

OPINION OF THE FORUM FOR THE EXCHANGE OF INFORMATION PURSUANT TO ARTICLE 13 OF THE DIRECTIVE 2010/75/EU ON INDUSTRIAL EMISSIONS

concerning the Draft Best Available Techniques (BAT) Reference document for Food, Drink and Milk industries

Meeting of 27 November 2018

1. BACKGROUND

Article 13(1) of Directive 2010/75/EU on industrial emissions¹ (the Directive) requires the Commission to organise an exchange of information between Member States, the industries concerned, non-governmental organisations promoting environmental protection and the Commission.

Article 13(3) of the Directive requires the Commission to establish and regularly convene a forum composed of representatives of Member States, the industries concerned and non-governmental organisations promoting environmental protection and to obtain the opinion of the forum on the practical arrangements for the exchange of information foreseen under that Article. In accordance with Article 13(3) of the Directive, the guidance referred to in points (c) and (d) of the second subparagraph of that Article shall take account of the opinion of the forum and shall be adopted in accordance with the regulatory procedure referred to in Article 75(2).

Commission Decision 2011/C 146/03² established the forum for the exchange of information pursuant to Article 13 of the Directive (the forum). In accordance with Article 3 of this Decision, the forum may be consulted on any matter relating to Article 13 of the Directive or on any matter relating to BAT as defined in Article 3(10) of the Directive.

2. OPINION OF THE FORUM

In accordance with Article 13(3) of the Directive the forum hereby gives its opinion on the draft [Best Available Techniques \(BAT\) reference document for the Food, Drink and Milk industries](#) as presented at the meeting of the forum of 27 November 2018.

¹ OJ L 334, 17.12.2010, p. 17–119, Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control), Text with EEA relevance,

² OJ C 146, 17.5.2011, Commission Decision of 16 May 2011 establishing a forum for the exchange of information pursuant to Article 13 of the Directive 2010/75/EU on industrial emissions

- (1) The forum welcomes the draft Best Available Techniques (BAT) reference document for the Food, Drink and Milk industries as presented by the Commission.
- (2) The forum acknowledges the discussions held at its meeting of 27 November 2018 and agrees that the changes to the draft Best Available Techniques (BAT) reference document for the Food, Drink and Milk industries, as proposed in Annex A, should be included in the final document.
- (3) The forum reaffirms the comments in Annex B as representing the views of certain members of the forum, but on which no consensus exists within the forum to include them in the final document.

Brussels, 8 February 2019

Annex A: Comments on the draft Best Available Techniques (BAT) reference document for the Food, Drink and Milk industries that are consensual within the forum.

Annex B: Comments on the draft Best Available Techniques (BAT) reference document for the Food, Drink and Milk industries that are representing the view of certain members of the forum.

ANNEX A: COMMENTS ON THE FINAL DRAFT OF THE BEST AVAILABLE TECHNIQUES (BAT) REFERENCE DOCUMENT FOR THE FOOD, DRINK AND MILK INDUSTRIES THAT ARE CONSENSUAL WITHIN THE FORUM

No.	Chapter	Comment description	Proposal for modification	Rationale
1	1.2	The number of existing FDM installations requiring a permit by activity category in Annex I to Directive 2010/75/EU 6.4.c) is different. (Table 1.3)	The number of existing FDM installations is 5 instead of 4.	Not necessary.
2	2.2	Missing units in equation	Insert units	
3	2.2.1	Missing units in equation	Insert units	
4	2.3.6.3.6	Allow flexibility	Mention in the technique description that other techniques to recover phosphorus exist in other sectors and that these could potentially also be used in the FDM sector.	Other similar technologies exist today at the development stage or operating full scale for municipal wastewaters or manures, recovering other phosphate salts (e.g. potassium struvite, brushite) or phosphoric acid which can be used in industry or converted to phosphate fertiliser products. These technologies, which are transposable to certain food and beverage wastewaters, should not be excluded. BAT should aim for results, not be limited to specific technology routes.
5	2.3.6.3.6	Allow flexibility	Mention in the technique description that other techniques to recover phosphorus exist in other sectors and that these could potentially also be used in the FDM sector.	"See rationale for comment n° 14
6	2.3.6.3.6	Allow flexibility	Modify under Technical Description "by adding magnesium at pH levels of around 7.5 - 10" - that is, modify pH range and delete reference to "magnesium chloride or magnesium oxide".	Different magnesium chemicals can be used (not only magnesium chloride or oxide as suggested), e.g. on the following page magnesium hydroxide is indicated. Some processes do not add magnesium chemicals, but use an electro-coagulation process where a magnesium metal alloy releases magnesium ions, see www.eMetrix.com Some processes, depending on the wastewater characteristics, can achieve phosphate recovery at lower pH (than pH 8.5 suggested), and this is advantageous because of lower chemical consumption.
7	2.3.6.3.6	Allow flexibility	Mention in the technique description that other techniques to recover phosphorus exist in other sectors and that these could potentially also be used in the FDM sector.	"See rationale for comment n° 14

