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KICK-OFF MEETING
FOR THE REVIEW OF THE
BEST AVAILABLE TECHNIQUES (BAT)
REFERENCE DOCUMENT FOR
FERROUS METALS PROCESSING

SEVILLE, 15 – 18 November 2016

MEETING REPORT

INTRODUCTION

The Technical Working Group (TWG) for the review of the Reference Document on Best Available Techniques (BAT) for Ferrous Metals Processing (FMP BREF) held its first plenary meeting at the JRC premises in Seville, Spain on 15 – 18 November 2016. 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 existing FMP 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 2001 under Directive 96/61/EC.

The review of the FMP BREF started initially with the reactivation of the TWG in December 2008, followed by the request (April 2009) to the TWG members to provide a list of 'wishes' for the BREF review. Due to limited resources in the EIPPCB, the review was put on hold in 2009. The FMP TWG was reactivated in November 2015 and the call for the expression of TWG members' initial positions for the review of the FMP BREF was sent by the EIPPCB on 10 March 2016.

This first plenary FMP TWG meeting discussed the initial positions received from TWG members for the review of the FMP BREF.

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

The FMP TWG is made up of more than 140 experts representing EU Member States (MS), Industry, Environmental non-governmental organisations (Env. NGOs) and Commission

services. The Kick-off Meeting was attended by 61 TWG members (31 from MS, 23 from Industry, 2 from Env. NGOs and 5 from the Commission services).

The meeting started on Tuesday 15 November 2016 at noon and finished on Friday 18 November 2016 at noon (i.e. two full days and two half days). The meeting agenda included presentations and discussions on the exchange of information carried out for drawing up and reviewing BREFs (as stipulated in Article 13 of Directive 2010/75/EU), on defining the scope of activities and applied processes, on the key environmental issues to consider along with the appropriate environmental performance levels, on issues related to the data and to the information and data collection and on the BAT candidates. These discussions were held during the first two and a half days of the meeting as well as part of the final half day. On the final half day, the information exchange tools (i.e. BATIS) and the draft conclusions of the meeting were presented and refined with the participants.

In order to facilitate the discussions at the meeting, a Background Paper (BP) highlighting the items to be discussed was prepared by the EIPPCB and sent to the FMP TWG members in advance of the meeting (3 October 2016). The items presented in the BP had been derived from the initial positions sent by the FMP TWG as well as the updated feedback on the wishes sent during the first review attempt in 2009. In this context, an 'initial position' stands for suggestions, comments or assessment provided by member(s) of the TWG on the basis of the call for '*expression of initial positions for the review on the FMP BREF*', sent by the EIPPCB on 10 March 2016, and of the documents attached to this. 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'.

Meeting and structure of this meeting report

During the meeting, discussions were held on the TWG members' initial positions and on the EIPPCB proposals made based on these. The key issues for which agreements were sought at the meeting were the scope of the revised FMP BREF and the BAT conclusions, the applied processes, the key environmental issues, the appropriate environmental performance levels, and the techniques to consider in the determination of BAT. Furthermore, agreement was sought on what information and data would be exchanged in order to revise and improve the FMP BREF (data and information collection), on the basic principles of this collection, as well as on the features of the questionnaire(s) to be used for this purpose. The structure of the revised BREF and the BAT conclusions, although originally planned for discussion, due to time limitations and the expansion of the scope decided at the KoM, was left to be addressed at a later stage.

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 ultimately reach a conclusion.

This document presents the main issues discussed for each item and the conclusions reached at the meeting. Under some items, it is indicated that 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 of the meeting. Also to be found on BATIS, are informative presentations prepared by EGGA, and EUROFER on their sector specificities, and by EUROMETAX on sprayed metal coating, which were not presented at the KoM, due to time restrictions.

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 FMP sector. Any information that cannot be used to develop or update BAT conclusions would be assigned a lower priority.

A member of the EIPPCB gave a general introduction on BREF reviews including on 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 the whole TWG at the final TWG meeting.

During the meeting, EUROFER made a short presentation related to the draft questionnaire that has been developed within this organisation and that could be used as an input for drafting the questionnaires supporting the data collection.

As underlined at the Kick-off Meeting, the BREF Guidance for the exchange of information under the IED (i.e. Commission Implementing Decision 2012/119/EU of 10 February 2012) is an essential document for the future work of the FMP TWG.

Acronyms used in this document

Acronym	Meaning
BAT	Best Available Techniques
BAT-AEL(s)	BAT-Associated Emission Level(s) as defined in IED Article 3(13)
BAT-AEPL(s)	BAT-Associated Environmental Performance Level(s), including but not restricted to BAT-AELs
BATIS	BAT Information System
BFG	Blast furnace gas
BG	Batch galvanizing
BREF	BAT Reference Document as defined in IED Article 3(11)
BP	Background Paper (i.e. this document)
CMR	Carcinogenic, mutagenic or toxic to reproduction (reprotoxic)
CR	Cold rolling
CS	Carbon steel
COG	Coke oven gas
D1	First draft
EIPPCB	European IPPC Bureau
E-PRTR	European Pollutant Release and Transfer Register
FMP BREF	Best Available Techniques Reference Document for Ferrous Metals Processing
HDC	Continuous hot dip coating
HOI	Hydrocarbon Oil Index
HCl	Hydrogen chloride
HF	Hydrogen fluoride
HR	Hot rolling
IED	Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions
IP(s)	Initial position(s)
IS	Iron and Steel
IS BREF	Best Available Techniques Reference Document for Iron and Steel Production
KEI	Key environmental issue
KoM	Kick-off Meeting
NOC	Normal operating conditions
NO _x	The sum of nitrogen monoxide (NO) and nitrogen dioxide (NO ₂), expressed as NO ₂
OTNOC	Other than normal operating conditions
PS	Priority substances
ROM	JRC Reference Report on Monitoring of emissions to air and water from IED-installations (latest working document dated July 2016)
STM BREF	(Reference Document on Best Available Techniques for the) Surface Treatment of Metals and Plastics
STS BREF	(Reference Document on Best Available Techniques on) Surface Treatment using Organic Solvents
SS	Stainless steel
SVHC	Substances of Very High Concern
TMSC	Thermal spray metal coating
TOC	Total organic carbon
TVOC	Total volatile organic carbon
TSS	Total suspended solids
WD	Wire drawing

Member States and Organisations (participants in the Kick-off Meeting)

AT	Austria
BE	Belgium
CZ	Czech Republic
DE	Germany
DK	Denmark
ES	Spain
FI	Finland
FR	France
IE	Ireland
IT	Italy
NL	Netherlands
PL	Poland
PT	Portugal
SE	Sweden
SK	Slovakia
UK	United Kingdom
EEB	European Environmental Bureau
EGGA	European General Galvanizers Association
EUROMETAUX	European association of metals
EUROFER	European Steel Association

TABLE OF CONTENTS

1	SCOPE	7
1.1	SECTORS AND ACTIVITIES COVERED IN THE CURRENT FMP BREF	7
1.2	ADDITIONAL SECTORS AND ACTIVITIES – THERMAL SPRAY METAL COATING.....	8
1.3	ADDITIONAL SECTORS AND ACTIVITIES – PROPOSALS BY TWG MEMBERS.....	8
2	APPLIED PROCESSES TO BE COVERED	9
2.1	SIGNIFICANTLY CHANGED, ADDITIONAL AND OBSOLETE APPLIED PROCESSES	9
2.2	INTERFACE WITH THE OTHER BREFS.....	10
3	KEY ENVIRONMENTAL ISSUES.....	11
3.1	GENERAL KEY ENVIRONMENTAL ISSUES FOR FMP ACTIVITIES.....	11
3.2	SECTOR-SPECIFIC KEY ENVIRONMENTAL ISSUES FOR FMP ACTIVITIES	14
3.2.1	Specific KEIs in Hot Rolling.....	14
3.2.2	Specific KEIs in Cold Rolling	16
3.2.3	Specific KEIs in Wire Drawing.....	18
3.2.4	Specific KEIs in Hot Dip Coating	20
3.2.5	Specific KEIs in Batch Galvanizing	22
4	ENVIRONMENTAL PERFORMANCE LEVELS FOR FMP ACTIVITIES.....	24
5	INFORMATION AND DATA COLLECTION.....	25
5.1	INFORMATION AND DATA TO BE COLLECTED / CONTENT OF THE QUESTIONNAIRES	25
5.2	QUESTIONNAIRE DEVELOPMENT FOR PLANT-SPECIFIC DATA AND CONFIDENTIALITY ISSUES	26
5.3	DATA COLLECTION PROCESS.....	26
5.4	EUROFER'S QUESTIONNAIRES.....	27
6	TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT	29
6.1	TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT COVERED IN THE CURRENT FMP BREF.....	29
6.2	ADDITIONAL TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT	30
6.2.1	New/additional BAT candidates from wish lists (included in the call for IPs):.....	30
6.2.2	New/additional BAT candidates proposed in IPs	31
6.2.3	Additional items for discussion: additional BAT candidates 'Desulphurisation of coke oven gas' and 'Dedusting of blast furnace gas' proposed in IP	34
6.3	INFORMATION AND DATA COLLECTION ON TECHNIQUES TO CONSIDER FOR THE DETERMINATION OF BAT.....	35
7	BREF STRUCTURE / BAT CONCLUSIONS STRUCTURE.....	36
8	ITEMS 'NOT FOR DISCUSSION' IN BACKGROUND PAPER.....	36
9	FORWARD PLANNING FOR THE FMP BREF REVIEW AFTER THE KICK-OFF MEETING	36

1 SCOPE

1.1 Sectors and activities covered in the current FMP BREF

As was proposed in the Background Paper (BP) and confirmed by the initial positions (IPs), the TWG decided during the Kick-off Meeting (KoM) to keep hot rolling (HR), continuous hot dip coating (HDC) and batch galvanizing (BG) exceeding the respective thresholds of IED Annex I, activities 2.3 a and c in the scope of the revised FMP BREF.

