters in the individual FDM sectors.

There was a general agreement on this proposal. It was commented that some sectors might not have relevant sources of air emissions. It was further emphasised by the participants that the objective is not only to reduce emissions but also to prevent them.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect further information on techniques applied (both for in-process and for end-of-pipe techniques) for preventing and reducing emissions to air of key pollutants, giving priority to prevention techniques.
- The TWG will collect sector-specific data and information on emissions to air.

2.6.2 Emissions to water

The initial TWG positions confirmed that emissions to water is a key environmental issue for the FDM sector and asked for collection of relevant information and data while taking the final destination for the discharged water into account. Some of them expressed the concern that each industrial site should be free to choose the waste water treatment that is the most suitable.

The EIPPCB proposal was to collect information on both in-process and end-of-pipe applied techniques for reducing emissions of key pollutants to water and to give priority to prevention. Data and information on emissions to water should be collected for both direct and indirect waste water discharges and applied in-process and end-of-pipe techniques. The proposal also included a notice that the techniques listed and described in the BAT conclusions are neither prescriptive nor exhaustive and that other techniques may be used which ensure at least an equivalent level of environmental protection.

There was a general agreement on the EIPPCB proposal and it was clarified that additional on-site activities contributing to the waste water pollutant load will be taken into account as far as possible. It was further clarified that the objective is not only to reduce emissions but also to prevent them.

Conclusions reached by the TWG for the revised FDM BREF

- All relevant techniques (both for in-process and for end-of-pipe techniques) applied in the FDM sector for preventing and reducing emissions to water will be taken into account, giving priority to prevention techniques.
- The TWG will collect data for both direct and indirect waste water discharges and applied in-process and end-of-pipe techniques.
- Additional on-site activities contributing to the waste water pollutant load will be taken into account as far as possible.

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- In the introduction of the BAT conclusions it will be added that the techniques listed and described are neither prescriptive nor exhaustive and that other techniques may be used which ensure at least an equivalent level of environmental protection.

2.7 Monitoring and averaging periods

The importance of including monitoring and measuring methods in the BAT conclusions was highlighted by the initial positions from the TWG members. The need for clarification on the definition of averaging periods and on monitoring location was stressed. Positions in favour of defining BAT-AELs as short-term or as long-term averages were both expressed.

The EIPPCB proposal was to include specific BAT conclusions on monitoring covering references to standard methods for the relevant parameters. Furthermore, it was proposed to express BAT-AELs as short-term averages and also as long-term averages for each parameter monitored, while taking into account the availability of data and special circumstances (e.g. seasonal operations).

There was general agreement with the EIPPCB proposal and the importance of specific BAT conclusions for monitoring. The participants expected in general a high availability of monitored data in the FDM sector. Some participants referred to additional special circumstances that should be taken into account, when developing BAT-AELs, especially when setting the averaging periods (e.g. campaign duration, climate conditions).

Conclusions reached by the TWG for the revised FDM BREF

- Specific BAT conclusions on monitoring will be included.
- BAT-AELs for key parameters will be expressed as short-term averages (e.g. daily) and long-term averages (e.g. yearly), taking into account the availability of data and special circumstances (e.g. seasonal operations, campaign duration, climate conditions).

2.8 Expression of BAT-AELs

The initial positions expressed by the FDM TWG members asked for a differentiation of BAT-AELs according to various factors (e.g. sector-specific BAT-AELs or to distinguish between new and existing plants). There were positions in favour of expressing BAT-AELs as concentrations and as specific loads as well.

The EIPPCB proposal was to consider relevant factors in the data assessment, e.g. the type of process, size of installation, new or existing plant and type of raw materials used. Moreover, the EIPPCB tried to be more specific about the possible expression of BAT-AELs and proposed to derive short-term BAT-AELs in concentrations and coupled with waste water discharge flow or total waste gas volume, and to derive long-term BAT-AELs in specific mass loads at least for TOC/COD, taking into account the availability of data and special circumstances.

The discussion showed a broad agreement with the EIPPCB proposal. It was emphasised by the participants that expression of BAT-AELs in specific loads should be assessed on a sectorial basis. It was commented that there is no need to couple concentrations with waste water discharge flow but most participants were in favour of doing so. There was a request to add one more example in the first bullet (mixed products) and the EIPPCB clarified that the example list is not exhaustive. There was also an opinion that BAT-AELs can be coupled with removal efficiencies, which was accepted by the participants.

