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KICK-OFF MEETING

FOR THE REVIEW OF THE

BEST AVAILABLE TECHNIQUES (BAT) REFERENCE DOCUMENT FOR

THE TEXTILES INDUSTRY

SEVILLE, 12 – 15 June 2018

MEETING REPORT

Edificio Expo, C/ Inca Garcilaso 3, E-41092 Seville, - Spain
Telephone: +34-95 44 88 218. Fax: +34-95 44 88 426
E-mail : JRC-B5-EIPPCB@ec.europa.eu, Internet : http://eippcb.jrc.ec.europa.eu/

Acronyms used in this Report

General acronyms – Definitions

Acronym	Meaning
AOX	Adsorbable organically bound halogens
BAT	Best Available Techniques (as defined in Article 3(10) of the IED)
BAT-AEL	Emission level associated with the BAT (as defined in Article 13(3) of the IED)
BAT-AEPL	BAT-associated environmental performance level (as described in Section 3.3 of Commission Implementing Decision 2012/119/EU). BAT-AEPLs include BAT-AELs.
BATC	BAT conclusions
BATIS	BAT Information System
BOD	Biochemical oxygen demand. Amount of oxygen needed for the biochemical oxidation of organic and/or inorganic matter in five (BOD_5) or in seven (BOD_7) days.
BP	Background Paper (used to focus the discussions at the Kick-off Meeting)
BREF	BAT reference document (as defined in Article 3(11) of the IED)
BTEX	Benzene, toluene, ethylbenzene and xylene
CMR	Carcinogenic, mutagenic or toxic for reproduction
CO	Carbon monoxide
COD	Chemical oxygen demand
DAA	Directly associated activity
DEHP	Bis-(2-ethylhexyl) phthalate
EFS BREF	BAT reference document on Emissions from Storage
EU	European Union
HOI	Hydrocarbon oil index. The sum of compounds extractable with a hydrocarbon solvent (including long-chain or branched aliphatic, alicyclic, aromatic or alkyl-substituted aromatic hydrocarbons).
ICS BREF	BAT reference document on Industrial Cooling Systems
IED	Industrial Emissions Directive (2010/75/EU)
IPs	Initial positions
IPPC	Integrated Pollution Prevention and Control
KEI	Key environmental issue
KoM	Kick-off Meeting
LCP BREF	BAT reference document for Large Combustion Plants
MCP	Medium combustion plants (as defined in Directive (EU) 2015/2193)
MS	Member State
NO_x	The sum of nitrogen monoxide (NO) and nitrogen dioxide (NO_2), expressed as NO_2
PAH	Polycyclic aromatic hydrocarbon
PCDD/F	Polychlorinated dibenzo-*p*-dioxin/furan(s)
PER	Perchloroethylene (tetrachloroethylene)
PFCs	Perfluorocarbons
POL BREF	BAT reference document in the Production of Polymers
SO_X	The sum of sulphur dioxide (SO_2) and sulphur trioxide (SO_3), expressed as SO_2
STS BREF	BAT reference document on Surface Treatment Using Organic Solvents (including Wood and Wood Products Preservation with Chemicals)
TAN BREF	BAT reference document for the Tanning of Hides and Skins
Total N	Total nitrogen, expressed as N, includes free ammonia and ammonium nitrogen (NH_4–N), nitrite nitrogen (NO_2–N), nitrate nitrogen (NO_3–N) and organically bound nitrogen.
TOC	Total organic carbon
Total P	Total phosphorus, expressed as P, includes all inorganic and organic phosphorus compounds, dissolved or bound to particles.
TRI	Trichloroethylene
TSS	Total suspended solids
TVOC	Total volatile organic carbon
TWG	Technical Working Group

TXT BREF	BAT reference document for the Textiles Industry
WI BREF	BAT reference document on Waste Incineration
WT BREF	BAT reference document for Waste Treatment

Participants in the Kick-off Meeting

Acronym	Meaning	Number of delegates in the Kick-off Meeting
Member States		
AT	Austria	1
BE	Belgium	3
CZ	Czech Republic	2
DE	Germany	3
DK	Denmark	2
ES	Spain	2
FI	Finland	1
FR	France	2
IT	Italy	3
PT	Portugal	2
SE	Sweden	2
UK	United Kingdom	1
Environmental NGO		
EEB	European Environmental Bureau	3
Industrial NGOs		
CEFIC	European Chemical Industry Council	3
EURATEX	European Apparel and Textile Confederation	9
IWTO	International Wool Textile Organisation	1
European Union Agency		
ECHA	European Chemicals Agency	1
European Commission		
DG ENV	Directorate-General for Environment	1
DG JRC - EIPPCB	Directorate-General Joint Research Centre – European IPPC Bureau	5
		Total: 47

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1 INTRODUCTION

1.1 Kick-off Meeting for the review of the TXT BREF

The Technical Working Group (TWG) for the review of the Reference Document on Best Available Techniques (BAT) for the Textiles Industry (TXT BREF) held its first plenary meeting at the JRC premises in Seville, Spain, on 12 - 15 June 2018. This report is a summary of this first meeting (also referred to as the Kick-off Meeting or KoM).

TWGs are set up to facilitate the exchange of information under Article 13(1) of Directive 2010/75/EU (IED) on Industrial Emissions (Integrated Pollution Prevention and Control).

The review of the TXT BREF started with the activation of the TWG in August 2017. The TXT TWG is made up of more than 110 experts representing EU Member States (MSs), industry, environmental non-governmental organisations (environmental NGOs) and the European Commission.

The call for the expression of TWG members' initial positions for the review of the TXT BREF was sent out by the European IPPC Bureau (EIPPCB) on 12 December 2017, with a deadline for responses of 9 February 2018. Responses were received from 12 Member States, 3 industry organisations and 1 environmental NGO.

In order to facilitate the discussions at the Kick-off Meeting, a Background Paper (BP) highlighting the items to be discussed was prepared by the EIPPCB and sent to the TXT TWG members 6 weeks in advance of the meeting, on 26 April 2018. The term 'EIPPCB proposal' used in the present document refers to the way forward that the EIPPCB proposed to the TWG in the BP after taking into account the TWG members' 'initial positions'. The Kick-off Meeting was attended by 46 TWG members (24 from MSs, 13 from industry, 3 from the environmental NGO and 6 from the European Commission) and by one representative of the European Chemicals Agency (ECHA).

The meeting started on Tuesday 12 June 2018 in the morning and finished on Friday 15 June 2018 at midday (i.e. three and a half days). The meeting agenda included presentations and discussions on the exchange of information for the review of the TXT BREF (as provided for in Article 13 of Directive 2010/75/EU).

The head of the EIPPCB chaired the meeting and the TXT BREF co-authors (the TXT BREF team of the EIPPCB) introduced each topic and led the technical discussions.

During the meeting, discussions were held on the TWG members' initial positions and on the EIPPCB proposals that were based on those initial positions. The key issues for which agreements were sought at the meeting were the scope of the revised TXT BREF, the interface with other BREF documents or EU Directives, the structure of the revised TXT BREF, the key environmental issues (KEIs), the data collection, the techniques to consider in the determination of BAT and the next steps for the review of the TXT BREF.

The items were discussed following a common pattern at the meeting. The EIPPCB gave a presentation based on the Background Paper for each issue and proposed a way forward. The participants then had the opportunity to discuss each issue and to ultimately reach a conclusion by consensus.

This document presents the main issues discussed for each item and the conclusions reached at the meeting by the TWG.