The inclusion of cold rolling (CR) and wire drawing (WD) as activities directly associated to HR, and /or HDC was discussed in more detail. The current FMP BREF covers CR and WD if directly associated with HR and the vast majority supported the proposal to keep covering these activities/sectors if associated with FMP activities (i.e. HR and HDC).

One MS however explained that it has no CR associated with HR, but it considers CR plants as IED plants if they are directly associated with STM, i.e. due to the pickling process and the size of the pickling baths ($> 30 \text{ m}^3$). During the discussion, some TWG members also raised the question of whether CR or pickling should be covered in the Surface treatment of metals and plastics (STM) BREF instead, addressing the topic of interface with other BREFs scheduled for later in the agenda. Although there seemed to be a general agreement to cover CR in some way, the TWG could not conclude on the wording regarding the inclusion and coverage of CR. The decision was postponed till after the EIPPCB had provided a further explanation on the different scenarios for the 'inclusion' of CR and the implications of that inclusion (additional slides available to TWG members in BATIS). The TWG agreed to also include in the scope of the revised FMP BREF stand-alone CR plants and WD plants if the treatment vats exceed 30 m^3 (which means considering these plants as IED Annex I 2.6 activities).

For BG, the industry representative pointed out that there are BG plants not exceeding 2t/h of crude steel capacity, that are permitted under IED Annex I 2.6 (i.e. due to these plants exceeding the 30 m^3 threshold) and that these plants should not be excluded from the data collection. However, industry does not agree with BG being considered a surface treatment and sees a contradiction with what is stated in the STM BREF. Nevertheless, the BG industry accepted the conclusion regarding BG (i.e. to include BG if the surface treatment vat(s) exceed 30 m^3), thus not pre-empting the outcome of the discussions on whether batch galvanizing is a surface treatment.

Conclusions reached by the TWG for the revised FMP BREF

- To keep in the scope of the revised FMP BREF:
 - hot rolling (HR) (with a capacity $> 20 \text{ t crude steel/h}$)
 - continuous hot dip coating (HDC) (with a capacity $> 2 \text{ t crude steel/h}$)
 - batch galvanizing (with an input $> 2 \text{ t crude steel/h}$)
- Not to cover cold forming tube production (i.e. welded tubes) and to delete the information on welded tubes in the current FMP BREF
- To keep in the scope of the revised FMP BREF CR and WD, if directly associated with HR and HDC
- To include in the scope of the revised FMP BREF stand-alone CR and WD, if the volume of the surface treatment vat(s) exceeds 30 m^3 (i.e. CR and WD plants falling under IED Annex I 2.6 activity)
- To also include in the scope of the revised FMP BREF, BG plants, if the volume of the surface treatment vat(s) exceeds 30 m^3 (i.e. BG falling under IED Annex I 2.6 activity)
- Not to include in the data collection, data for emissions to water from CR and WD plants associated with other STM or STS activities.

1.2 Additional sectors and activities – thermal spray metal coating

There was consensus among the TWG members not to include thermal spray metal coating (TMSC) as an additional sector in the revised FMP BREF, as was proposed in the BP; mainly due to the lack of plants above the IED Annex I threshold. One of the supporting documents (BAT studies) provided by the TWG in preparation for the FMP BREF review highlighted TMSC as a potential alternative, i.e. as a BAT candidate for batch galvanising. However, the feedback provided during the KoM did not support this, thus it was decided to not collect information on TMSC.

Conclusions reached by the TWG for the revised FMP BREF

- Not to include thermal spray metal coating (TMSC) as a sector and not to run a full data collection exercise by means of a questionnaire
- Not to collect information and data on thermal spray metal coating as a 'Technique to consider in the determination of BAT'.

1.3 Additional sectors and activities – proposals by TWG members

The feedback of TWG members during the KoM on the number of hot ring rolling plants above the IED Annex I threshold showed that there might be around six or seven plants in the EU, therefore the TWG decided to include hot ring rolling in the scope of the revised FMP BREF.

For the other sectors that were proposed in TWG members' IPs as 'additional sectors', it was decided not to include them as sectors (i.e. stand-alone activities), but it was acknowledged that they might form part of the production process of sectors in the scope of the revised FMP BREF and might therefore be part of the applied processes covered.

Conclusions reached by the TWG for the revised FMP BREF

- To include in the scope of the revised FMP BREF:
 - hot ring rolling plants exceeding the IED threshold (i.e. capacity > 20 t crude steel/h)
- Not to include in the scope of the revised FMP BREF the following sectors/stand-alone activities:
 - seamless tube production by extrusion
 - cold rolling of pipes
 - cold drawing of tubes
 - forging of steel (but to include only if part of the applied process)

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

- DE and SE to provide information on hot ring rolling (general information on sector, applied processes, consumption and emission levels, BAT candidates).

2 APPLIED PROCESSES TO BE COVERED

2.1 Significantly changed, additional and obsolete applied processes

From the wishes received before the IPs (2009 and 2016 updates), four potentially new applied processes were identified and included in the call for IPs for the TWG to provide feedback on. Based on the feedback in the IPs and the discussion during the KoM, the TWG decided to include only one of these processes (i.e. nitric and hydrofluoric acid pickling for wire plants) as a new/additional applied (production) process.

In their IPs, some TWG members highlighted more processes as new/additional applied processes or as significant changes. Some of the processes were also proposed and discussed under the topic of additional sectors (e.g. hot and cold extrusion) and it was concluded to include these as applied processes when they are part of HR tube production. Following feedback from the TWG that some HR mills pickle and oil their hot-rolled products before sale, it was also decided to include pickling and oiling as applied processes for HR. Some TWG members also provided feedback that, in addition to HCl pickling, sulphuric acid pickling is used for tube galvanizing (BG) and the TWG decided to include sulphuric acid pickling as an applied process.

Cr^{VI}-based passivation was rated an obsolete process by some TWG members in their IPs. The TWG agreed that this process is declining due to legal restrictions and that alternatives are available. However, during the KoM at least two MS pointed out that Cr^{VI}-based passivation was still an applied process in their countries. Therefore it was decided to keep in the BREF the description of Cr^{VI}-based passivation as an applied process and to seek information in order to identify techniques reducing the environmental impact from this type of process.

Conclusions reached by the TWG for the revised FMP BREF

- To use the information and data provided in the IPs on changes in the applied processes for updating the BREF
- To include nitric and hydrofluoric acid pickling for wire plants as an applied process, describe BAT candidates and collect data/information with the aim to provide BAT conclusions and BAT-AE(P)Ls
- Not to cover powder coating of batch hot dip coated steel in the revised FMP BREF
- Not to cover in detail in the revised FMP BREF:
 - thin organic coating in continuous hot dip coating
 - skin passing and tension levelling after galvannealing
- To include as applied processes hot extrusion and cold extrusion if they are process steps associated with HR tube production
- To include pickling and oiling as applied processes in HR, describe BAT candidates and collect data/information with the aim to provide BAT conclusions and BAT-AE(P)Ls
- To include sulphuric acid pickling for tube galvanizing as an applied process, describe BAT candidates and collect data/information with the aim to provide BAT conclusions and BAT-AE(P)Ls
- To keep Cr^{VI}-based passivation as an applied process under post-treatments in HDC
- To add Cr^{VI}-free passivation under post-treatments in HDC based on the information to be provided by the TWG
- To include in the revised FMP BREF the pretreatment to break up oxides with:
 - AVKA oxidising hot baths (for seamless tube production)
 - oxidising salt baths (for wire production) and
 - electrolytes (for strip production).

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

- IT to provide information on sulphuric acid pickling for tube galvanizing.

2.2 Interface with the other BREFs

The discussion on the interface and the boundary between the FMP BREF and other BREFs (i.e. STS or STM) picked up on parts of the discussion on the scope with regard to the CR sector based on the additional explanation and slides provided during the meeting. The conclusions on the CR sector are provided under the respective heading in this KoM report (see Section 1.1). The conclusions regarding the applied process 'pickling' are covered below.