Conclusions reached by the TWG for the revised FDM BREF

- Relevant factors will be considered in the integrated assessment of techniques, e.g. the type of process, size or capacity of installation, new/existing plant and type of raw materials.
- Short-term BAT-AELs in concentrations will be derived and coupled with waste water discharge flow or total waste gas volume, and long-term BAT-AELs in specific mass loads at least for TOC/COD will be derived, taking into account the availability of data and special circumstances (e.g. seasonal operations, campaign duration, climate conditions).
- These BAT-AELs could be coupled with removal efficiencies, if deemed appropriate.

2.9 FDM sectors and their key environmental issues

2.9.1 Key pollutants for emissions to water

The initial positions expressed by the FDM TWG members asked for the inclusion and exclusion of various pollutant parameters and to develop BAT-AELs for these. From the initial positions it was also clear that some waste water parameters/pollutants are commonly measured across the FDM sector.

Taking into account the information in the current FDM BREF and in the initial TWG positions, the EIPPCB considered that there is a basis for a horizontal proposal across the FDM sector, such as to collect data with the intention of proposing BAT-AELs for COD, TSS, TN, and TP, while taking into consideration the individual sectors. It was also proposed to collect data for TOC in order to propose a relevant BAT-AEL as an alternative to that of COD (since the analytical method for COD includes the use of dichromate, according to DG Environment it is foreseen that COD need to be replaced by an alternative parameter, where TOC seems the most appropriate). Further, it was proposed to collect data for BOD, but not to propose a BAT-AEL for this parameter; and not to set BAT-AELs for toxicity. Additionally it was proposed to collect data for ammonium nitrogen, but not to propose a BAT-AEL if a BAT-AEL for TN is proposed.

The discussion showed that the EIPPCB proposal was generally acceptable. There was a broad concern about the availability of data regarding TOC, and this concern was repeated several times in the individual sectors discussions. The merit of promoting this measurement was explained and it was clarified that the intention is to collect all the available data and the assessment will show the opportunity to establish a related BAT-AEL, while taking into account the individual FDM sectors.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect data with the intention of proposing BAT-AELs for COD, TSS, TN and TP, while taking into consideration the individual FDM sectors.
- The TWG will collect data for TOC, and proposing a relevant BAT-AEL as an alternative to that of COD will be considered.
- The TWG will collect data for BOD, but not propose a BAT-AEL for this parameter.
- The TWG will collect data for ammonium nitrogen, but a BAT-AEL will not be proposed when a BAT-AEL for TN is proposed.
- BAT-AELs for toxicity will not be set and the TWG will not collect specific information on toxicity.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- FoodDrinkEurope will provide information on experiences of using TOC measurement in the dairy sector.

2.9.2 Dairy sector

According to the initial positions from the TWG on waste water generation, treatment and discharge should be considered a major issue for the sector. The initial positions also asked to consider dust emissions in relation to drying and taking into account the product range.

The EIPPCB proposed to collect waste water emissions data for TOC, COD, BOD, TSS, Cl⁻, TN, NH₄-N and TP in concentrations, together with either the related waste water flow or the related load, and collect data on specific loads for TOC and COD emissions. Also, the EIPPCB proposed to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range, as well as data and

contextual information on water consumption and waste water generation. Additionally, it was proposed to collect data on dust emissions to air from drying operations, including characterisation of the dust fraction.

During the discussion the merit of collecting data for Cl^- was disputed, but it was agreed that it is a relevant parameter for the sector (cheese production) and it is pertinent to collect data. There was a request to collect data for heavy metals but it was concluded that this is not a key environmental issue for the sector.

It was stressed by the participants that the product range should particularly be taken into account and that this was a horizontal issue for all relevant sectors. For the dairy sector it was argued that production cycles should also be taken into account. Moreover, it was pointed out that information on applied energy efficiency techniques should be collected.

As an issue horizontal to all sectors, there was a concern about the available data for specific loads and it was agreed to also collect data for the corresponding specific waste water flow. For the dairy sector it was proposed by the EIPPCB that specific load could be expressed as mass/unit of processed milk.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, Cl^- , TN, NH_4-N and TP in concentrations (mg/l), and either the related waste water flow (m^3 /time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. as mass/unit of processed milk) and the corresponding specific waste water flow, if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range.
- The TWG will collect data on water consumption and waste water generation with the necessary information on products and production cycles.
- The TWG will collect data on dust emissions to air from drying operations including characterisation of the dust fraction (e.g. moisture content, stickiness), information on drying technology and applied filter systems.
- The TWG will collect information on energy efficiency.

2.9.3 Sugar manufacturing

The initial positions of the FDM TWG members indicated the need to focus on emissions to air and water and energy consumption. One member also asked for a better description of sugar cane refining. Seasonality of production should also be taken into account.