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

1.2 Introductory presentations at the Kick-off Meeting

The presentation given by a representative of the Directorate-General for Environment of the European Commission (DG ENV) recalled the overall context and legal framework as well as the need to focus the information exchange.

The presentation also mentioned two ongoing studies which have been commissioned by DG ENV and which are of interest for the review of the TXT BREF: one study about the preliminary identification of KEIs for the review of the TXT BREF and another study for the identification and promotion of novel and emerging sustainable techniques (the so-called Innovation Observatory).

FI presented the ongoing project on the consideration of hazardous chemicals in the BREFs (HAZBREF project[1]) which is being carried out within the framework of the Interreg Europe programme[2]. The HAZBREF project analyses the interfaces, links and gaps between different European legislative frameworks in depth, in particular between the IED and the BREFs on one hand and the EU chemical legislation on the other hand in order to improve the information exchange between both frameworks as well as the management of hazardous chemicals. The HAZBREF project also aims to come up with information on chemicals used in some industrial sectors (including the textiles sector), possible abatement measures and techniques to reduce the release and use of chemicals, e.g. by taking selected case installations as case studies. HAZBREF is carried out in parallel with the TXT BREF review with the intention to submit its deliverables for the consideration of the TWG in due time before the first draft of the revised TXT BREF.

A member of the EIPPCB gave a general introduction to the *Sevilla Process* (i.e. the process to draw up and review BREF documents) including the general approach for deriving BAT and BAT-associated emission levels (BAT-AELs). It was made clear in particular that deriving BAT and BAT-AELs is a pragmatic and iterative process involving the whole TWG. In this process, the EIPPCB's responsibility is to make concrete proposals on BAT and BAT-AELs to the whole TWG based on the information collected, especially based on the plant-specific data collected through questionnaires. The TWG is invited to comment on these proposals and to submit any evidence supporting alternative proposals. Decisions on BAT are taken by consensus by the whole TWG at the Final TWG Meeting.

The work of the TXT TWG will follow the BREF Guidance for the exchange of information under the IED (i.e. Commission Implementing Decision 2012/119/EU of 10 February 2012).

[1] http://www.syke.fi/projects/hazbref

[2] Interreg Europe helps regional and local governments across Europe to develop and deliver better policy. It is financed by the European Regional Development Fund.

2 SCOPE

2.1 Activities covered in the scope of the revised TXT BREF

2.1.1 Directly associated activities

The review of the TXT BREF was already discussed at the 8th IED Article 13 Forum meeting (October 2015)[3] where a discussion item concerned the scope of the revised TXT BREF. This point was addressed following an exchange of views between Member States (MSs) and one industry organisation about the inclusion or exclusion of a certain number of finishing activities in/from the scope of the revised BREF.

The results of the discussion which took place at the Forum meeting are summarised in the meeting minutes as follows:

"*One MS asked for a clarification of the scope of the Textiles BREF as the current BREF includes a number of processes (**fibre preparation, printing, finishing and backing of carpets**) other than those covered by IED Annex I, point 6.2 (pre-treatment and dyeing of textile fibres). Both for practical and environmental reasons, this MS, supported by five other MS, argued that the BREF should continue to cover those processes, while one MS and an industry member disagreed with this, noting that this is a legal question.*

The industry member clarified that the concern raised was not on coverage of "directly associated" activities, but rather a potential extension of the scope to stand alone activities, not covered by the IED.

*The Commission confirmed coverage by the IED of **directly associated activities** which may thus be covered by the work of the TWG*".

On the basis of this confirmation, the EIPPCB had proposed in the BP to include in the scope of the BREF review the activities listed in point 6.2 of IED Annex I (i.e. pretreatment (operations such as washing, bleaching, mercerisation) or dyeing of textile fibres or textiles where the treatment capacity exceeds 10 tonnes per day) as well as any directly associated activities.

During the KoM, one MS highlighted that the directly associated activities to be covered in the scope of the revised TXT BREF are those carried out within the same site where the 6.2 activity takes place, in line with the definition in Article 3(3) of the IED.

In addition, according to the information provided by the initial positions (IPs) and the discussion which took place during the KoM, a given activity (for example finishing) may or may not be covered by the scope of the revised TXT BREF, depending on whether it is directly associated to the 6.2 activities or not. As the situation may differ between plants, it seems more practical to analyse this direct association at local level when the BAT conclusions (BATC) are implemented rather than excluding *a priori* a process from the scope of the BREF. For example, finishing may be carried out as a stand-alone activity without any technical connection to 6.2 activities or may be connected to 6.2 activities when for instance it is integrated in the production line.

[3] IED Article 13 Forum meeting of 19 October 2015, https://circabc.europa.eu/w/browse/33cff69c-bfd0-49e7-8f19-f75a9e062745.

Conclusions reached by the TWG:

- To include in the scope of the revised TXT BREF the activities listed in point 6.2 of IED Annex I (i.e. pretreatment (operations such as washing, bleaching, mercerisation) or dyeing of textile fibres or textiles where the treatment capacity exceeds 10 tonnes per day) as well as directly associated activities carried out within the same site.
- The data and information collection will inform the list of potential directly associated activities (DAAs).

2.1.2 Independently operated waste water treatment plants and combined treatment of waste water

In the BP, the EIPPCB had proposed to include in the scope of the revised TXT BREF the 6.11 activity (independently operated treatment of waste water not covered by Directive 91/271/EEC) when the main pollutant load originates from IED 6.2 activities (and their directly associated activities).

However, during the discussions in the KoM, 4 MSs and the environmental NGO proposed to extend the scope of the revised TXT BREF to the combined treatment of waste water from different origins provided that the main pollutant load originates from IED 6.2 activities (and their directly associated activities) and that the waste water treatment is not covered by Directive 91/271/EEC. This proposal was generally supported by the TWG.

Conclusions reached by the TWG:

- To include in the scope of the revised TXT BREF the IED 6.11 activity (i.e. independently operated treatment of waste water not covered by Directive 91/271/EEC) when the main pollutant load originates from IED 6.2 activities (and their directly associated activities).
- To also include in the scope of the revised TXT BREF the combined treatment of waste water from different origins provided that the main pollutant load originates from IED 6.2 activities (and their directly associated activities) and that the waste water treatment is not covered by Directive 91/271/EEC.

2.2 Interfaces with other BREFs or legislation

2.2.1 Interface with the EFS BREF

In the BP, the EIPPCB had proposed to exclude the general aspects of the storage, transfer and handling of materials from the scope of the revised TXT BREF, but to include textile-specific aspects. The TWG supported this proposal during the KoM.

Conclusions reached by the TWG:

- To exclude general aspects of the storage, transfer and handling of materials from the scope of the revised TXT BREF, but to include textile-specific aspects (e.g. by updating Sections 2.13, 4.1.1, 4.1.2 and 4.1.3 of the existing TXT BREF).

2.2.2 Interface with the LCP BREF and the MCP Directive

In the BP, the EIPPCB had proposed to avoid any possible overlaps between the TXT BREF on the one hand and the LCP BREF and the MCP Directive on the other, as far as emissions from combustion plants are concerned.

Following a suggestion made by one MS during the KoM and considering that the total rated thermal input of the combustion plants potentially concerned is most likely to be below 50 MW (i.e. the combustion plants would not be within the scope of the LCP BREF in any case), the TWG agreed to simplify the original proposal made by the EIPPCB.

During the meeting, the TWG also discussed the threshold in terms of the total rated thermal input above which the emissions from combustion plants may be included in the scope of the revised TXT BREF. The EIPPCB had originally proposed to exclude emissions from combustion plants with a total rated thermal input below 1 MW but it appeared during the meeting that this may imply the exclusion of emissions from stenters, which are typically not considered combustion plants (see also Section 8.5 of this document for processes which may be covered by the scope of the revised TXT BREF when they are directly associated to IED 6.2 activities).