Also the interaction between the FMP and the IS BREF was highlighted in terms of energy consumption (e.g. use of IS process gases), water management and residues and was further discussed under the specific topics of the meeting.

Conclusions reached by the TWG for the revised FMP BREF

- To keep process steps such as degreasing, (bulk) pickling and rinsing in the descriptions of the FMP sectors, i.e. in the corresponding sections on 'applied processes'
- To keep BAT candidates applicable to degreasing, (bulk) pickling and rinsing in the revised FMP BREF and, where appropriate, cross-reference descriptions of BAT candidates in other BREFs (e.g. STM BREF)
- To keep BAT conclusions and related BAT-AE(P)Ls for degreasing, (bulk) pickling and rinsing in the revised FMP BREF.

3 KEY ENVIRONMENTAL ISSUES

3.1 General key environmental issues for FMP activities

The initial positions (IPs) expressed by the TWG members considered resource consumption/efficiency (of energy, water and materials) to be a key environmental issue (KEI) in all FMP sectors (with water consumption considered less important in BG and material consumption less important in WD). However, it was emphasised that resource consumption/efficiency are closely related to plant/product specificities. The IPs also agreed not to cover CO₂ as a KEI, while the majority of IPs supported the inclusion of CO in the information and data collection, with several TWG members opposing the derivation of BAT-AE(P)Ls for CO. Limited feedback was provided on CMR substances / SVHC and PS and even less information on input / emission quantities of the substances proposed to consider as KEIs. Meanwhile, three MS explicitly expressed their support to addressing the issue.

Additional general KEIs proposed by the TWG members in the IPs included soil and ground protection, emissions to water arising from run-off water, noise and vibration, and fine particles (PM_{2,5}) in dust emissions.

The EIPPCB proposal echoed the ratings of the TWG positions in relation to CO emissions, energy, water and material consumption / efficiency and took a step further by proposing the definition, if possible, of performance levels (BAT-AEPLs). On CMR substances/SVHC/PS, after a round of collecting more data available on the E-PRTR, though not fully representative of the sector, and an exchange of clarifications with some TWG members, the EIPPCB proposed to consider emissions to water of borates and a number of heavy metals (Cr^{VI}, Cd, Hg), as well as emissions to air of Pb and Ni from the processing of special steel grades, in addition to the emissions to water and to air already addressed in the current BREF.

On the additional general KEIs proposed by some TWG members, the assessment of the EIPPCB resulted in a proposal not to cover soil and groundwater (only to include monitoring practices), noise and vibration, but to cover emissions to water arising from surface run-off water and emissions to air of PM_{2,5} based on the information to be provided.

The discussion showed that the proposals of the EIPPCB were generally acceptable. The large number of specialised plants and products was stressed, as well as the interactions (in terms of fuels, residues and waste waters) between FMP and IS plants in integrated installations. TWG members proposed that CO emissions should focus on process furnaces and acid regeneration and that derivation of BAT-AELs should not be excluded at this stage. Consumption of oil and acids was considered of prime concern in all sectors, while water consumption was not considered relevant to BG.

On CMR substances/SVHC/PS, the attempt by the EIPPCB to address the issue and complement the feedback with additional information was considered to be in line with the front-loading approach and the proposals put forward as reasonable and pragmatic, although the E-PRTR was not considered the most appropriate data source. A TWG proposal for a request by the EIPPCB to the ECHA to carry out a systematic investigation of the substances which may be relevant for the sector was not supported by the TWG. However, it was decided not to exclude any information made available during the next steps. It was also proposed that Cr^{VI} emissions to water should be looked at for all sectors where pickling of stainless steel or passivation is involved.

During the discussion, doubts were raised by some TWG members on the appropriateness of monitoring soil, surface water and groundwater. Also, the general availability of PM_{2,5} measurement data was questioned and monitoring of fine particles was seen relevant only

when dust is considered a KEI for a specific subsector. Noise and vibration should be excluded only from the data collection, but any general information made available should be considered.

Conclusions reached by the TWG for the revised FMP BREF

CO₂/CO:

- Not to cover CO₂ emissions as a KEI in the review of the FMP BREF (i.e. not to collect emission data and not to derive BAT-AE(P)Ls for CO₂)
- To focus on CO emissions from process furnaces and acid regeneration and to include CO emissions in the information and data collection for the revised FMP BREF

Energy consumption / efficiency:

- To collect information and data on energy consumption/use/efficiency for all FMP sectors, with the aim of deriving/updating BAT conclusions and defining, if possible, BAT-AEPLs, while accounting for specificities within the individual sectors/subsectors (e.g. process and plant types, product types)

Water consumption:

- To collect information and data on water consumption/use/reuse for all FMP sectors, with the aim of deriving/updating BAT conclusions, and, if possible, defining BAT-AEPLs, while accounting for specificities within the individual sectors/ subsectors (e.g. process and plant types, product types)
- Not to collect water consumption data for BG

Materials consumption:

- To collect information and data on materials consumption/use/reuse (especially on oil and acid consumption) for all FMP sectors, with the aim of deriving/updating BAT conclusions, and, if possible, defining BAT-AEPLs, while accounting for specificities within the individual sectors/subsectors (e.g. process and plant types, product types)

CMR substances/SVHC/PS:

- In addition to the information and data collection on emissions of the heavy metals proposed in the sector-specific KEI sections, to collect information and data with the aim of deriving BAT conclusions and further investigate within the TWG whether to define BAT-AE(P)Ls on:
 - borate emissions to water for WD and HDC of wire
 - Cr^{VI} emissions to water for passivation in BG, HDC and pickling of stainless steel in HR, CR and WD
 - Cd, Hg and Pb emissions to water in HR, CR and HDC, and Pb emissions to water in WD
 - Ni and Pb emissions to air from processing of special steel grades
- Not to include in the data collection any other CMR substances/SVHC/PS
- To take into account possible information from ECHA on this issue (CMR substances/SVHC/PS)

Additional (proposed by TWG members):

- Not to expand the coverage of BAT candidates on soil and groundwater in the revised FMP BREF with regard to techniques applied

-
- To cover surface run-off water in the BREF, based on the information to be provided by the TWG on plants collecting and treating run-off water
 - Not to cover noise and vibration in the data collection.
 - When dust is considered a KEI for a specific subsector, to cover the issue of particle size in the information and data collection for dust, i.e. collect available measurement data for PM_{2,5} and PM₁₀.

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

- AT, DE and EEB to provide information on BAT candidates for noise and vibrations.

3.2 Sector-specific key environmental issues for FMP activities

In addition to the general KEIs, which apply to all FMP sectors, the KEIs which are specific to each sector (i.e. HR, CR, WD, HDC and BG) were discussed. Following the analysis in the IP call and the BP, the KEIs were examined on a process-by-process basis.

It was agreed, in general, not to exclude the consideration of any information made available in the next stages, for parameters/issues decided not to be included in the data collection.

3.2.1 Specific KEIs in Hot Rolling

Residues

Oil-containing wastes and scale were considered major or intermediate KEIs by the majority of the IPs, whereas ratings for filter dust were balanced between important (major or intermediate) and not important (minor or not relevant). Scrap was proposed as an additional KEI to consider.

As a general approach for the review of the FMP BREF, the EIPPCB considers waste a key issue, particularly from the circular economy viewpoint. The aim is, therefore, to collect/update information on waste types, quantities and recycling/reuse techniques, although it is recognised that allocating waste generation to each process, in order to derive performance indicators, may not always be feasible.

Hence, the EIPPCB proposed to collect information on oil-containing wastes, scale and dust, and further investigate within the TWG, based on the data and information collected, the possibility of defining environmental performance levels. Scrap was proposed to be considered for the purpose of evaluating resource/energy efficiency.

During the discussion, and in order to avoid disputes on whether a material is a waste or a by-product, it was agreed to use the term residues instead of waste, as it covers both. Otherwise, the proposals of the EIPPCB were widely accepted.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/ updating BAT conclusions and further investigate within the TWG whether to define BAT-AEPLs for:
 - oil-containing residues
 - scale
 - filter dust
- To collect information and data on scrap for the purpose of evaluating resource/energy efficiency.

Emissions to water

According to the IPs received, emissions to water of oil, suspended solids, Cr_{tot}, Ni and Zn were rated as major or intermediate KEIs, except for Fe, for which the ratings were balanced. In addition, several parameters were proposed as KEIs, most of them with no supporting information.

The EIPPCB proposed to keep as KEIs all six parameters, for which the current BREF provides emission levels associated with BAT, including Fe. As there was some information available in the study submitted by AT on the emission of fluorides from HR pickling, phosphorus from phosphating processes and organic compounds (as COD) from HR activities, it was proposed to include these in the data collection and further investigate the possibility of defining BAT-AELs. On emissions of Pb, Hg and Cd, the proposal under the CMR substances/SVHC/PS topic was followed.