The EIPPCB proposed to collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH_4-N , and TP in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC and COD. It was proposed to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range, and contextual information and data on heat recovery and other techniques for high energy efficiency. Moreover, it was proposed to collect data on dust and TVOC for emissions to air from beet pulp dryers; to collect information on sugar production based on sugar cane and to take seasonality into account when assessing data.

There was general agreement with the EIPPCB proposal and it was pointed out by the participants that NO_x , SO_2 and CO emissions to air from beet pulp dryers are also relevant and the fuels used should be taken into account as well. Regarding dust emissions to air, the merit of also collecting information on the physical characterisation of the dust fraction was discussed.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect waste water emissions data on specific loads for TOC and COD (e.g. mass/unit of raw material) and the corresponding specific waste water flow, if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range.
- The TWG will collect information on odour sources and applied techniques for reduction of odour.
- The TWG will collect information and data on energy efficiency.
- The TWG will collect data on dust, TVOC, NO_x, SO₂ and CO emissions to air (mg/m³) from beet pulp dryers along with data on loads (e.g. mass/mass of dried product) and contextual information on dryer type, fuels used and applied waste gas treatment.
- The TWG will collect data on dust emissions to air including physical characterisation of the dust fraction (e.g. moisture content, stickiness).
- The TWG will collect new information on sugar production based on sugar cane.
- Seasonality of production will be taken into account when assessing data.

2.9.4 Fruit and vegetables

The initial positions mainly indicated emissions to water as the most relevant issue.

The EIPPCB proposed to collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, and TP in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC, COD and TSS. It was also proposed to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range and information on odour sources and related techniques for odour reduction. Additionally, it was proposed to collect potential air emission data (not related to energy production) too.

During the discussion it was highlighted that emissions to air is not a key issue for this sector. Product range should also be taken into account together with seasonality.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC, COD and TSS (e.g. mass/unit of raw material or finished product) and the corresponding specific waste water flow, if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the variation/seasonality of the product range.
- The TWG will collect information on odour sources and related techniques for odour reduction.

2.9.5 Meat processing

The TWG initial positions referred mainly to emissions to water and to smoking processes for emissions to air.

The EIPPCB proposal was to collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, TP and oil and grease in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC and COD. It was also proposed to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range. Moreover, it was proposed to collect data on TVOC emissions to air from smoke kilns and contextual information on the smoking process.

During the discussion it was agreed that oil and grease are not a relevant parameter for this sector and that it would also be valuable to consider batch production for waste water generation. It was questioned whether frying and cooking activities should also be considered for emissions to air. It was agreed to focus on emissions to air only from smoking, and to cover the activities mentioned before in relation to odour sources and information on techniques to reduce odour.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/unit of raw material) and the corresponding specific waste water flow, if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range and batch switches.
- The TWG will collect data on TVOC emissions to air (mg/m³) from smoke kilns along with data on waste gas flows (m³/h) if possible.
- The TWG will collect information on the smoking process, generated waste water, and applied waste gas treatment techniques, including related air emissions data for NO_x and CO, if relevant.
- The TWG will collect information on odour sources and related techniques for odour reduction.
- Further data on emissions to air from meat processing will not be collected.

2.9.6 Animal feed

The initial positions from the FDM TWG members specified dust emissions to air as a key issue and considered that emissions to water are not an issue for the sector.

The EIPPCB proposed to collect data on air emissions, including at least dust and its characteristics. Additionally, it was proposed to collect information on odour sources and related techniques for odour reduction; on drying technologies applied and possible energy savings/energy efficiency and to take seasonality of raw materials into account. Moreover, it was proposed to collect general information and data on waste water generation.

During the discussion it was commented by the participants that emissions to water are only a relevant issue in pet food production and production of feed for fur animals. It was questioned whether odour is a key issue for this sector and it was agreed that it is relevant for production of compound feed containing animal proteins. It was also confirmed by the participants that there are available data for dust characterisation.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect new information on the animal feed sector in general.
- The TWG will collect general information and data on waste water generation in pet food production and production of feed for fur animals.
- The TWG will collect data on dust emissions to air to from green fodder drying, from handling and preparation of grain-based feed and from extrusion in compound feed manufacture.
- The TWG will collect information on the characteristics of the dust fraction (e.g. particle size distribution, moisture content, stickiness).
- The TWG will to collect information on odour sources and related odour reduction techniques for compound feed containing animal proteins.
- The TWG will collect information on drying technologies and on energy efficiency.
- Seasonality of raw materials will be taken into account when appropriate.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- UK will provide data on dust particle size distribution.