Conclusions reached by the TWG:

- To include in the scope of the revised TXT BREF emissions from combustion plants directly associated to IED 6.2 activities, only when the combustion gases are put into direct contact with the products (such as direct heating, drying, heat setting) or when radiant and/or conductive heat is transferred through a solid wall (indirect heating) without using an intermediary heat transfer fluid.
- To exclude from the scope of the revised TXT BREF emissions from combustion plants used in the textiles industry with a total rated thermal input below 1 MW, when the combustion gases are not put into direct contact with the products or when radiant and/or conductive heat is not transferred through a solid wall (indirect heating) without using an intermediary heat transfer fluid.

2.2.3 Interface with the STS BREF

In the BP, the EIPPCB had proposed not to exclude from the scope of the revised TXT BREF processes using organic solvents provided that they are covered by point 6.2 of IED Annex I or when they are directly associated to 6.2 activities.

This proposal was broadly supported by the TWG but it was however deemed necessary by 3 MSs and 1 industry organisation to ensure there will be no overlaps between the revised

TXT BREF and the STS BREF (currently under review). This suggestion was supported by the TWG.

Conclusions reached by the TWG:

- Not to exclude from the scope of the revised TXT BREF processes using organic solvents when they are covered by point 6.2 of IED Annex I or when they are directly associated to IED 6.2 activities, provided that they are not covered by the STS BREF.

2.2.4 Interface with the POL BREF

The TWG supported the original EIPPCB proposal to exclude the production of man-made fibres and yarns from the scope of the revised TXT BREF. It was also made clear during the meeting that this does not lead to the exclusion of techniques to reduce the impact this production process may have on the emissions of textiles plants when the man-made fibres or yarns are processed by these plants, such as techniques to control the incoming raw material.

Conclusions reached by the TWG:

- To exclude the production of man-made fibres and yarns from the scope of the revised TXT BREF.

2.2.5 Interface with the WT BREF

One MS, supported by the environmental NGO, expressed the view that agricultural use of waste water treatment sludge was not BAT.

It was made clear by the EIPPCB that the exclusion of waste treatment as an IED activity from the scope of the revised TXT BREF as proposed in the BP does not mean that techniques related to the management of waste from textiles plants will not be addressed in the revised TXT BREF. Following this clarification, the TWG reached the below conclusion.

Conclusions reached by the TWG:

- To exclude waste treatment as an IED activity from the scope of the revised TXT BREF.

2.2.6 Interface with the ICS BREF

In the BP, the EIPPCB had proposed to exclude emissions from cooling systems from the scope of the revised TXT BREF, which was agreed without further discussion.

Conclusions reached by the TWG:

- To exclude emissions from cooling systems from the scope of the revised TXT BREF.

2.2.7 Interface with the TAN BREF

In the BP, the EIPPCB had proposed to exclude fellmongering from the scope of the revised TXT BREF as an activity directly associated to wool scouring, which was agreed without further discussion.

Conclusions reached by the TWG:

- To exclude fellmongering from the scope of the revised TXT BREF as an activity directly associated to wool scouring.

2.2.8 Interface with the WI BREF

In the BP, the EIPPCB had proposed to exclude waste incineration as covered by Chapter IV of the IED from the scope of the revised TXT BREF, which was agreed without further discussion.

Conclusions reached by the TWG:

- To exclude waste incineration as covered by Chapter IV of the IED from the scope of the revised TXT BREF.

3 STRUCTURE OF THE TXT BREF AND OF ITS BAT CONCLUSIONS

In the BP, the EIPPCB had proposed to generally use the structure of the existing TXT BREF for the revised TXT BREF, and to either merge the annexes of the existing TXT BREF with the body of the document or to delete the annexes (except Annex III on machineries) because these annexes were considered too detailed and/or outdated.

In the discussion one MS expressed the view that the BREF could be reorganised first according to the type of raw materials used and then, at the second level, according to the process with the same structure for each type of raw material. While it was recognised during the meeting that this structure would have its merits, it was also recognised that these major changes to the BREF structure would imply a significant additional workload without sufficient benefits, but that minor adaptations (e.g. according to the material composition of the textiles) would be possible when appropriate.

In addition, it was confirmed by 3 MSs and the environmental NGO that although some annexes may be outdated (namely Annex V on typical pollutants in air emissions and Annex VI on auxiliaries classification tools), they are considered important and should therefore be kept and updated.

After considering all the arguments, the TWG concluded the following.

Conclusions reached by the TWG:

- To generally use the structure of the existing TXT BREF, and to include minor adaptations (e.g. according to the material composition of the textiles), if deemed appropriate.
- To update the process descriptions listed in Chapter 2 of the TXT BREF with the information provided by the TWG.
- To update Section 2.7 "Dyeing" by considering the types of dyeing that are still in use (e.g. by using information from the plant-specific questionnaires).
- In the case of processes that can also be considered "process-integrated techniques", to give a short description in Chapter 2 and to add a cross-reference to Chapter 4 where the techniques are described in detail.
- To complete Chapter 2 with the summarised information of Annexes I and II and to delete those annexes.
- To keep and update Annexes III and VI.
- To update and relocate the relevant information from all the other annexes.

4 EMISSIONS TO AIR AND TO WATER

4.1 Overview

One and a half days of the meeting were dedicated to the identification of pollutants emitted by the textiles industry to air and to water and for which emissions-related data will be collected in a systematic way via questionnaires for the review of the TXT BREF, with the objective to derive emission levels associated with the BAT (BAT-AELs). These pollutants are called KEIs (key environmental issues).

In the BP, more than 50 pollutants (or KEI candidates) emitted to air and to water by the textiles industry were assessed (as single substances or groups of substances). The EIPPCB assessed those pollutants by using an approach based on the following four criteria:

1. What is the environmental relevance of the pollutant?
2. What is the significance of the activity?
3. What is the potential for identifying new or additional techniques that would further significantly reduce pollution?
4. What is the potential for BAT-AELs that would significantly improve the level of environmental protection from current emission levels?

This approach was detailed in the BP and in the presentation made in the KoM by the EIPPCB.

The positions expressed by the TWG members showed a range of different views. For a few substances and groups, almost all TWG members agreed to include them as KEIs in the review of the TXT BREF, and, for a few others, there was broad agreement not to include them. In between, there were a significant number of substances on which the TWG was divided in its opinion.

Not all these pollutants were discussed during the KoM, only those for which there was no clear consensus within the TWG as to the inclusion or exclusion of the pollutants as KEIs in the review of the TXT BREF. In total, almost 40 pollutants were discussed during the meeting.

This document does not aim to report the discussion for each and every pollutant, but focuses only on the most important points. The list of KEIs is summarised in Table 1 and Table 2.

4.2 Emissions to air

The main discussion item concerned the emissions to air of CMR (carcinogenic, mutagenic or toxic for reproduction) and hazardous substances. The discussion was preceded by a presentation given by a MS (DE) about the approach used in this MS, namely the use of emission factors. This approach consists of i) calculating the emissions to air of specific substances and from specific processes, based on emission factors provided by the auxiliaries' suppliers and ii) verifying the calculated emissions by spot measurements. This approach is already described in the existing TXT BREF (in Section 4.3.2) and it will be included in the information collection to review the BREF.