The TWG agreed with the proposal of the EIPPCB, with the general note to take account of the type of discharge, whether direct or indirect, as this may affect the waste water treatment requirements. Cr^{VI} was also added, as agreed in the discussion of CMR substances/SVHC/PS.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and defining BAT-AELs, for the following:
 - Hydrocarbon oil index (HOI). If no such data is available, collect data on 'oil', 'hydrocarbons' or 'hydrocarbon content'
 - Total suspended solids (TSS). If no such data is available, collect data on 'suspended solids'
 - Fe, Cr_{tot}, Ni, Zntaking into account e.g. the type of discharge (i.e. direct or indirect)
- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AELs, for the following:
 - fluorides from HR pickling when HF is used
 - phosphorus from phosphating processes
 - COD/TOC
 - Pb, Hg, Cd
 - Cr^{VI} from pickling of stainless steeltaking into account e.g. the type of discharge (i.e. direct or indirect)
- Not to include any other additional parameters in the data collection.

Dust emissions to air

The majority of the IPs supported the inclusion of dust emissions as a KEI for the processes of scarfing and grinding, and roughing and rolling.

The IPs did not consider as of major importance the dust emissions from the same processes, as the ones for which the current BREF provides emission levels associated with BAT, i.e. dust from scarfing and grinding, the finishing train and from levelling and welding. Therefore, it was proposed by the EIPPCB to include all dust-emitting mechanical processes in the information and data collection and to investigate the issue.

The TWG members agreed with the proposal of the EIPPCB, in the direction of deriving BAT conclusions and defining BAT-AELs where appropriate (i.e. for the steel grades/processes relevant), based on the information and data collected.

Conclusions reached by the TWG for the revised FMP BREF

-
- To collect information and data on dust emissions from scarfing and grinding / descaling / roughing and rolling / finishing, levelling and welding with the aim of deriving / updating BAT conclusions and defining BAT-AELs, where appropriate.

Reheating and heat treatment

The IPs considered reheating and heat treatment prime energy-consuming processes in HR, as well as major sources of NO_x, SO_x and dust emissions. Additional KEIs were proposed by only one or two TWG members and mostly rated as of minor importance.

The EIPPCB proposal was in line with the IPs received and was accepted during the discussion. In relation to SO₂, the interface with the IS BREF was highlighted, which covers the desulphurisation of the coke oven gas, also used in FMP.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/ updating BAT conclusions and defining BAT-AELs for the following:
 - NO_x
 - SO₂
 - Dust.

HR and CR roll shop

In the IPs, emissions of organic solvents were generally rated as being of minor importance, while ratings on the importance of oily waste and waste waters were balanced. Therefore, the proposal by the EIPPCB was to include oily waste and waste waters in the data collection and to further investigate the possibility of deriving performance levels.

During the discussion there was a request to also include liquid waste in the data collection.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/ updating BAT conclusions and further investigate within the TWG whether to derive BAT-AEPLs for:
 - oil- and grease-containing residues
 - waste water / liquid waste (from cooling, degreasing, emulsion separation)
- Not to include organic solvents in the data collection.

3.2.2 Specific KEIs in Cold Rolling

Residues

In the IPs, not all of the wastes included in the IP call were considered as being of major importance. However, based on the general assessment for the HR residues, the EIPPCB proposed to include all wastes in the data collection and to further investigate the possibility of deriving performance levels. It also proposed to add hydroxide sludges, put forward by two TWG members, as the current BREF provides only general information.

Conclusions reached by the TWG for the revised FMP BREF

-
- To collect information and data with the aim of deriving/ updating BAT conclusions and further investigate within the TWG whether to define BAT-AEPLs for:
 - oil-containing residues
 - filter dust
 - acidic residues
 - spent pickling liquor
 - spent emulsion
 - spent degreasing solution
 - hydroxide sludge from acid regeneration
 - scrap (for evaluating resource /energy efficiency).

Emissions to water

The IPs were essentially similar to the ones for HR. For the many additional parameters proposed, information was provided only for COD in CR pickling. Therefore, the proposal by the EIPPCB was to keep all parameters included in the current BREF, and add COD/TOC, as well as Pb, Hg and Cd as examined under CMR substances/SVHC/PS.

During the discussion, the relevance of Ni and Cr was questioned by some TWG members for CS, but was confirmed by other TWG members both for CS as well as SS. It was also agreed to consider fluoride emissions from pickling, when HF is used, as agreed for HR. Cr^{VI} was also added, following the discussion of CMR substances/SVHC/PS.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/ updating BAT conclusions and defining BAT-AELs for:
 - Hydrocarbon oil index (HOI). If no such data is available, collect data on 'oil', 'hydrocarbons' or 'hydrocarbon content'
 - Total suspended solids (TSS). If no such data is available, collect data on 'suspended solids'
 - Fe, Cr_{tot}, Ni, Zntaking into account e.g. the type of discharge (i.e. direct or indirect)
- To collect information and data with the aim of deriving/ updating BAT conclusions and further investigate within the TWG whether to derive BAT-AE(P)Ls for:
 - amount of acidic waste waters from pickling
 - COD/TOC from pickling
 - Pb, Hg, Cd and Cr^{VI} in pickling of stainless steel
 - fluorides from pickling, if HF is usedtaking into account e.g. the type of discharge (i.e. direct or indirect)
- Not to include any other additional parameters in the data collection.

Emissions to air

The parameters rated in the IPs as being of major/intermediate importance were: HCl, H₂SO₄, SO₂, NO_x and HF emissions from the respective pickling and acid regeneration processes, emulsion fumes from rolling and NO_x and SO₂ from combustion in annealing. Only Cl₂ from HCl pickling and noise from flue-gas outlets were proposed as additional KEIs.

The proposal of the EIPPCB was to include in the information and data collection the above parameters, as well as the parameters for which the current BREF provides emission levels associated with BAT. For the remaining parameters rated as being of minor importance / not relevant, the proposal was to further investigate within the TWG whether to define BAT-AELs. The information provided on Cl₂ did not indicate significant emissions.

The EIPPCB proposal was generally accepted, apart from the emissions of dust from descaling, which were not considered as important as those from decoiling.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/ updating BAT conclusions and defining BAT-AELs for:
 - dust from decoiling
 - HCl and dust from HCl pickling
 - H₂SO₄ and SO₂ from H₂SO₄ pickling
 - NO_x and HF from mixed acid pickling
 - hydrocarbons from rolling/tempering, preferably as TVOC
 - dust, NO_x, SO₂ from annealing
 - dust from levelling and welding
 - HCl, dust, SO₂, NO_x from HCl regeneration
 - H₂SO₄ and SO₂ from H₂SO₄ recovery
 - dust, HF, NO_x from mixed acid regeneration
- To collect information and data with the aim of deriving/ updating BAT conclusions and further investigate within the TWG whether to derive BAT-AELs for:
 - acidic fumes/aerosols/mists from pickling
 - degreaser fumes/aerosols/mists, preferably as TVOC
 - oil mist from finishing, preferably as TVOC
 - dust from descaling
- Not to include any additional parameters in the data collection.

3.2.3 Specific KEIs in Wire Drawing

Residues

Only Pb-containing residues were considered as being of major/intermediate importance by the majority of the IPs. As for all sectors, the EIPPCB proposed to collect information and data for all residues generated and to further investigate within the TWG the possibility of defining environmental performance levels.

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

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/ updating BAT conclusions and further investigate within the TWG whether to derive BAT-AEPLs for:
 - scale from descaling
 - acidic residues (i.e. spent pickling liquor)
 - spent lubricants from wet drawing
 - Pb-containing residues from lead baths.

Emissions to air

IPs rated HCl emissions from pickling as being of major importance. Ratings were balanced on soap dust combustion emissions, oil mist and emissions from lead baths. Additionally, NO_x and SO₂ were proposed as KEIs.

The EIPPCB took the view that, in addition to HCl, emissions from lead baths and combustion should be included in the data collection with the aim of deriving BAT-AELs. For the remaining parameters, the EIPPCB proposed to further investigate within the TWG whether to define BAT-AELs.

During the discussion it was agreed to aim to derive BAT-AELs also for acidic emissions (H₂SO₄, SO₂, NO_x and HF) from relevant pickling, as H₂SO₄ and mixed acids were also reported to be used for pickling.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and defining BAT-AELs for:
 - HCl, H₂SO₄, SO₂, NO_x and HF from relevant pickling
 - dust, NO_x and SO₂ from combustion
 - dust, Pb and TVOC (preferably) from lead baths
- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to derive BAT-AELs for:
 - dust from dry drawing
 - protective gas purge from furnaces
 - oil mist from oil hardening, preferably as TVOC
 - acidic fumes/aerosols/mists from pickling
- Not to include any additional parameters in the data collection.

Emissions to water

IPs were balanced on the importance of acidic waste waters, lubricant emissions and emissions from quench baths. A number of additional parameters were proposed, including borates.

Hence, the EIPPCB proposed to collect information and data and to further investigate within the TWG whether to derive BAT-AE(P)Ls for the above parameters, including solids, for which the current BREF indicates significant emissions. Except for borates, discussed under CMR substances/SVHC/PS, the information available did not justify the consideration of the additional parameters.