2.9.7 Oilseed processing and refining

The initial TWG positions referred mainly to emissions to air and indicated dust and VOC emissions as a relevant issue. They asked to focus on specific hexane consumption as yearly average consumption of solvent (hexane) expressed as kg of hexane consumed per Mt of seeds processed and as monitored on the basis of the principle of bookkeeping.

The EIPPCB proposal was to divide the sector to cover seeds and olives separately and to collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, TP in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC and COD. It was also proposed to collect contextual information on the applied waste water treatment techniques and treatment efficiencies. For air emissions, to collect data and information on solvent mass balances, the applied abatement techniques together with monitoring of TVOC stack emissions to air and data and information on dust emissions. Moreover, it was proposed to collect information on odour and to take seasonality or campaign duration into account when appropriate.

During the discussions, it was agreed that it is relevant to collect data on stack emissions of TVOC and dust emissions from cooling of meal. Information on energy efficiency and odour should also be collected.

During the discussion it was agreed that olive oil processing and refining should be a separate key sector for the review of the FDM BREF (see Section 2.9.13).

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/mass of raw material) and the corresponding specific waste water flow, if possible.

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- The TWG will collect data and information on solvent mass balances and the applied abatement techniques together with monitoring of TVOC stack emissions to air.
 - The TWG will collect data and information on dust emissions from seed handling, preparation and drying, and for the drying and cooling of meal.
 - The TWG will collect information on odour sources and related techniques for odour reduction.
 - Seasonality of production will be taken into account when appropriate.
 - The TWG will collect information on energy efficiency.

2.9.8 Starch production

The initial TWG positions referred to emissions to water and to dust emissions. They also asked to take into account seasonality of production.

The EIPPCB proposal was to collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, and TP in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC and COD. Also, it was proposed to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range. Moreover, it was proposed to collect data on dust emissions to air including characterisation of the dust fraction, and finally to take seasonality into account.

During the discussion participants requested that data for TVOC emissions be collected but it was agreed that it is not a key issue for the sector. It was highlighted that information is available about the physical characteristics of the dust.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/mass of raw material) and the corresponding specific waste water flow, if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range.
- The TWG will collect data on dust emissions to air from dryers (expressed in mg/m³) and from raw materials preparation (expressed in loads (mass/time unit)), including the physical characteristics of the dust (e.g. moisture content, stickiness), information on drying technology and applied abatement techniques.
- Variation and seasonality of raw materials used will be taken into account when assessing data.

2.9.9 Coffee manufacturing

There were a few initial TWG-related positions, mainly asking to focus on emissions to air and especially on NO_x emissions from coffee roasting.

The EIPPCB proposed to collect data on emissions to air, general information and data on the generation of waste water as well as information on heat recovery and energy efficiency techniques.

The discussion revealed that perhaps there are less than 10 IED coffee manufacturing installations in Europe. It was agreed that coffee manufacturing should not be the main focus of the data collection through questionnaires. Moreover, an appropriate cross-reference to the EMAS Sectoral Reference Document on Best Environmental Management Practices (BEMP) for the Food and Beverage Manufacturing Sector for additional relevant information will be made in the FDM BREF.

Conclusions reached by the TWG for the revised FDM BREF

- Coffee manufacturing is under the scope of the FDM BREF.
- The TWG considers that coffee manufacturing should not be the main focus of the data collection through questionnaires.
- General information should be collected to update the information in the current FDM BREF.
- An appropriate cross reference to the EMAS Sectoral Reference Document on Best Environmental Management Practices (BEMP) for the Food and Beverage Manufacturing Sector for additional relevant information will be made in the FDM BREF.

2.9.10 Brewing

The initial positions highlighted emissions to water as a key issue for this sector and asked for a distinction between conventional and non-alcoholic beer production.

The EIPPCB proposed to collect waste water emissions data for COD, TOC, BOD, TSS, TN, NH₄-N, and TP in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC and COD. Also to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range; data and information on water and energy consumption. Finally, it was proposed to collect new information on the production of non-alcoholic beer and describe it separately and to collect potential air emissions data (not related to energy production).

During the discussion it was pointed out that odour is an issue for this sector and information on related sources and abatement techniques should be collected. It was also clarified that, for emissions to air, only dust is relevant. Water-saving measures and information on CO₂ recovery from fermentation should also be focused on. Bottle washing also an issue to mention.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/hl of beer produced) and the corresponding specific waste water flow, if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range.
- The TWG to collect data on dust emissions to air and information on the prevention and abatement techniques used.
- The TWG will collect information on odour sources and related techniques for odour reduction.