A related discussion specifically concerned the emissions to air of CMR substances: the TWG concluded not to include CMR substances as a group in the data collection but to focus on specific substances. A list of 9 substances was prepared by a subgroup of the TWG (composed of 1 MS, 2 industry organisations and the environmental NGO) and the TWG concluded to include those 9 substances as KEIs for certain types of processes or fibres (namely N-methyl-2-pyrrolidone, N-ethyl-2-pyrrolidone, dimethylformamide, dimethylacetamide, toluene, acrylonitrile, acrylamide, 1,3-butadiene and styrene).

In addition to the points mentioned above, the EIPPCB had also proposed in the BP to include carbon monoxide (CO) in the questionnaires in order to obtain information about combustion efficiency, with the option for the TWG to decide at a later stage whether BAT-AELs or indicative levels should be derived. This proposal was supported by the TWG without further discussion.

Conclusions reached by the TWG:

- To include in the revised TXT BREF the KEIs for emissions to air which are summarised in Table 1 below.
- To collect data on CO emissions to air via the questionnaires, for the combustion plants within the scope of the revised TXT BREF.
- The TWG to decide at a later stage, based on the data collected, whether BAT-AELs or indicative levels should be derived for CO.

Table 1: KEIs for emissions to air considered for the review of the TXT BREF as agreed during the Kick-off Meeting

(Groups of) Substance(s)	Remarks
Dust	
Nitrogen oxides (NO_X)	
Sulphur oxides (SO_X)	KEI for combustion plants
Ammonia (NH_3)	
TVOC (Total volatile organic compounds)	
Formaldehyde	
Tetrachloroethylene (PER)	KEI for solvent-based wool scouring and dry cleaning
N-Methyl-2-pyrrolidone	KEIs for certain types of processes or fibres (1)
N-Ethyl-2-pyrrolidone	
Dimethylformamide	
Dimethylacetamide	
Toluene	
Acrylonitrile	
Acrylamide	
1,3-Butadiene	
Styrene	

[(1)] Information will be collected on the measurement methods of these substances.

Not included as KEIs: Trichloroethylene (TRI), CMR substances†, Hazardous substances†, Methanol, Oil mist††, Halogenated solvents†, Chlorine and its compounds, Isocyanates and their amines, Hydrogen sulphide (H_2S).

† Data will not be collected on this group, but data will be collected for some individual substances of the group mentioned in the table.
†† The TWG decided to collect contextual information on oil mist emissions, in particular for thermofixation and heat setting.

It is to be noted that one MS (DE) did not support the list of 9 additional CMR substances being considered final and expressed the view that it should in fact be considered a preliminary list to be completed at a later stage.

4.3 Emissions to water

One aspect of the discussions concerned the direct and indirect discharges of waste water as the TWG was divided in its opinion as to whether a distinction should be made between these two types of discharges when BAT-AELs are derived.

Some TWG members (5 MSs and the environmental NGO) expressed the view that no distinction should be made between direct and indirect discharges. On the other hand, some other TWG members (5 MSs and 1 industry organisation) expressed the opinion that for some pollutants it may not be relevant to derive BAT-AELs for indirect discharges.

It appeared from the discussion that this issue seemed to be a matter of implementation of the IED and in particular of its Articles 15(1) and 15(3), which is not in the remit of the TWG but instead belongs to other fora (for instance the IED Article 13 Forum). Some MSs also asked for guidance from DG ENV on this issue.

Moreover, based on the proposals made by the EIPPCB in the BP and on the discussions which took place during the KoM for each pollutant, **the TWG concluded to include in the review of the TXT BREF the KEIs for emissions to water which are summarised in Table 2 below.**

Table 2: KEIs for emissions to water considered for the review of the TXT BREF as agreed during the Kick-off Meeting

(Groups of) Substance(s)	Remarks
Total suspended solids (TSS)	KEI for direct discharges only
Chemical oxygen demand (COD)	KEI for direct discharges only
Total organic carbon (TOC)	KEI for direct discharges only
Total nitrogen (Total N)	KEI for direct discharges only
Total phosphorus (Total P)	
Hydrocarbon oil index (HOI)	
Sulphide (S^{2-})	KEI for the installations using sulphur dyes
AOX (adsorbable organically bound halogens)	
Alkylphenols and alkylphenol ethoxylates	
Brominated flame retardants	
Pesticides	KEI for wool scouring
Toxicity	
Antimony (Sb) and its compounds, expressed as Sb	
Chromium (Cr) and its compounds, expressed as Cr	
Copper (Cu) and its compounds, expressed as Cu	
Nickel (Ni) and its compounds, expressed as Ni	
Zinc (Zn) and its compounds, expressed as Zn	
Not included as KEIs: Cyanide (CN^-), Chlorobenzenes and chlorotoluenes†, Chlorophenols†, Phenols, Surfactants, Polycyclic Aromatic Hydrocarbons (PAHs), Benzene, toluene, ethylbenzene and xylene (BTEX), Hexavalent Chromium (Cr(VI)), Lead (Pb), Mercury (Hg), Cadmium (Cd), Cobalt (Co), Silver (Ag), Tin (Sn), Manganese (Mn), Quinoline, Bis-(2-ethylhexyl) phthalate (DEHP) or other phthalates, Sulphite, Hazardous glycols as a group, Hazardous solvents as a group, Tetrachloroethylene (PER), Polychlorinated dibenzo-p-dioxin/furan(s) (PCDD/F), Microplastics. *† Data will not be collected on emissions of these substances but on AOX emissions instead.*	

In addition, a number of conclusions were reached for some pollutants or parameters, as follows.

Conclusions reached by the TWG related to total suspended solids (TSS):

- To collect data on TSS for indirect discharges as contextual information.

Conclusions reached by the TWG related to the chemical oxygen demand (COD) and to the total organic carbon (TOC):

- To aim at deriving BAT-AELs for direct discharges of both TOC and COD, with the possibility to use only one of the two, but with a preference being given to TOC.
- To collect data on COD and TOC for indirect discharges as contextual information.

Conclusions reached by the TWG related to emissions of phosphorus:

- To collect data on total phosphorus (Total P) emissions for indirect discharges including on whether they contain poorly biodegradable organophosphorus compounds, and the TWG to decide at a later stage whether Total P is a KEI for indirect discharges and whether BAT-AELs should be derived for indirect discharges.
- To collect data about the use of organophosphorus compounds such as flame retardants in the textiles sector and complement the TXT BREF with relevant additional information.
- To collect information about the use of techniques described in Sections 4.3.4 and 4.5.6 of the existing TXT BREF.

With respect to Total P, it is to be noted that one MS (IT) did not support the decision to include Total P as a KEI for indirect discharges.

Conclusions reached by the TWG related to emissions of sulphide:

- To collect information about the use of low-sulphide and sulphide-free sulphur dyes.

Conclusions reached by the TWG related to emissions of adsorbable organically bound halogens (AOX):

- To collect data through the questionnaires about the sources of AOX, such as bleaching with sodium chlorite or sodium hypochlorite, antifelting treatment, and dyestuff.
- To collect information on the use of the techniques described in Sections 4.1.2, 4.2.7, 4.2.8, 4.6.1 and 4.6.2 of the existing TXT BREF.

Conclusions reached by the TWG related to emissions of flame retardants:

- To collect data about the types of brominated flame retardants measured, their emissions and the monitoring methods used, and the TWG to decide at a later stage, based on the availability and comparability of the data collected through the questionnaires, whether BAT-AELs for brominated flame retardants should be derived.
- To collect data about the use of flame retardants (including brominated flame retardants, organophosphorus compounds) and to complement the TXT BREF with additional information.