During the discussion some TWG members raised the argument that, due to the similarity of WD and CR processes, the water parameters considered KEIs should be the same. However, due to the lack of available information and the fact that very few stand-alone WD plants were identified at the KoM, it was agreed not to consider the parameters addressed in CR, but only Cr^{VI}, agreed during the CMR substances/SVHC/PS discussion.

Conclusions reached by the TWG for the revised FMP BREF

-
- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AE(P)Ls for:
 - amount of acidic waste waters
 - lubricants from wet drawing, expressed as HOI. If no such data is available, collect data on 'oil', 'hydrocarbons' or 'hydrocarbon content'
 - Pb and solids from water quench baths
 - Cr^{VI} from pickling of stainless steel
 - TSS from wet drawing
 - boratestaking into account e.g. the type of discharge (i.e. direct or indirect)

 - Not to include any additional parameters in the data collection.

3.2.4 Specific KEIs in Hot Dip Coating

Residues

The majority of IPs considered acidic wastes – spent pickling liquor and Zn-containing residues important KEIs. As for all sectors, the EIPPCB proposed to collect information and data for all residues generated and to further investigate within the TWG the possibility of defining environmental performance levels.

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

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AEPLs for:
 - acidic residues (i.e. spent pickling liquor), where relevant
 - spent degreasing / phosphating / passivation solution
 - spent flux bath from wire HDC
 - oil-containing residues (sludges) from degreasing
 - Zn-containing residues from hot dipping.

Emissions to air

For the emissions from pickling and combustion, IPs and the EIPPCB assessment referred to the discussion on CR. Furthermore, among the emissions from wire hot dip coating, IPs rated Zn as being of major importance, while the ratings were balanced on dust. A number of additional parameters were proposed as KEIs, but were not justified by the information provided.

Therefore, the proposal by the EIPPCB was to include the parameters related to pickling, acid regeneration, combustion and wire coating in the data collection, with the aim of deriving BAT-AELs, and to investigate whether to derive BAT-AELs for the remaining parameters.

The discussion held at the KoM revealed that TVOC in the protective gas purge from the furnaces is not an issue. Otherwise, the proposal of the EIPPCB was widely accepted.

Conclusions reached by the TWG for the revised FMP BREF

-
- To collect information and data with the aim of deriving/updating BAT conclusions and defining BAT-AELs for:
 - dust, HCl, H₂SO₄ and SO₂ from pickling, where relevant
 - dust, HCl, SO₂ and NO₂ from HCl regeneration, where relevant
 - dust, NO_x and SO₂ from combustion
 - Zn and dust from wire coating
 - To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AELs for:
 - acidic fumes/aerosols/mists from pickling
 - degreaser fumes/aerosols/mists, preferably as TVOC
 - decomposition products of oil in the furnace, preferably as TVOC
 - oil fumes/aerosols/mists from oiling, preferably as TVOC
 - Not to include any additional parameters in the data collection.

Emissions to water

The majority of the IPs agreed to consider suspended solids, Cr_{tot} and Zn as KEIs, while ratings were balanced between important and not important for acidic waste water, Fe, Ni, Pb and Sn. Among the additional KEIs proposed, COD/TOC emissions were supported by a submitted study, and borates were already agreed upon under CMR substances/SVHC/PS.

On the grounds of the emission levels associated with BAT provided in the current BREF and the monitoring practices reported, the EIPPCB proposed to include in the data collection all the heavy metals above, with the aim of deriving/updating BAT-AELs.

A couple of TWG members requested, during the discussion, to include phosphorus emissions from phosphating processes, but this was not seen as a common process in HDC. Hence, the EIPPCB proposal was accepted practically unchanged.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and defining BAT-AELs for:
 - total suspended solids (TSS). If no such data is available, collect data on 'suspended solids'
 - Cr_{tot}, Zn, Fe, Ni, Pb, Sntaking into account e.g. the type of discharge (i.e. direct or indirect)
- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AE(P)Ls for:
 - amount of acidic waste waters
 - oily waste water from degreasing expressed as HOI, if no such data is available collect data on 'oil', 'hydrocarbons' or 'hydrocarbon content'
 - COD/TOC
 - Hg, Cd
 - borates for wire coating
 - Cr^{VI}
- Not to include any other additional parameters in the data collection.

3.2.5 Specific KEIs in Batch Galvanizing

Residues

Acidic wastes (including sludges), spent pickling/stripping liquors and Zn-containing residues were considered major or intermediate KEIs by a large majority of IPs, while the ratings of spent degreasing solution / flux and filter dust were balanced. In contrast, the vast majority of the IPs agreed that dioxins/furans, potentially contained in filter dust, are not an issue.

For the preparation of the BP, the EIPPCB contacted several TWG members to confirm the insignificant presence of dioxins/furans in filter dust. In the responses received, this was attributed to techniques that are in place to guarantee proper degreasing and good product quality. Therefore, the proposal by the EIPPCB was not to include dioxins/furans in the filter dust in the information and data collection, but to collect information on techniques that avoid dioxin/furan formation.

There was a general agreement in favour of the EIPPCB proposal, with one industrial TWG member pointing out that acidic wastes in BG are essentially confined to spent pickling liquors.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AEPLs for:
 - spent pickling liquor
 - spent degreasing solution (alkaline or acidic) / flux
 - oily sludge from degreasing
 - Zn-containing residues (zinc ash, bottom dross - i.e. hard zinc)
 - filter dust

- Not to include dioxins/furans in the filter dust in the data collection, but to collect information on techniques that ensure efficient degreasing and therefore avoid dioxin/furan formation.

Emissions to air

The IPs received highlighted the importance of HCl emissions, with several IPs relating it only to enclosed, heated/concentrated liquor pickling. Dust from the galvanizing kettle and NO_x from combustion were also rated as being of major importance. Most of the additional KEIs were only proposed by one TWG member, with no supporting data.

As IP ratings on combustion emissions indicated that fuels other than natural gas are still used, which may be a source of dust and SO₂ emissions, the EIPPCB proposal suggested including these parameters in the information and data collection. However, during the discussion at the KoM, it was made clear that the vast majority of kettles use natural gas, with the remaining being electric.

During the KoM, the relevance of HCl emissions to open/unheated pickling baths was questioned by an industrial TWG member and IT, finding support also among other TWG members. However, in order not to prejudice BAT, it was decided not to confine the information and data collection to enclosed/heated pickling baths. IT asked for a note to be made in the conclusions on its condition for supporting the proposal.

For alignment with other sectors, acid fumes, aerosols and mists were added in the information and data collection.

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and defining BAT-AELs for:
 - HCl from pickling. IT supports this conclusion only in relation to heated and enclosed-bath pickling
 - dust from galvanizing kettle
 - NO_x from combustion
- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AELs for:
 - acid fumes/aerosols/mists from pickling
- Not to include any additional parameters in the data collection.

Emissions to water

No potential KEIs were proposed in the call for IPs. However, more than 20 parameters (organic, inorganic, heavy metals, etc.) were put forward by one or two IPs as being of major or intermediate importance and three IPs proposed Zn, Cr, Fe and Sn as major or intermediate KEIs.

As the IPs on water consumption indicate that it is very low and mostly for the make-up of solutions, the generation of waste waters is expected to be even smaller. No data were submitted to support the additional KEIs. Therefore the EIPPCB proposed to collect information and data only for Cr^{VI}, based on the discussion of CMR substances/SVHC/PS.

During the KoM, it was questioned whether any waste waters are produced at all. However, some TWG members reported that Cr^{VI}-containing waste waters are disposed of off site. Therefore, it was considered appropriate to collect general information on waste water production and disposal as contextual information for Cr^{VI}.

FR, supported by the EEB, wished to state that, «referring to the REACH regulation, as regards substances included in Annex XIV of REACH (i.e. Cr^{VI} compounds) and taking into account Annex III point 2 of the IED directive, the « *information and data collection with the aim of deriving BAT conclusions and further investigate within the TWG on whether to define BAT-AE(P)Ls* » should be understood as collecting information and data with the aim of deriving BAT conclusions in order to prevent or minimise the emissions of such substances, should they nevertheless be used, bearing in mind that for such substances the main BAT should be to prevent the use by substitution by less hazardous substances».

Conclusions reached by the TWG for the revised FMP BREF

- To collect information and data with the aim of deriving/updating BAT conclusions and further investigate within the TWG whether to define BAT-AELs for Cr^{VI}, taking into account e.g. the type of discharge (i.e. direct or indirect)
- Not to include any other additional parameters in the data collection.

4 ENVIRONMENTAL PERFORMANCE LEVELS FOR FMP ACTIVITIES

In the call for IPs, TWG members were asked to express their opinion on the performance levels used in the current BREF and to bring any other suggestions. The majority agreed that the short-term (daily) concentration values used in the current BREF were suitable, without any alternatives being suggested by the minority that did not agree. Meanwhile, most IPs did not see any merit in collecting data on and providing BAT-AEPLs as reduction rates. The inclusion of specific water, material and energy consumption related to product mix / plant specificities was emphasized, while positions on considering specific emission indicators were conflicting.