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- The TWG will collect new information on the production of non-alcoholic beer and describe it separately.
 - The TWG will collect information on the consumption of water and energy including information on water-saving and heat recovery techniques, as well as information on techniques for CO₂ recovery from fermentation, when this is applicable.
 - The general conclusions on packaging (especially in relation to washing of reused bottles, see Section 1.6) will be taken into account.

2.9.11 Distilled beverages

There were a few initial TWG-related positions, mainly asking to focus on emissions to air.

The EIPPCB proposed to collect data on emissions to air and water, information on waste water treatment and energy efficiency techniques.

The discussion revealed that perhaps there are less than 10 related IED installations in Europe. It was agreed that the same approach to coffee manufacturing should be followed and distilled beverages production should not be the main focus of the data collection through questionnaires.

Conclusions reached by the TWG for the revised FDM BREF

- Distilled beverages production is under the scope of the FDM BREF.
- The TWG considers that distilled beverages production should not be the main focus of the data collection through questionnaires.
- General information should be collected to update the information in the current FDM BREF.

2.9.12 Fish and shellfish processing

There were a few initial TWG-related positions, mainly indicating emissions to water as the key environmental issue.

The EIPPCB proposed to collect waste water emissions data for TOC, COD, BOD, TSS, TN and NH₄-N in concentrations, together with either the related waste water flow or the related load and data on specific loads for TOC and COD. Also, it was proposed to collect contextual information on the applied waste water treatment techniques, cleaning processes and product range; information on techniques for storage and handling of fish by-products and reduction of odour emissions. Finally, it was proposed to collect additional information on smoking processes and emission data on TVOC emissions to air from smoke kilns along with data on loads.

There was general agreement with the EIPPCB proposal. It was additionally agreed that it is relevant to also collect data for TP and Cl⁻, regarding emissions to water.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N, TP and Cl⁻ in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mg/time unit).

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- The TWG will collect data on specific loads for TOC and COD (e.g. mass/mass of processed raw material) and the corresponding specific waste water flow, if possible.
 - The TWG will collect contextual information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range.
 - The TWG will collect additional information on smoking processes and data on TVOC emissions to air (mg/m³) from smoke kilns with data expressed in loads (mg/time unit).
 - The TWG will collect information on techniques for storage and handling of fish by-products and for reduction of odour emissions.

2.9.13 Olive oil processing and refining

There was one specific TWG position asking to describe separately the techniques and environmental issues for the product range.

The EIPPCB initially proposed to include the production of olive oil in oilseed processing.

During the discussions it was concluded that olive oil processing and refining is a key sector that should be treated separately in the reviewed FDM BREF. Similar information and data to those for the oilseed processing and refining sector should be collected.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/mass of raw material) and the corresponding specific waste water flow, if possible.
- Data should be collected in view of the applied production processes (i.e. primary and secondary).
- The TWG will collect data and information on solvent mass balances and the applied abatement techniques together with monitoring of TVOC stack emissions to air.
- The TWG will collect information on odour sources and related techniques for odour reduction.
- The TWG will collect information on valorisation of co-products/by-products.
- Seasonality of production will be taken into account when appropriate.

2.9.14 Soft drinks and juice made from concentrate

EIPPCB did not initially provide a separate proposal for this sector. During the discussions it was agreed that soft drinks production is under the scope of the FDM BREF. It was also apparent that there are a considerable number of related IED installations in Europe and this sector should be considered key for the reviewed FDM BREF.

It was agreed that emissions to water is the key environmental issue for this sector and there was a fine-tuning of the sectorial name, so as to be more comprehensive.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/unit of product produced) if possible.
- The TWG will collect information on the applied waste water treatment techniques and cleaning processes taking into account in particular the product range.
- The general conclusion on packaging will be taken into account (especially in relation to washing of reused bottles, see Section 1.6).

2.9.15 Grain milling

A limited number of initial positions were received, mainly indicating dust emissions as the key environmental issue for the sector.

The EIPPCB proposed that this is not a key sector for the reviewed FDM BREF and that only general information and data should be collected.

During the discussions it was apparent that there are a considerable number of related IED installations in Europe and this sector should be considered key for the reviewed FDM BREF.

It was agreed that dust emissions to air are a key environmental issue for this sector.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect information on the grain milling sector to update the information in the current BREF.
- The TWG will collect data on dust emissions to air (mg/m³) expressed in loads (mass/time unit) and information on applied abatement techniques.