With respect to flame retardants, it is to be noted that the environmental NGO (EEB) did not support the decision to include only brominated flame retardants as a KEI.

Conclusions reached by the TWG related to emissions of biocides and pesticides:

- To collect data and information about the use of biocides and pesticides, and their presence in the raw materials and auxiliaries (including organophosphorus compounds, permethrin).
- To gather information on techniques used to prevent or reduce:
    - pesticide residues in the raw materials and in the waste water;
    - biocides used in auxiliaries.

Conclusions reached by the TWG related to toxicity of the waste water:

- To collect information on toxicity (measurement methods, monitoring standards and monitoring frequency), and the TWG to decide at a later stage, based on the availability and comparability of the data, whether BAT-AELs for toxicity should be derived.

With respect to toxicity, it is to be noted that one MS (IT) did not support the decision to include toxicity as a KEI for indirect discharges.

In addition, the environmental NGO (EEB) suggested involving in the assessment of data related to toxicity the working group on chemicals set up in the context of the Common Implementation Strategy of the Water Framework Directive.

Conclusions reached by the TWG related to emissions of surfactants:
- To collect information and data on emissions of surfactants (e.g. measurement methods, monitoring frequency, type of surfactants, biodegradability).

Conclusions reached by the TWG related to emissions of perfluorocarbons (PFCs):
- To collect data and information on PFC emissions to water and the TWG to decide at a later stage, based on the availability and comparability of the data collected through the questionnaires, whether BAT-AELs should be derived and for which substances.
- To collect information about the use of PFCs in the textiles sector to complement the TXT BREF with additional information.

With respect to PFCs, one MS (IT) did not support the decision to not define a list of specific PFCs to be included in the review of the TXT BREF as KEIs.

Conclusions reached by the TWG related to emissions of quinoline:
- To complement the TXT BREF with information on the use of quinoline in the textiles industry.

Conclusions reached by the TWG related to emissions of antimony (Sb):
- The TWG to decide at a later stage, based on the availability and comparability of the data collected through the questionnaires, whether BAT-AELs for antimony (Sb) should be derived.
- To update the TXT BREF with information on the use of antimony compounds.

Conclusions reached by the TWG related to emissions of cobalt (Co):
- To collect information on the use of cobalt (Co) in the textiles industry.

Conclusions reached by the TWG related to emissions of silver (Ag):
- To complement the TXT BREF with information on the use of silver and silver nanoparticles in the textiles industry as biocides and on potential emissions of these substances to water.

Conclusions reached by the TWG related to emissions of microplastics:
- To collect information on microplastics from available studies (e.g. the Sverea study) to be included in the revised TXT BREF.

With respect to emissions of microplastics to water, information will be provided by AT, SE, EURATEX and EEB.

Conclusions reached by the TWG related to colour in the waste water:
- To collect data and information on colour for emissions to water and the TWG to decide at a later stage, based on the availability and comparability of the data collected through the questionnaires, whether BAT-AELs should be derived on colour for emissions to water.

With respect to colour in the waste water, one MS (IT) and one industry organisation (EUTAREX) did not support the decision to collect data and information on colour for indirect discharges.

Conclusions reached by the TWG related to the contextual information to be collected:

- To collect data on the following parameters as contextual information:
  - pH,
  - temperature,
  - conductivity,
  - ammonium-N,
  - biodegradability/bioeliminability of the waste water,
  - BOD_5 or BOD_7,
  - sulphate,
  - chloride.
- To collect contextual information on total dissolved solids, if no data are available for conductivity, chloride or sulphate.

5 USAGE OF CHEMICALS IN THE TEXTILES INDUSTRY

The TWG agreed that the selection and use of chemicals are important issues in the textiles industry.

Based on the proposal made by the EIPPCB in the BP, the majority of the TWG recognised that collecting quantitative data on the consumption of chemicals with a view to deriving performance levels associated to BAT (BAT-AEPLs) may not necessarily be the right approach as, first, it would be necessary to identify for which chemicals data should be collected and, second, the chemical consumption depends on so many parameters that it may render the comparison of data very challenging.

The TWG found it more relevant and more practical to focus on qualitative information.

These considerations led the TWG to conclude as follows.

Conclusions reached by the TWG:

- Not to collect quantitative data on the consumption of chemicals via the plant-specific questionnaires.
- To collect qualitative information on the selection and use of hazardous substances via the plant-specific questionnaire.

6 WASTE AND BY-PRODUCTS GENERATED IN THE TEXTILES INDUSTRY

Based on the original proposal made by the EIPPCB in the BP, the TWG agreed to focus the data collection on a limited number of waste streams.

In addition, following the suggestion of one MS, the TWG recognised that the amount of waste dyeing padding liquors, finishing padding liquors and leftovers of chemicals sent to recovery and disposal was also an important issue to collect data on.

It also appeared during the discussion that some TWG members supported the use of the data collected on the amount of waste to derive BAT-AEPLs whereas other TWG members highlighted that identification of techniques to prevent, reuse or recycle waste was more important than deriving BAT-AEPLs.

Finally, the TWG recognised that it was important to collect information not only on the amount of waste but also on the by-products and all other contextual information which allows an understanding of the waste streams.

Based on these considerations, the TWG concluded as follows.

Conclusions reached by the TWG:

- To collect data via the questionnaires on the following streams:
  - the amount of organic matter from wool scouring sent to recovery and disposal (waste code[4] 04 02 10);
  - the amount of waste printing pastes sent to recovery and disposal (waste codes 04 02 16* and 04 02 17);
  - the amount of waste dyeing padding liquors, finishing padding liquors (waste codes 04 02 15, 04 02 16* and 04 02 17) and leftovers of chemicals sent to recovery and disposal.
- At a later stage, to consider setting BAT conclusions and BAT-AEPLs for these streams.
- The TWG to identify the contextual information (in terms of processes, raw materials, product specifications, waste streams and by-products, type of recovery, etc.) needed to understand and compare the data collected.

[4] As given in the European List of Waste (Commission Decision 200/532/EC of 3 May 2000).

7 CONSUMPTION OF ENERGY AND WATER AND AMOUNT OF WASTE WATER GENERATED IN THE TEXTILES INDUSTRY

Concerning energy consumption, water consumption and amount of waste water generated, not all TWG members agreed upon the possible derivation of BAT-AEPLs for these three issues. One argument raised during the discussion is that it would be very difficult to derive BAT-AEPLs on energy and water consumption at the plant level, as it would be very difficult to make meaningful comparisons between plants. Some TWG members proposed to aim to derive BAT-AEPLs for specific processes only.

More generally, comparability of data and clear boundaries of potential BAT-AEPLs were concerns shared by a number of TWG members and the TWG agreed that these boundaries would need to be defined clearly in terms of plant configurations, types of processes, levels of aggregation of consumption data, raw materials, product specifications, etc.

Based on these considerations, the TWG concluded as follows.

Conclusions reached by the TWG:

- To collect data via questionnaires on the amount of energy and water consumed as well as on the amount of waste water discharged.
- The TWG to decide at a later stage, based on the availability and comparability of the data collected through the questionnaires, which BAT conclusions and BAT-AEPLs should be derived on consumption of energy and water as well as on the amount of waste water discharged.
- The TWG to identify the contextual information (in terms of plant configurations, types of processes, levels of aggregation of consumption data, raw materials, product specifications, etc.) needed to understand and compare the data collected.
- To focus the work on specific processes which are the most relevant for energy and water consumption.

8 DATA COLLECTION

8.1 Environmental performance levels

8.1.1 Expression of BAT-AEPLs

The TWG broadly agreed with the EIPPCB proposal to *generally* express BAT-AEPLs for emissions to air and to water in concentrations, if deemed appropriate coupled with abatement efficiencies.