The EIPPCB proposal reflected the IPs received, noting the use of reduction rates as complementary information and highlighting the need for specific emission data related to the product, in order to not discriminate against BATs that lead to increased concentrations.

The EIPPCB proposal was accepted as it stood.

Conclusions reached by the TWG for the revised FMP BREF

- To use short-term concentration (mg/Nm³, mg/l) averages for the BAT-AELs, i.e.
 - for emissions to air: daily averages (for continuous measurements) or averages over the sampling period (for discontinuous measurements) and
 - for emissions to water: daily averages (composite samples over 24 hours (or shorter time periods in the case of batch production)) as in the current FMP BREF
- Not to use reduction rates (percentages) for BAT-AE(P)L, but to include information on achievable reduction rates – if available – as complementary information on the performance of BAT candidates in the corresponding sections under 'Techniques to consider in the determination of BAT'
- To include in the information and data collection specific emission and consumption data related to the mass/surface area of product together with the information on product types.

5 INFORMATION AND DATA COLLECTION

5.1 Information and data to be collected / Content of the questionnaires

With the IPs, requests were received on the structure of the questionnaires so as to differentiate in the data collection between steel grades, product types and plant/equipment configurations. Several requests also reflected on the inclusion of contextual information, such as the context of operation, external use of energy, type of final discharge of waste water, and applicable ELVs. On the availability and representativeness of data, the IPs referred to the scarcity of continuous measurements and the limited data available and thus the need to seek data for an extended time range to account for throughput variations and seasonal factors.

Indeed, the EIPPCB considers the above, as well as any conditions that may influence the performance levels, to be necessary contextual information which should be collected. And in order to overcome the scarcity of data, measurements over three years were proposed to be collected.

During the discussion, the need to define NOC/OTNOC was raised, as well as concerns over the proposal by the EIPPCB to collect emission and consumption data during OTNOC. However, it was made clear that, so far in the BREFs, as in the BREF Guidance, OTNOC are described only by examples and that collection of emission and consumption data during OTNOC is proposed to evaluate the protection measures, not to derive performance levels. Consequently, the EIPPCB proposals were generally accepted. Consideration of measures for site remediation was also proposed to be covered, but it was concluded that it should be provided in the form of bulk information, where available.

Conclusions reached by the TWG for the revised FMP BREF

- To use the same sector structure for the sector-specific questionnaires as in the current BREF (i.e. differentiation according to HR, CR, WD, HDC and BG) and to further subdivide the data collection sheets according to production steps/stages for the different production processes/steel grades/product types identified
- To focus the information and data collection on the KEIs identified during the KoM
- To collect data for the years 2016, 2015 and 2014 for continuous and discontinuous measurements. For cases of monitoring less frequently than once per year, to collect the data deriving from the 3 latest measurement campaigns (provided they refer to the current configuration of the plant as described in the questionnaire)
- To collect the necessary contextual information needed to assess the emission and consumption data and establish groups of comparable plants for BAT conclusions and BAT-AE(P)Ls derivation
- To collect information on BAT candidates to prevent or to reduce the pollution under other than normal operating conditions and – where appropriate – associated emission and consumption data
- To include in the questionnaires the option to provide emission and consumption data at plant/installation level, when not available at process/unit level, and necessary explanations on specificities of plants
- To collect plots and data files with the full data (e.g. all daily averages) for continuous measurement/monitoring.

5.2 Questionnaire development for plant-specific data and confidentiality issues

A number of general principles and ideas, included in the BP and presented at the KoM, were requested by the TWG to be included as KoM conclusions. These read as follows:

- EIPPCB to draft questionnaire(s) on the basis of the KoM decisions
- Dedicated subgroups may be created for sector-specific questionnaire(s)
- Webinars/teleconferences may be held to discuss the draft questionnaire(s)
- Draft questionnaire(s) first to be tested by a small number of installations (need to know the list of installations proposed for data collection)
- Aim: to finalise questionnaire(s) in Q2 of 2017

Confidentiality of data is always a sensitive issue with the questionnaire development and use, but it also creates constraints and requires additional efforts. Therefore, the EIPPCB prompted the TWG members to strive to completely avoid the use of Confidential Business Information (CBI) and, if that is not possible, to keep it to a minimum. In the latter case, ways to overcome confidentiality constraints exist, as described in the BREF Guidance, for example.

During the discussion, Industry noted that it is not in their intention to hide data, but should also be careful when sharing data, due to the competition laws. Some TWG members pointed out the need to clarify during the drafting of the questionnaires, what type of data/information may be considered sensitive/confidential.

The EIPPCB informed the TWG of its experience in handling CBI, which is usually dealt with by having two versions of questionnaires: one version including the data considered CBI, sent to MS to validate the confidentiality claims and then to the EIPPCB, and another version without the CBI data, which is uploaded directly onto BATIS by the responsible MS. Also, the EIPPCB pointed out that, in principle, any requests for access to CBI are dealt with by the Commission according to Regulation (EC) No 1049/2001. However, so far, very few requests have been filed and no CBI submitted to the EIPPCB has been disclosed.

5.3 Data collection process

Applying the front-loading approach, the TWG started collecting proposals for well-performing plants as early as the call for IPs, following a number of criteria outlined by the EIPPCB. In the IPs, points were made on collecting data for as many plants as possible and not only the best performers.

The EIPPCB holds the position that the number of plants should remain manageable, while ensuring the representativeness of data for plants applying BAT and the representativeness for each FMP (sub)sector and/or production process. Therefore, the request was for proposing 'well-performing plants', including best-performing plants. A deadline was proposed for the end of 2016.

At the KoM, some MS requested an extension of the deadline for the plant nominations, especially as the scope of the BREF has been slightly expanded. It was agreed to allow an extra month to check whether all subsectors are covered, not excluding any latecomers from the data collection process, as long as it does not disrupt the process.

Conclusions reached by the TWG for the revised FMP BREF

-
- To continue collecting proposals for well-performing plants (including best performers) that are able to demonstrate performance of BAT to take part in the data collection following the selection criteria provided in the call for IPs (deadline: 31/01/2017)
 - In the event that the number of plants/questionnaires to be assessed becomes unmanageable, to limit the number of plants to those providing information on BAT that can be demonstrated and that show the potential to have an impact on BAT conclusions and BAT-AE(P)Ls.

5.4 EUROFER's questionnaires – Additional features agreed by TWG

To front-load the process of the questionnaire development, EUROFER had developed proposals for questionnaires and posted them on BATIS before the KoM for all TWG members to comment on and discuss. The main principles of these questionnaires were presented by EUROFER at the KoM, covering all subsectors except for BG.

During the discussion that followed, all TWG members acknowledged that these draft questionnaires are a good starting point for the questionnaires that the EIPPCB will develop for the purpose of the data collection process.

On the basis of the discussion and the conclusions under the items 5.1, 5.2 and 5.3, the EIPPCB listed a number of issues deemed necessary to add to the ones already featuring in EUROFER's questionnaires. These were also seen as necessary by the TWG and, although they were not part of the BP, it was decided to include them in the current conclusions.

A point was raised regarding the possibility of translating the questionnaires, but it was decided, as for the other BREFs, to have one version in English on BATIS and to leave it up to the individual MS to help their operators fill in the questionnaires.

Conclusions reached by the TWG for the revised FMP BREF

Additional features deemed necessary by the TWG

- Context of the plant (integrated/stand-alone, other activities)
- Production capacity (size) of plant / process
- More detailed information on product mix (steel grades, characteristics, t/y) and other process parameters that may affect environmental performance – Not only % steel share
- Any information on plant-layout, context/applied processes/ product types that may be used to define groups of comparable plants
- More information on applied BAT candidates (to ask for information on some of the 10-heading topics, esp. operational data, technical considerations on applicability/availability, economics)
- In monitoring fields also: standard methods used, measurement uncertainties, measurement period, corrections applied to raw data, operating conditions (load, temperature, etc.)
- Flue-gas flow rates (or specific emission loads to air)
- Permit ELVs
- Sampling point information (exact position in treatment process)
- Any additional measurements emissions vs fuel mix (self-monitoring, process control)
- OTNOC: explanation and data on emissions/consumptions
- For data provided at plant/installation level: estimated breakdown values for the parameters of the process/unit in question
- Daily averages for emissions to water and air (not weekly or monthly)

-
- Preferably ROM expressions for parameters (e.g. HOI, TSS, TOC)
 - Reduction rates as information on energy/water/material – BAT impact
 - Descriptions of BAT candidates to be included in advance
 - Use of macros to open/hide secondary sheets/cells, based on input.

AND

- Other KEIs agreed at the KoM
- Further discuss the structure of the questionnaire (e.g. whether to draw up one questionnaire per subsector or one for all FMP sectors)
- Identify and discuss the type of potentially confidential data in advance of launching the data collection.

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

- EGGA to provide a proposal for a questionnaire for the BG sector, by mid-January 2017.