2.9.16 Preserved products from mixed raw materials (of animal and vegetable origin)

EIPPCB did not initially provide a separate proposal for this sector. During the discussions it was argued that a special focus should be given to canned products with mixed raw materials. There was a doubt from some participants whether they are covered under the meat or the fruit and vegetables sector. It was clarified that canned products are just an example and the important related issue is the mixing of raw materials of animal and vegetable origin. A better title was proposed and it was agreed to collect in first step relevant general information and in a second step that, the TWG will decide whether to collect data via questionnaires or include the sector in a thumbnail description only.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect general information on the manufacture of preserved products from mixed raw materials and to update the information in the current BREF.

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- Based on the information received, the TWG will decide whether to collect data via questionnaires or include the sector in a thumbnail description only.

2.9.17 Ethanol production

After the decision of the TWG that ethanol production should be included in the scope of the FDM BREF (see Section 1.1.3), it was agreed that related information and data should be collected. It was pointed out that the associated key environmental issues include emissions to water and energy consumption.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect more information on ethanol production (e.g. number, size/capacity and location of plants) taking place on a FDM installation covered by the activity description in 6.4 (b) (ii) of Annex I to the IED or as a directly associated activity.
- The TWG will collect waste water emissions data for TOC, COD, BOD, TSS, TN, NH₄-N and TP in concentrations (mg/l), and either the related waste water flow (m³/time unit) or the related load (mass/time unit).
- The TWG will collect data on specific loads for TOC and COD (e.g. mass/mass of product) if possible.
- The TWG will collect information on the applied waste water treatment techniques and collection of data concerning consumption of water and energy efficiency.

2.9.18 Additional sectors and activities

There were a limited number of initial positions linked to other FDM sectors (e.g. dry pasta manufacture, winemaking) and the EIPPCB proposed to collect general information and data about them.

During the discussion it was acknowledged that some sectors should not be initially regarded as of minor environmental importance in the context of the review of the FDM BREF. This was the case, for example, for the coffee manufacturing sector (see Section 2.9.9) but other examples had also been identified (e.g. wine and citric acid production).

For these cases it was agreed that they should not be the focus of the main data collection via questionnaires, but general information should be collected to update the information in the current FDM BREF and to draft relevant thumbnail descriptions. On the other hand, it was highlighted that in case of generic BAT or BAT-AEPLs derivation, the TWG will consider whether or not to carry out an additional targeted data collection for them.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG considers that sectors covering e.g. dry pasta, bakery goods, coffee manufacturing, distilled beverages, confectionary, yeast, wine and citric acid production should not be the focus of the main data collection via questionnaires.
- General information should be collected to update the information in the current FDM BREF and to draft relevant thumbnail descriptions.
- If generic BAT or BAT-AEPLs are proposed in Draft 1 of the revised FDM BREF, the TWG will consider whether or not to carry out an additional targeted data collection for sectors not included in the main data collection via questionnaires.

3 DATA/INFORMATION COLLECTION

3.1 Questionnaire development and data collection

The aim of the questionnaire is to collect a sufficiently wide range of data and contextual information to be able to derive sound BATC.

Initial positions expressed by the FDM TWG members were mainly related to the importance of the quality and comparability of the data collected.

The EIPPCB proposal was to develop a common questionnaire template, but with individually designed parts for sectors as appropriate and to collect data in all sectors covered in the BREF scope and for their key environmental issues, as agreed. The reference installations should fulfil minimum criteria so that representative, reliable, real-life data could be collected.

In order to ensure the quality, completeness and consistency of the data provided via the completed questionnaires, and to ensure an appropriate management of confidentiality issues, the EIPPCB proposed that the Members States check them before posting them onto BATIS, after the confidential part has been extracted when justified.

At the KoM it was decided to collect data via questionnaires detailed site-specific information for the following sectors:

- Dairy sector
- Sugar manufacturing
- Fruit and vegetables
- Meat processing
- Animal feed
- Oilseed processing and refining
- Starch production
- Brewing
- Fish and shellfish processing
- Olive oil processing and refining
- Soft drinks and juice made from concentrate
- Grain milling
- Ethanol production, taking place on a FDM installation covered by the activity description in 6.4 (b) (ii) of Annex I to the IED or as a directly associated activity.

During the discussion it was agreed that the EIPPCB will provide a draft questionnaire template for discussion and a related subgroup will be established for its finalisation.