Two MSs however highlighted the need to leave the possibility to also derive BAT-AELs expressed in loads or in specific loads and that the data collection should encompass the parameters needed to do so (e.g. waste gas flow, textiles flow).

In addition, the need to collect the right contextual information to correctly understand the emissions and the abatement efficiencies was stressed by the TWG.

After considering all the arguments, the TWG concluded the following.

Conclusions reached by the TWG:

- To *generally* express BAT-AEPLs for emissions to air and to water in concentrations, if deemed appropriate coupled with abatement efficiencies.
- To include in the data collection the information needed to evaluate emission loads or abatement efficiencies.
- During the drafting of the questionnaire(s), to clearly define all parameters influencing emission loads or abatement efficiencies (e.g. type of products/fibres/raw materials, boundaries of the process, flows of materials, textiles, pollutants and waste gases, specific operating conditions associated to the manufacture of fabrics/products).

8.1.2 Averaging periods for BAT-AEPLs

During the meeting, the TWG supported the EIPPCB proposal made in the BP to generally express BAT-AELs for emissions to air as short-term averages and BAT-AELs for emissions to water as daily averages.

Conclusions reached by the TWG:

- For channelled emissions to air, to generally express BAT-AELs as short-term averages, i.e. as daily averages (for continuous measurements) or as averages over the sampling period (for periodic measurements).
- For emissions to water, to generally express BAT-AELs as daily averages, obtained via 24-hour flow-proportional composite samples.

8.2 Questionnaire for gathering data and information

The EIPPCB had proposed in the BP to follow the established process for the data collection, which was supported by the TWG during the KoM.

The period covered by the data collection was discussed as the three-year period proposed by the EIPPCB may not allow the capture of sufficient data when the measurements are carried out with a relatively low frequency (e.g. once every three years).

One MS also mentioned that the most recent measurements, namely those carried out in 2018, should be considered: it was clarified that the data collection may offer this possibility, depending on when the data collection starts.

After considering all the arguments, the TWG concluded the following.

Conclusions reached by the TWG:

- To follow the established BREF process for the collection of plant/installation-specific data via questionnaires including the following:
  - the preparation of the draft questionnaire(s) by the EIPPCB followed by the commenting of the whole TWG, if necessary in several iterations;
  - the organisation of a questionnaire(s) workshop to finalise the questionnaire(s);
  - the testing of the draft final questionnaire(s) by a selected (small) number of plants/installations;
  - the preparation of the final questionnaire(s) by the EIPPCB;
  - the distribution of the final questionnaire(s) by Member States' representatives, if deemed necessary in cooperation with the other stakeholders, to the participating plants/installations;
  - the filling in of the questionnaire(s) by the plants/installations;
  - the collection of the filled-in questionnaires by Member States' representatives;
  - the quality check of the filled-in questionnaires by Member States' representatives (possibly with the help of a checklist that the TWG and the EIPPCB could have developed);
  - the submission of the quality-checked questionnaires to the TWG via BATIS by Member States' representatives.
- The TWG to decide on the content and format of the questionnaires during the preparation of the questionnaire as described above.
- To collect data over the years 2017, 2016 and 2015 or for the last three measurement campaigns for emissions to air.

The agreed timetable for TWG actions can be found in Section 10.

Concerning the general content of the questionnaires and the types of data to be collected, the proposal made by the EIPPCB was agreed without further discussion.

Conclusions reached by the TWG:

- To design the questionnaire to target channelled emissions from individual emission sources.
- To collect information via the questionnaires, *inter alia*, on the following:
  - the context of the plant (e.g. subsector, products, production capacity, feedstock);
  - the origin of the waste, waste gas and waste water streams (i.e. sources);
  - the characteristics of the streams and effluents (e.g. flow rate, pollutant load, presence of substances that may interfere with the waste gas/water treatment technique/system);

- the waste gas/water treatment technologies and the way they are designed, built, maintained, and operated;
- cross-media effects related to the use of waste gas/water treatment techniques (e.g. NO_X emissions from the use of thermal oxidisers);
- the emission levels in concentrations (e.g. minimum/maximum values, averages, percentiles, emission profiles) and emission limit values in the permit;
- the abatement efficiency of the waste gas/water treatment techniques;
- the monitoring (e.g. analytical methods, frequency, sampling period, type of sampling (spot/composite), averaging period);
- the relevant reference conditions (e.g. oxygen content, humidity, temperature, flow rate) for the abated/unabated emissions;
- the plant/process conditions (e.g. normal or other than normal operating conditions, percentage of capacity at which the plant/process is operating, number of operating hours per year, continuous or batch process units).

- To collect data on energy consumption expressed as energy per unit of product or raw material. To collect data on total energy consumption (i.e. both electrical and heat). To decide at a later stage on the potential unit conversions (electrical/heat) and definitions of the products or raw materials needed to express BAT-AEPLs.
- To collect data on water consumption as the amount of water used in the process per unit of product.
- To collect only qualitative information on material/chemical consumption (e.g. in updates of the descriptions of processes and techniques).
- To decide at a later stage (e.g. during drafting the questionnaire) on the exact boundaries of the system/process and which contributions are going to be included in the total consumption/generation data; and also to decide at that later stage about the definitions of products/materials.

8.3 Confidentiality issues

In the BP, the EIPPCB proposal was to design the questionnaire in a way that avoids requesting confidential data, and to decide at a later stage (e.g. during the workshop on the questionnaire finalisation) on the type and format of potentially confidential information. This proposal received broad support from the TWG.

One MS and one industry organisation expressed their concerns as to the protection of the data provided via the questionnaires and proposed that the filled-in questionnaires be anonymised. The EIPPCB recalled that this had been done only in a couple of BREFs in the past because the review of those two BREFs started before the IED was published, and that it was not the preferred approach for the recent BREFs.

On the other hand, the environmental NGO expressed its concern that confidential data might impair the derivation of BAT-AEPLs (for instance for energy and water consumption).

One MS suggested that the TWG agree on which data are confidential when drafting the questionnaire, and stressed that MSs should not individually decide whether data are confidential or not.

Similarly, the environmental NGO requested that confidentiality claims be assessed by MSs according to criteria defined by the TWG.

After considering all the arguments, the TWG decided the following.
Conclusions reached by the TWG:

- To design the questionnaire(s) in a way that avoids requesting confidential data as much as possible so that the data provided by operators can be posted directly onto BATIS and shared with the whole TWG.
- To consider the following information as potentially confidential:
    - quantity of raw materials treated and plant's actual production;
    - amount of water and energy consumed in specific processes.
- The TWG to decide at a later stage (e.g. during the workshop on the questionnaire(s) finalisation) about the type and format of potentially confidential information that needs to be collected.
- The Member States' representatives in the TWG to: i) submit the versions of the questionnaires containing the confidential information directly to the EIPPCB via email, and ii) post the versions of the questionnaires containing the non-confidential information to BATIS.

In addition, it is to be noted that one industry organisation (EURATEX) requested that the TWG work on specific guarantees to ensure the protection of the data provided.

8.4 Selection of plants/installations for data collection

During the KoM, 2 MSs and the environmental NGO supported the participation in the data collection of plants that have a treatment capacity below the IED threshold for the 6.2 activity (10 tonnes per day). This suggestion was not shared by other TWG members (5 MSs and 1 industry organisation) who supported the proposal the EIPPCB made in the BP, i.e. to collect data from IED (well-performing) plants.