6 TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT

6.1 Techniques to consider in the determination of BAT covered in the current FMP BREF

Some TWG members in their IPs rated some BAT candidates included in the current FMP BREF as obsolete. However, for all BAT candidates there were TWG members who considered the techniques valid and stated that information and example plants are available. The EIPPCB provided a detailed explanation for each of the techniques in the BP and proposed to include all 240 BAT candidates covered in the current FMP BREF in the information and data collection, and to update and complete the descriptions of the BAT candidates (following the 10-heading structure). The TWG supported this proposal.

Conclusions reached by the TWG for the revised FMP BREF

- To include all BAT candidates covered in the current FMP BREF in the information and data collection
- To update and complete the available information related to the techniques to be considered in the determination of BAT based on information to be provided by the TWG following the 10-heading structure
- The TWG to agree on the deadlines for the submission of this information.

6.2 Additional techniques to consider in the determination of BAT

6.2.1 New/additional BAT candidates from wish lists (included in the call for IPs)

During the initial reactivation of the FMP BREF review in 2009, TWG members were invited to provide their wishes for the FMP BREF review (updates provided in 2016). These wishes resulted in 19 potential 'new/additional BAT candidates' for the FMP sectors. During the call for IPs, TWG members were asked to provide feedback on these techniques.

The IPs received indicated that for three of the potential additional BAT candidates derived from the wishes no information or example plants were available, therefore the EIPPCB proposed in the BP not to include these techniques in the review. However, during the KoM some TWG members came forward stating that they can provide information on 'Electricity production from waste heat (e.g. ORC technology)' and that there may be two to three plants applying the technique. Therefore the TWG decided to include this BAT candidate in the information and data collection. For the other two ('Limiting cooling of hot rolled coils before entering CR mill' and 'Powder coating of batch hot dip coated steel'), no example plants were indicated during the KoM and the TWG followed the EIPPCB proposal not to include these techniques.

For the remaining potentially new/additional BAT candidates from the wish list (where IPs confirmed the availability of information and example plants), the TWG also supported the EIPPCB proposal to include the techniques in the review of the FMP BREF.

Conclusions reached by the TWG for the revised FMP BREF

- Not to include in the FMP BREF review as additional BAT candidates:
 - limiting cooling of hot rolled coils before entering CR mill
 - powder coating of batch hot dip coated steel
- To include in the information and data collection as potential additional BAT candidates for HR :
 - process-integrated techniques on storage and handling of coils
 - sequential impulse firing burner technology for reheating furnaces
 - speeding up finishing mill
- To include in the information and data collection as potential additional BAT candidates for CR:
 - process-integrated techniques on storage and handling of coils
 - three acid pickling – HF, HNO₃, H₂SO₄ – of stainless steel
 - technologies for by-product ¹ recycling without de-oiling (blast furnace injection)
 - technologies for by-product ¹ recycling with de-oiling (different techniques/options)
- To include in the information and data collection as potential additional BAT candidates for HDC:
 - Cr^{VI}-free passivation of coated steel
 - thin organic coating passivation
 - use of roll coaters for passivation
 - electromagnetic stabiliser

¹ Term used in the original title of BAT candidate, to be reconsidered during the BREF review

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- To include in the information and data collection as potential additional BAT candidates for BG:
 - use of spent pickle liquor from HCl pickling for external production of coagulants
 - (energy-) efficient operation of electrically heated kettles for hot dipping

 - To include in the information and data collection as potential additional BAT candidates as 'common techniques':
 - ultra-low-NOX burner
 - oxy-fuel burner systems for annealing
 - flameless burner, also in combination with oxy-fuel
 - electricity production from waste heat (e.g. ORC technology).

6.2.2 New/additional BAT candidates proposed in IPs

With the call for IPs, TWG members were invited to provide additional BAT candidates (not covered in the current FMP BREF and not yet covered in the wishes). In total, several hundred techniques were proposed by TWG members. Eliminating obvious duplication (techniques proposed by more than one TWG member in their IPs), techniques already listed in the wishes and techniques already covered by part D of the current FMP BREF), 49 potentially new BAT candidates remained for discussion during the KoM.

In the BP, detailed assessment and explanations were given on each technique as to why it was proposed by the EIPPCB for inclusion or exclusion in the revised BREF. Only four techniques were proposed to not be included in the revised FMP BREF, either because the IPs indicated that there was no information/example plants available or the technique was considered an 'applied (production) process' (implemented in all plants as an integral part of the production process necessary to obtain product quality). A total of 28 techniques were proposed to be included as potential BAT candidates. The remaining techniques were not proposed to be included as 'new' BAT candidates, because they were considered by the EIPPCB to be already included in the current FMP BREF, either by a BAT candidate with a different title or because they form part of another BAT candidate already included.

Due to the time constraints, the discussion during the KoM focused on those techniques where TWG members disagreed with the EIPPCB proposal or where TWG members required additional explanation.

In the end, all of the proposals made by the EIPPCB in the BP were accepted by the TWG; the vast majority of them without any discussion. The following few issues were raised:

- Inductive heating as additional BAT candidate for HR:

One environmental NGO questioned why inductive heating is not among the additional BAT candidates; the current FMP BREF (p. 249) states that there are several applications of inductive heating. The EIPPCB explained that there was no reason for its addition, as none of the IPs proposed inductive heating as an additional/new BAT candidate for other applications or other FMP subsectors besides those for which it is already included in the current FMP BREF. Discussion during the KoM showed that very few TWG members have information on the application of inductive heating in HR. A Swedish plant no longer applies it, one German operator had considered it, while experts from Industry highlighted technical issues with the technique (achievable temperatures). DE volunteered to provide information.

- Removal of excess liquid zinc in HDC:

The technique was proposed as an additional BAT candidate by one MS. The EIPPCB in its assessment considered this a standard production process applied generally in all plants to achieve product quality. Addition as a BAT candidate would only make sense if there were plants not removing excess liquid zinc after dipping. Industry experts confirmed that this is a common/standard process used in all lines.

- Inductive heating of molten zinc bath in HDC:
Industry commented that this is a standard technique and generally used at least in new lines. It was decided to include this technique as a new BAT candidate as there might still be old lines that are still applying other, less efficient heating processes.
- Additional BAT candidate proposed by one MS for BG: 'Use of zinc alloys to reduce zinc consumption':
It was discussed what the purpose of this technique was. Industry experts pointed out that this technique refers to a specific plant in Italy and that the aim is to control steel reactivity, not to reduce zinc consumption. It was decided to reword the technique to read (for the time being): 'Use of Al at up to 0.05% to control steel reactivity'.

Conclusions reached by the TWG for the revised FMP BREF

HR:

- Not to include in the FMP BREF review as additional BAT candidate:
 - evaporators for sludge volume reduction (HR)
- To include in the information and data collection as potential additional BAT candidates for HR:
 - flameless oxidation and air staging
 - optimised sequence at rolling stands
 - preheating of slabs before flame cutting to avoid formation of edge cracking
 - sizing blocks for intermediate mills – bar and rod rolling
 - strip casting procedure
 - by-product¹ recycling including specification of individual techniques
 - oscillating combustion for NOX emission reduction
- To include the information and data available for the following techniques – not considered new, but already covered by BAT candidates in the current BREF – for updating the corresponding sections:
 - recuperation of waste heat for steel reheating furnaces
 - external utilisation of waste heat
 - oxygen-rich furnace system for reduced CO and NOX emissions
 - oxygen-enhanced combustion (high-level lancing of oxygen).

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

- DE to provide information on induction heating as potential BAT candidate.

CR:

- To include in the information and data collection as potential additional BAT candidates for CR:
 - processing of hydroxide sludge from stainless steel pickling to a usable slag former in the melting shop
 - sulphur-dioxide-aided chromium reduction
 - eco-pickled surface; scale removal using steel shot slurry
 - laser welder in pickling line

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- To include the information and data available for the following techniques – not considered new, but already covered by BAT candidates in the current BREF – for updating the corresponding sections:
 - degreasing in counter-flow process
 - advanced SCR application for NOX reduction in the annealing line.

WD:

- To include in the information and data collection as potential additional BAT candidates for WD:
 - vibration tunnel pickling
 - recycling of oil used for oiling the wire
 - use of borate-free soap carriers
 - direct solution treatment.

HDC:

- Not to include in the FMP BREF review as additional BAT candidate:
 - removal of excess liquid zinc (applied process in HDC)
- To include in the information and data collection as potential additional BAT candidates for HDC:
 - direct flame impingement
 - inductive heating of molten zinc bath
 - drying of fluxed wire with waste heat
 - air-knives with variable profile
 - application of the fuzzy-logic for the controlling of the air knives
 - removal of the pot-roll
 - cooling by micro water sprayed at the cooling tower
- To include the information and data available for the following techniques – not considered new, but already covered by BAT candidates in the current BREF – for updating the corresponding sections:
 - air extraction and scrubbing from process baths and storage tanks.