Which plants/installations to consider when establishing the list of the environmentally well-performing ones was also discussed. In the FDM BREF review, the selected reference plants should be representative of the sector. Approximately, a few hundred plants/installations should be sufficient, with the distribution by different sectors to be assessed. It was decided that the TWG will initially propose a list of environmentally well-performing plants/installations.

Regarding the reference year for the data collection, in the view of availability of data, it was agreed to use 2013 as the reference year. The reference year should be extended to two additional years mainly for the coverage of seasonal activities.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect data using a common questionnaire template with individually designed parts for the key FDM sectors as appropriate.

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- The TWG will collect data for the key FDM sectors, including the key environmental issues agreed.
 - The TWG will collect representative, reliable, real-life data, at least at installation level, from a manageable number of installations, that as a minimum fulfil the following criteria:
 - they are representative of the sector as a good environmental performer including best performers;
 - they are representative of the sector in terms of products produced, covering seasonal activities, batch switches, processes and techniques used, and geographical location when climate conditions are relevant;
 - they include preferably both single and multi-product installations;
 - they include preferably both recent and less recent installations and plants;
 - they include preferably both small and large production capacity installations.
 - The reference year for the data collection is 2013 but up to two additional years can be allowed if needed.
 - For seasonal activities where data could be limited, two or three consecutive years or campaigns might be more appropriate.
 - The EIPPCB will provide a draft questionnaire template on BATIS that will be discussed and further developed by a TWG subgroup.
 - The final draft questionnaire template should be tested by a small number of installations.
 - The TWG will propose a list of environmentally well-performing plants/installations (including best performers) that are willing to participate in the data collection. The EIPPCB will provide a template for this purpose.
 - Member State representatives will collect the filled-in questionnaires from operators and check the quality of the data and information before posting them on BATIS.
 - The quality check implies that the Member State representatives:
 - will ensure the completeness and consistency of data;
 - will check confidentiality claims: if some information is claimed to be confidential, the Member State will extract the confidential part of the questionnaire and send it to the EIPPCB by email;
 - will post all the non-confidential questionnaires onto BATIS.

TWG tasks

- The EIPPCB will provide a template for the TWG to propose a list of environmentally well-performing plants/installations which will finally be agreed by the TWG.
- The TWG members will post onto BATIS the filled-in templates.
- The EIPPCB will provide a draft questionnaire template on BATIS that will be discussed and further developed by a TWG subgroup.
- The EIPPCB will post onto BATIS the mandate for the questionnaire development subgroup.

3.2 Techniques to consider in the determination of BAT and emerging techniques

The initial positions expressed by the FDM TWG members highlighted the need to add, update and carefully assess a number of in-process and end-of-pipe techniques.

The EIPPCB proposal was to ask TWG members to identify and submit information on recent developments in techniques, to critically check whether the emerging techniques mentioned in the current BREF still match the IED definition of 'emerging technique' or could be considered a 'technique to consider in the determination of BAT' or if they should instead be deleted from the BREF. The EIPPCB proposed to take into consideration the initial positions of the TWG members on techniques during the writing of the revised FDM BREF Draft 1.

During the discussion, the importance of collecting information on candidate BAT and on emerging techniques in order to appropriately update the relative chapters of the FDM BREF was agreed on.

Conclusions reached by the TWG for the revised FDM BREF

- TWG members will identify and submit information on techniques (both in-process and end-of-pipe) which meet the definition of candidate or emerging techniques given in the IED and BREF Guidance, following the 10-heading structure of the BREF Guidance Section 2.3.7.
- A consequence of this is that techniques which do not meet the definition of candidate or emerging techniques given in the IED and BREF Guidance will not be included in the descriptions of candidate BAT or emerging techniques.
- The EIPPCB will take into consideration the initial positions and information from the TWG members on techniques together with the additional issues mentioned in Chapter 7 "Concluding remarks" of the current FDM BREF for the revised first draft of the FDM BREF.
- A proposal for a template for collecting information on candidate BAT and on emerging techniques is posted on BATIS.

Information identified or promised to be delivered by the TWG for the revised FDM BREF

- DE will provide a review of the BAT (especially regarding obsolete techniques) mentioned in the BAT conclusions of the current FDM BREF.

TWG tasks

- The EIPPCB will post on BATIS a template for collecting information on candidate BAT and on emerging techniques.
- TWG members will post the filled-in template on techniques onto BATIS.
- TWG members will identify and submit information on recent developments in techniques, and check and suggest (providing rationales) proposals on existing and new emerging techniques.

3.3 Cross-media effects and economic viability

The initial positions expressed by the FDM TWG members underlined the need to collect economic information and include potential cross-media effects for each candidate BAT. This need was also highlighted during the KoM discussion.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will collect and include more comprehensive information on cross-media effects and economics of techniques, e.g. capex/opex, via the template for collecting information on candidate BAT and emerging techniques.