It was clarified however that, while data will be collected via the questionnaires from IED plants only, bulk information may also be provided from non-IED plants (for instance on techniques applied to reduce emissions) as long as it is transposable to IED plants.

Conclusions reached by the TWG:

- To collect data from well-performing IED plants carrying out 6.2 activities and directly associated activities.
- The TWG to complete its proposals of well-performing (including best-performing) plants/installations to be included in the data collection.
- Not to decide upon plant categorisation at this stage, but to ensure that sufficient and appropriate contextual information is included in the data collection so that the data are properly assessed.
- To decide at a later stage whether it is appropriate to keep the current plant categorisation for the revised TXT BREF.

The agreed timetable for TWG actions can be found in Section 10.

8.5 Processes covered by the data collection

Concerning the processes covered by the data collection, the proposal made by the EIPPCB was agreed without further discussion.

Conclusions reached by the TWG:

- To include in the data collection emissions and/or consumption data for IED 6.2 activities and for the following processes, when they are directly associated to IED 6.2 activities: singeing, thermofixation, drying, curing, sizing, desizing, finishing, impregnation, preparation of natural fibres, manufacturing of natural yarns, knitting and weaving, printing, coating and laminating, plasma processes for yarn and fabric preparation, dry cleaning.
- To include in the data collection the emissions from process furnaces and heaters covered by the scope of the revised TXT BREF and used in the following processes, when they are directly associated to IED 6.2 activities: thermofixation in stenters, drying, curing, thermosol processes, singeing and lamination.

9 TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT AND EMERGING TECHNIQUES

9.1 Techniques to consider in the determination of BAT in the existing TXT BREF

The discussions during the KoM mainly concerned the abatement techniques. The EIPPCB had proposed in the BP not to collect information about a combination of abatement techniques described in Section 4.10 of the existing TXT BREF but to instead collect information about the individual abatement techniques used (for emissions to air and to water).

The environmental NGO, 3 MSs and 1 industry organisation expressed concerns that useful information about real-case waste water treatment might be lost by doing so. The EIPPCB clarified that the two approaches may in fact be complementary: on one hand to collect information about real-case waste water treatments which consist of a combination of techniques and on the other hand to collect data about each individual technique, which will allow meaningful comparisons between plants.

After considering those points, the TWG decided the following.

Conclusions reached by the TWG:

- To remove the technique described in Section 4.1.5 "Insulation of High Temperature (HT) machines".
- To relocate the technique described in Section 4.2.1 "Man-made fibre preparation agents with improved environmental performance".
- To remove the technique described in Section 4.10.2 "Treatment of mixed waste water with about 60 % water recycling".
- To collect information about all the individual abatement techniques used (for emissions to air and to water) and to complement Section 4.10 of the TXT BREF with the description of individual abatement techniques in addition to predefined combinations of techniques.
- To complement information on the following techniques:
    - "Treatment of textile waste water in activated sludge system with low food-to-micro-organisms ratio (F/M)" (Section 4.10.1);
    - "Combined biological physical and chemical treatment of mixed waste water effluent" (Section 4.10.3);
    - "Anaerobic removal of residual dyestuff from padding liquors and printing paste residues" (Section 4.10.6);
    - "Treatment of selected and segregated, non-biodegradable waste water stream by chemical oxidation" (Section 4.10.7);
    - "Waste water treatment by flocculation/precipitation and incineration of the resulting sludge" (Section 4.10.8);
    - "Air emissions abatement techniques" (Section 4.10.9);
    - "Waste water treatment in wool scouring installations" (Section 4.10.10);
- To update the technique in Section 4.1.2 "Input/output stream evaluation/inventory" with information related to chemical auxiliaries used when receiving man-made raw material.
- To collect data about the types of pesticides found in the waste water and the use of the technique in Section 4.2.7 ("Minimising residues of organochlorine ectoparasiticides in the raw material by substitution") and the TWG to decide later about the obsolescence of the technique.
- For all techniques not named above, to collect information about their applicability and update the technique descriptions accordingly.

9.2 Additional techniques to consider in the determination of BAT

The call for IPs contained a list of additional techniques to consider in the determination of BAT, i.e. techniques not described in the existing TXT BREF. This list was built using contributions made by some TWG members and based on the EIPPCB's own screening of different sources.

The initial positions of the TWG members on these additional techniques were assessed in the BP and led the EIPPCB to make a number of proposals which were discussed at the KoM. Specifically, some technique descriptions either did not follow the 10-heading structure or were descriptions of different issues and processes and not actually techniques. Furthermore, some of the additional techniques proposed were variations of techniques already described in the existing BREF and the combined list of existing and additional techniques would need to be streamlined to allow a meaningful information collection.

These discussions led to the conclusions below.

Conclusions reached by the TWG:

- The TWG to provide information using the 10-heading structure (see Section 11) for the following techniques:
  - Elastic fibres based on PES;
  - Alternative knitting techniques;
  - Reducing consumption of sizing chemicals;
  - Replacing chemicals with enzymes;
  - Dirt removal/grease recovery loops combined with evaporation and reuse of more than 90% of hot water back in the process by recycling loop;
  - Antifelting chlorine-hercosett shrink resist process;
  - Perfluorinated compounds-free coating;
  - Spin dyeing/dope dyeing.
- To collect data on all the individual techniques used to abate emissions to air in addition to the techniques "Emission abatement after drying processes" and "Biological waste gas treatment for cyanide elimination after flame lamination".
- To investigate whether the use of C6-based fluorocarbons mentioned in the techniques "Oil, water and soil-repellent finishing of textiles based on optimised fluorocarbon resins (C6, C8), with the aid of extender technology as well as fluorine-free alternatives for water repellent finishes" and "substitution of C8-based fluorocarbons by C6-based fluorocarbons with/without combinative plasma treatment by fluorocarbon-free solutions" is a BAT candidate.
- For all techniques not addressed above, to collect information about their use and the TWG to decide at a later stage whether they are to be considered BAT candidates or emerging techniques.

9.3 Emerging techniques in the existing TXT BREF

Concerning the emerging techniques in the existing TXT BREF, the proposals made by the EIPPCB in the BP were agreed without further discussion.

Conclusions reached by the TWG:

- To collect information about the uptake by the textiles sector of the following techniques: "Plasma technology", "On-line monitoring", "Use of supercritical CO_2 in dyeing processes", "Ultrasonic treatments", "Electrochemical dyeing", "Electron-ray treatment" and "Fuzzy logic".
- Not to include "Alternative textile auxiliaries" as an emerging technique but rather to collect information about the use of polyasparginic acid and chitosan as agents in the pretreatment and dyeing processes and polycarbonic acids as easy-care finishing agents with a view to updating the descriptions of techniques in Sections 4.3.4 and 4.8.2 of the existing TXT BREF. This information could be collected together with information on chemical consumption.
- To possibly merge the technique "Fuzzy logic" with the technique "On-line monitoring".
- Not to collect information on "Reed bed systems for waste water treatment" and not to include it as an emerging technique.
- Not to include "Advanced Oxidation Processes in the textiles industry" as an emerging technique, but to collect information on its use as a candidate BAT and to include the information collected in the section on waste water treatment techniques.
- Not to include "Enzyme-catalysed finishing processes" as an emerging technique in the revised TXT BREF, but to update the TXT BREF with concrete cases of enzyme uses if information is made available.

9.4 Additional emerging techniques

The call for IPs contained a list of additional emerging techniques, i.e. emerging techniques not described in the existing TXT BREF. This list was mainly based on the EIPPCB's own screening of different sources.