BG:

- Not to include in the FMP BREF review as additional BAT candidates:
 - removal of zinc ash and zinc oxide from molten zinc surface
- To include in the information and data collection as potential additional BAT candidates for BG:
 - continuous production of iron sulphate from the H₂SO₄ pickling bath for tube production. IT to provide information on this technique
 - adjustment of dipping time to the steel product
 - slow withdrawal of galvanized items from zinc bath
 - use of Al at up to 0.05%, to control steel reactivity. IT to provide information on this technique
 - pickling by turbotank. IT to provide information on this technique
- To include the information and data available for the following techniques – not considered new, but already covered by BAT candidates in the current BREF – for updating the corresponding sections:
 - reuse of spent stripping baths for preparation of recovered flux baths
 - reuse of air scrubbing liquid for pickle bath preparation
 - reuse of spent rinsing baths for pickle bath preparation

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- low-NOX burners
 - external reuse of zinc oxide from zinc ash by zinc oxide producers.

Common techniques:

- Not to include in the FMP BREF review as additional BAT candidate:
 - techniques addressing the storage of liquid and solid chemicals
- To include in the information and data collection as potential additional BAT candidates as a ‘common technique’:
 - activated sand in the waste water treatment plant
- To include the information and data available for the following techniques – not considered new, but already covered by BAT candidates in the current BREF – for updating the corresponding sections:
 - abatement of emissions to air from pre- and post-treatment
 - continuous annealing in reductive atmosphere
 - waste water treatment techniques applicable to several FMP processes
 - recuperation of waste heat from steel reheating furnaces
 - external utilisation of waste heat.

6.2.3 Additional items for discussion: additional BAT candidates 'Desulphurisation of coke oven gas' and 'Dedusting of blast furnace gas' proposed in IP

Before the KoM, an industrial organisation asked to discuss during the KoM two BAT candidates which were included in the BP as 'not for discussion':

- 'Desulphurisation of coke oven gas'; and
- 'Dedusting of blast furnace gas'.

Both techniques were proposed by one MS as additional BAT candidates for HR. As these techniques are applied at iron and steel plants and not at FMP plants, the EIPPCB did not propose their inclusion as additional BAT. From an FMP point of view, the issue could only be 'the use' of desulphurised or dedusted IS gases and this aspect is already covered in the current FMP BREF. Representatives of the industrial organisation were very concerned about the issue of use of IS gases in FMP plants, especially fearing that potential future conclusions on the issues in the FMP BREF could contradict the IS BREF. Therefore an additional discussion point was added to the agenda of the KoM. To supplement what was presented in the BP, the EIPPCB provided further explanation and clarification on the issue, addressing the major concerns of Industry and presented additional, more specific conclusions. During the KoM, Industry representatives again highlighted that FMP plants have no influence on the fuel with regard to IS gases (i.e. quality/composition of IS gas, quantities, etc.); they have to consume whatever is delivered to them by the IS plant. Therefore the wording 'choice of fuel' used in the current BREF in the description of the BAT candidate was unacceptable for Industry.

From the pre-KoM information provided by Industry, it became apparent that some plants do not measure the SO₂ emissions from reheating furnaces but that they calculate emissions based on the sulphur content in the incoming IS gases and fuels used. As this monitoring practice had not been reported previously, i.e. in the IPs, an additional conclusion on collecting information on this practice was proposed.

Conclusions reached by the TWG for the revised FMP BREF

- To keep in the revised BREF the issues of 'use of desulphurised COG' and of 'use of dedusted BFG' in the context of energy management and low emission operation and to update the section of the corresponding BAT candidate
- To include in the information and data collection as contextual information related to emission data: fuel type(s) used (including IS process gases), quality of fuels (e.g. composition of the plant gases) and amounts used
- To collect the relevant information on monitoring practices applied related to S/SO₂ emissions.

6.3 Information and data collection on techniques to consider for the determination of BAT

In addition to the plant-specific data to be collected by means of the questionnaires (refer to Section 5), more information on the BAT candidates is required to complete the information required under the 10-heading structure. The most urgent step following the KoM is to provide descriptions of the BAT candidates as these should go with the questionnaires to provide everyone filling them in with a clear view of what the BAT candidates (titles) listed in the questionnaires stand for, enabling everyone to indicate whether or not they apply a certain BAT candidate.

Conclusions reached by the TWG for the revised FMP BREF

- For new BAT candidates to be included: TWG member(s) who proposed the technique to provide the descriptions
- For BAT candidates covered in current FMP BREF: a group of TWG members and EIPPCB to update the descriptions
- Timeline: provide first two headings of the 10-heading structure (description and technical descriptions) before the end of Q1 2017, to be used in the questionnaire(s).

7 BREF STRUCTURE / BAT CONCLUSIONS STRUCTURE

As the conclusions on the scope of the revised FMP BREF, i.e. the inclusion of CR as a 2.6 activity in addition to CR as directly associated to HR, need to be reflected in the structure of the revised FMP BREF, the original proposal in the BP became obsolete. Therefore the topic of the structure of the BREF and the BAT conclusions was skipped.

8 ITEMS 'NOT FOR DISCUSSION' IN THE BACKGROUND PAPER

The BP included a number of issues from the IPs that were not foreseen for discussion (BP, Section 3). Just as for the issues that were to be discussed during the KoM, a detailed assessment and proposal by the EIPPCB was provided in the BP. Before the KoM, only one TWG member asked to discuss one issue during the KoM and this additional topic was included in the agenda of the meeting. For the remaining issues 'not for discussion', it was highlighted at the beginning of the KoM that these proposals are considered to be generally accepted as KoM conclusions.

9 FORWARD PLANNING FOR THE FMP BREF REVIEW AFTER THE KICK-OFF MEETING

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

BREF review milestones	Timing/deadline
TWG members submit proposals for well-performing plants for data collection	31 January 2017
TWG members and EIPPCB provide description and technical descriptions of BAT candidates	Before end of Q1 2017
Development of questionnaires by the TWG	After KoM – end of Q2
Release of questionnaire for the data collection	Q2 2017
Collection of information and data (4 months)	October 2017
Release of first draft of the revised BREF	Tentatively: Q2 2018
Commenting period on the first draft	Tentatively: Q3 2018
Final TWG meeting	Tentatively: Q2 2019
Final draft delivered to the IED Article 13 forum meeting	Tentatively: Q3 2019

The planning of actions/deliverables (based on the agreed tasks for the TWG) for the months after the KoM is as follows.

FMP BREF KoM Follow-up – Task list

BREF section / task	Provider / Actor	Timeline/deadline
Questionnaire development and data collection		
Proposal for a draft questionnaire for BG	EGGA	Mid-January 2017
Drafting of questionnaire(s) for all subsectors	EIPPCB TWG	By end of Q2 2017
Plants for data collection		
Proposals for well-performing plants (including best-performers) to take part in the data collection	TWG	31/01/2017
BAT candidates		
Provide information on the following additional BAT candidates: <ul style="list-style-type: none"> - continuous production of iron sulphate from H₂SO₄ pickling bath for tube production and - pickling by turbotank 	IT	Before end of Q1 2017
Provide information on the BAT candidates addressing noise and vibration issues	AT, DE, EEB	Before end of Q1 2017
Provide information (descriptions) on BAT candidates regarding site remediation	EEB	Before end of Q1 2017
Provide information (descriptions) on BAT candidates regarding hot ring rolling	DE, SE	Before end of Q1 2017
Provide information (descriptions) on BAT candidates regarding sulphuric acid pickling for tube galvanising	IT	Before end of Q1 2017
Provide information (description) on the additional BAT candidate 'induction heating'	DE	Before end of Q1 2017
Provide information on <u>new BAT candidates to be included</u> (see conclusions of KoM): <ul style="list-style-type: none"> • First two headings of the 10-heading structure (description and technical description) to be used in the questionnaire(s) 	TWG members who proposed the additional	Before end of Q1 2017

	BAT candidate (refer to 'New BAT candidates requiring input')	
Provide information on <u>BAT candidates covered in current FMP BREF</u> (see conclusions of KoM): <ul style="list-style-type: none"> First two headings of the 10-heading structure (description and technical description) to be used in the questionnaire(s) 	EIPPCB TWG	Before end of Q1 2017
Provide information on BAT candidates for remaining headings of the 10-heading structure (information not covered by questionnaire(s))	Industrial NGO(s) TWG	In time for D1
Applied processes		
Provide information on hot ring rolling (i.e. general information on sector, applied processes, consumption and emission levels, BAT candidates)	DE, SE	In time for D1
Provide information on sulphuric acid pickling for tube galvanising	IT	In time for D1
Update of FMP BREF sections based on 2009/2016 wishes (confirmation of validity of wishes: asap)	Industrial NGO(s) TWG	In time for D1
Current emission and consumption levels		
Update of information/FMP BREF sections: <ul style="list-style-type: none"> based on questionnaire(s) other sources/information (e.g. 2009/2016 wishes) 	EIPPCB TWG	In time for D1 In time for D1
General information on the sector		
Update information	Industrial NGO(s)	In time for D1