3.4 Other than normal operating conditions

A limited number of initial TWG positions were expressed in relation to 'other than normal operating conditions' (OTNOC) and this item was not initially proposed for discussion during the KoM , but some TWG members asked for its inclusion.

The need to describe techniques to prevent or reduce emissions and to minimise unintended emissions from incidents/accidents was stressed during the discussion.

Conclusions reached by the TWG for the revised FDM BREF

- The TWG will submit, within the general deadline for the data and information collection, additional information on OTNOC, which could further assist the definition or description of OTNOC to be included in the BREF.
- The TWG will collect information on techniques or measures used to limit the occurrence of OTNOC and the emissions from OTNOC.

4 STRUCTURE

4.1 BREF structure

The initial positions expressed by the FDM TWG members on the BREF structure were manifold:

- Structure should be clearer.
- Structure should be based mainly on the description of the individual FDM sectors.
- Each important FDM sector should be treated separately.
- Maintain a generic section and some chapters dedicated to the main processes and develop a more sectorial, clear and comprehensive approach.

The EIPPCB proposal was to keep the unitary structure given in the table of the BREF Guidance Section 2.2, but to retain in general sections only some common processes and techniques widely applied in the FDM sector and provide more sector-specific information and data. A general proposal for the structure of the revised BREF was presented in Annex II of the background paper.

There was an agreement that the structure of the current BREF should be improved and several firm opinions in favour of the use of an absolute sectorial-based structure were expressed. Doubts about the existence of common processes and techniques across the FDM sector were also expressed. As a general statement, the BREF structure will be influenced by the data and information collected and will be shaped during the drafting depending on the findings of the data and information collection. In order to reflect all the relevant positions more clearly, an updated document on the BREF structure will be proposed by the EIPPCB and shared with the TWG. This however does not prevent the launch of the data collection.

Conclusions reached by the TWG for the revised FDM BREF

- An update of the draft structure of the FDM BREF, taking into account the discussion at the KoM, will be provided by the EIPPCB and the TWG will be invited to comment on it.

TWG tasks

- The EIPPCB will share an updated working document on the BREF structure with the TWG.

4.2 BAT conclusions structure

The initial positions expressed by the FDM TWG members on the BATC structure were manifold:

- BAT conclusions should be divided into individual sectors.
- Restructure BAT conclusions according to priority sectors.
- Apply a better separation of BAT for the whole sector and BAT for single or just a few sectors.

The EIPPCB proposal was to update the current BAT conclusions to fit the standards of the BREF Guidance, to maintain general BAT conclusions for common issues and to include and further develop, where appropriate, sector-specific BAT conclusions (BATC). A general proposal for the structure of the revised BATC was presented in Annex III of the background paper.

There was general agreement with the EIPPCB proposal but again in order to reflect all the relevant positions more clearly, an updated document on the BATC structure will be proposed by the EIPPCB and shared with the TWG.

Conclusions reached by the TWG for the revised FDM BREF

- The current BAT conclusions will be updated to fit the standards of the BREF Guidance.
- General BAT conclusions for common issues will be maintained.
- Sector-specific BAT conclusions will be included and further developed, where appropriate.
- The draft structure of the BAT conclusions will also be updated to take into account the discussions at the KoM and the TWG will be invited to comment on it.

TWG tasks

- The EIPPCB will share an updated working document on the BATC structure with the TWG.

5 FORWARD PLANNING FOR THE FDM BREF REVIEW AFTER THE KICK-OFF MEETING

The FDM TWG agreed at the Kick-off Meeting on the following forward planning.

BREF review milestones	Deadline
EIPPCB provides a preliminary draft questionnaire template	1 December 2014
EIPPCB drafts the mandate for the questionnaire subgroup	1 December 2014
TWG members submit to the EIPPCB a list of well-performing installations/plants participating in the data collection	15 December 2014
Release of questionnaire for the data collection	1 April 2015
Deadline for collection of data via main questionnaire	Tentatively: 30 June 2015
Submission of additional information (BAT template)	1 May 2015
First draft of the revised FDM BREF	Tentatively: Q1 of 2016
Commenting period on the first draft	Tentatively: spring - summer 2015
Assessment of the need for a second draft	Tentatively: Q1 of 2016
Final TWG meeting	Tentatively: Q3 of 2016
Final draft delivered to the IED Article 13 Forum	Tentatively: Q3 of 2016 – Q1 of 2017