The initial positions of the TWG members on these additional emerging techniques were assessed in the BP and led the EIPPCB to make a number of proposals which were discussed at the KoM.

These proposals were agreed without further discussion.

Conclusions reached by the TWG:

- Not to collect information on the following techniques and not to include them in the revised TXT BREF:
  - "RESITEX – Alternatives for waste volume reduction in the textiles sector through the application of minimisation measures in the process and in the consumption";
  - "WET-COMP – Wet-laid technology application for textile residues revalorization in composites industry";
  - "Sustainable Flame Retardant Technical Textile from Recycled Polyester (SUPERTEX)";
  - "FOTOTEX – Water Purification Tertiary Treatment using Photo-oxidation at semi-industrial scale";
  - "PERBIOF – A new technology for treating municipal and/or industrial wastewater with low environmental impact";
  - "BIOCLOC – BIOprocess ControL through Online titrimetry to reduce Carbon footprint in wastewater treatment".
- To collect information about the uptake by the textiles sector of all other techniques listed in the call for IPs (e.g. potential industrial use would imply that the technique is already applied and no longer emerging).

10 NEXT STEPS TO BE TAKEN AFTER THE MEETING

During the final session of the meeting, the TWG agreed on the following actions and timetable for the next steps to be taken.

Step	Targeted time
EIPPCB to issue the first draft questionnaire	Middle of July 2018
TWG to provide proposals of well-performing plants for the data collection	Middle of October 2018
TWG to provide feedback on the first draft questionnaire	Middle of October 2018
EIPPCB to issue the second draft questionnaire	End of October 2018
EIPPCB to compile the list of well-performing plants and to check its completeness; if necessary, ask TWG members to amend/complete the list	End of October 2018
Workshop on the questionnaire finalisation	Middle of November 2018
EIPPCB to issue the third draft questionnaire	End of November 2018
Questionnaire testing	By end of December 2018
EIPPCB to issue the final questionnaire and distribution to the participating plants	Middle of January 2019
TWG to provide bulk information on: ➢ Chapter 1 of the TXT BREF; ➢ Updated descriptions of processes in Chapter 2 of the TXT BREF; ➢ Update of the remaining annexes; ➢ Descriptions of the new emerging techniques; ➢ 10-heading description (see Section 11), including example plants, of 18 emerging techniques that some TWG members consider suitable for the determination of BAT.	End of January 2019
Submission of validated filled-in questionnaires in BATIS after quality check by Member States	End of March 2019

The EIPPCB also asked the TWG members to make proposals for site visits in the coming months, as provided for in Section 4.4.4 of the BREF Guidance.

11 ANNEX I: STANDARD STRUCTURE FOR DESCRIBING THE 'TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT'

When providing information on "Techniques to consider in the determination of BAT', the use of a standard structure is required in order to enable comparisons of techniques and so that an objective assessment against the definition of BAT given in the IED can be made. This standard structure is stipulated in the BREF Guidance. It is necessary to use this standard structure for the provision of information for specific techniques.

Standard structure for describing BAT candidate techniques (see BREF Guidance)

In order to determine BAT, all techniques to be considered in the BAT decision-making process will be presented in the BREF according to a standard structure, shown in the first two columns of the following table. The third column gives more details on the specific data which are needed in order to draft 'Techniques to consider in the determination of BAT' and to derive useful BAT conclusions from them.

Name of the type of information	Type of information to be included in the BREF	Important information to collect and to report
Description	A brief description of the technique with a view to being used in the BAT conclusions.	
Technical description	A detailed and concise technical description of the technique (including chemical or other equations, pictures, diagrams and flow charts when appropriate).	The description can include both prevention and control measures (in-process and end-of-pipe).
Achieved environmental benefits	The main potential environmental benefits (including reduced consumption of energy, reduced emissions to water, air and land, raw material savings as well as production yield increases, reduced waste, etc.) to be gained through implementing the technique.	
Environmental performance and operational data	Actual plant-specific performance data (including consumption and emission levels, consumption levels – of raw materials, water, energy – amounts of residues/wastes generated, including reference conditions – e.g. O_2 level – and monitoring methods used) achievable applying the technique. Any other information on how to design, operate, maintain and control the technique.	Emissions data • Both the concentration and (specific) load of pollutant(s) (if available) or the data needed to derive this information. For specific load data, the product referred to should be clearly defined. • The quantity of pollutant before and after the abatement system in order to determine the abatement efficiency. • Details of relevant operating conditions (percentage of full capacity, fuel composition, bypassing of the abatement technique, inclusion or exclusion of other than normal operating conditions, reference conditions). • Emission monitoring issues (including information on frequency, averaging period, uncertainties, plant operating condition, etc.). Consumption data: • The type and amount of fuel, energy (heat, electricity), water and raw materials/chemicals consumed/used by the technique. Waste: • The type and quantities of waste generated and treatment/disposal methods and/or techniques to prevent waste. Others: • Sensitivity and durability of the technique. • Operation/control/maintenance issues. • Issues regarding accident prevention.
Cross-media effects	Relevant negative environmental effect due to implementing the technique, allowing a comparison amongst techniques in order to assess the impact on the environment as a whole (such as consumption and nature of raw materials and	The Reference Document on Economics and Cross-media Effects (ECM) is a document that should be taken into account with regard to cross-media aspects as far as there are significant cross-media effects. This document is available from the European IPPC Bureau website at

Name of the type of information	Type of information to be included in the BREF	Important information to collect and to report
	water, energy consumption and 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 of residues/waste, limitation of the ability to reuse or recycle residues/waste, generation of noise and/or odour, increased risk of accidents.	http://eippcb.jrc.ec.europa.eu/reference/BREF/ecm_bref_0706.pdf
Technical considerations relevant to applicability	Indication if the technique can be applied throughout the sector; otherwise, information on the main general technical restrictions on the use of the technique (including an indication of the type of plants or processes within the sector to which the technique cannot be applied, and constraints to implementation).	
Economics	Information on costs (both investment and operational) and possible savings, including details on how these costs have been calculated	• Capital/investment, operating and maintenance costs including details on how these costs/savings have been calculated/estimated. • Possible savings (including payback time), including details on how these costs/savings have been calculated/estimated. • Cost data will preferably be given in euros (EUR). If a conversion is made from another currency, the data in the original currency and the year when the data were collected will be indicated. This is important as conversion rates vary over time. • Price/cost of equipment or service will be accompanied with the year it was purchased. • Information relevant to both new and existing plants enabling, where possible, the economic viability of the technique for the sector concerned. • Information on the cost-effectiveness of the technique (e.g. in EUR per abated mass of pollutant), where relevant. The Reference Document on Economics and Cross-media Effects (ECM) and the JRC Reference Report on Monitoring of Emissions to Air and Water from IED Installations (ROM) should be taken into account with regard to economic aspects and monitoring costs, respectively. Both documents are available from the European IPPC Bureau website at http://eippcb.jrc.ec.europa.eu/reference/
Driving force for implementation	Local conditions or requirements (e.g. legislation, safety measures) or non-environmental triggers (e.g. increased yield, improved product quality, economic incentives) which drive or may stimulate implementation. Information on reasons other than environmental ones for implementation.	Examples: • information on type/quality of receiving waters (e.g. temperature, salinity) • information on environmental quality standards • information on the increase of production or productivity
Example plants	Reference to plants in which the technique is implemented and from which information has been collected and used in writing the section, including an indication of the degree to which the technique is in use in the EU or worldwide.	
Reference literature	Literature or other reference material that was used in writing the section and that contains more detailed information. When the reference material consists of a large number of pages, reference will be made to the relevant page(s) or section(s).	