No.	Chapter	Comment description	Proposal for modification	Rationale
8	2.3.6.3.6	Correction misleading statement	Delete "slow" before fertiliser in the last line of page 170.	Struvite can also be used as a starter fertiliser for maize. The rapidity of the nutrient release to plants depends on the delivery form, soil pH, etc. The indication "slow" is therefore arguable, and in any case is not useful here.
9	2.3.6.3.6	Correction misleading statement	Modify "struvite can be obtained from either sludge or incinerated sludge ash" to "struvite is today recovered from sewage liquors or sewage sludge digestate with tens of installations operating full-scale worldwide, or from manure digestate or certain industry wastewaters (semi-conductor industry, fertiliser industry ...)".	Struvite cannot be recovered from sewage sludge incineration ash, because it can only be precipitated from water phase (soluble phosphorus) - or only after dissolving the ash in acid. The phrase as at present is misleading.
10	2.3.6.3.6	Correct inappropriate indications	Modify the title of figure 2.18 to "Flow diagram for one example of phosphorus recovery as struvite". NOTE: delete "in batch mode".	Many struvite recovery units operate in continuous mode (for the waste water), so propose to delete "batch mode". This flow diagram is one process, others operating today are somewhat different (air may not be injected, stripper tank may not exist, chemical may be magnesium chloride not magnesium hydroxide, etc).
11	2.3.6.3.6	Factual correction	Under Achieved environmental benefits, modify to "The EU depends on imports for more than 90% of its phosphorus".	The figure of 99.5% is incorrect: the EU has one operating phosphate mine in Finland. The European Commission estimated import dependency at 92% in 2013 see COM(2013) 517 final at http://ec.europa.eu/environment/consultations/pdf/phosphorus/EN.pdf
12	2.3.6.3.6	Important justification	Add after "for its phosphorus. Phosphate rock (and white phosphorus P4) are both on the EU List of Critical Raw Materials."	Phosphate rock since 2014 and P4 since 2017 see http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_fr
13	2.3.6.3.6	Clarification	Replace "high load" with "significant flow" in the applicability restriction.	Unclear what this means. High phosphorus load is irrelevant (>50 mgP/l is already specified). High ORGANIC load is not relevant for phosphorus recovery (and may even be problematic for struvite recovery).
14	2.3.6.3.6	Clarification	Replace "high phosphorus content" with "high total phosphorus content" in the applicability restriction.	Not clear if referring to total P or soluble P or mgP or mg-phosphate (P ₂ O ₅) or PO ₄ NOTE: although struvite recovery is related to soluble-P (ortho-P) not TotalP, it is logical to define the cut-off as TotalP because TotalP can be converted to soluble-P by chemical or biological digestion/hydrolysis processes.
15	2.3.6.3.6	Clarification	Add operational data of further full scale examples of phosphorus recovery from other	Struvite recovery has been successfully demonstrated in other food & beverage sectors. For example: pilot

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			FDM plants."	successfully tested in seafood processing (Phosphorus removal from an industrial wastewater by struvite crystallization into an airlift reactor, A. Sanchez, International Conference on Nutrient Recovery from Wastewater Streams, Vancouver, Canada, May 10–13, 2009). Example: struvite recovery in the cheese industry Anaerobic digestion of cheese whey: Energetic and nutritional potential for the dairy sector in developing countries, H. Escalante, Waste Management 2017. Example: full scale struvite recovery operational in cheese industry (NuReSys, Humana Milchunion E.G. Altentreptow Germany) https://phosphorusplatform.eu/images/Conference/ESPC2-materials/Dewaele%20-%20NuReSys%20From%20P%20recovery%20to%20fertilizer%20production.pdf
16	4.1	Source 208 was not updated	208, The Brewers of Europe 2017	The data on the brewing sector in 2016 was collated and published in 2017.
17	4.1	Source 208 was not updated	208, The Brewers of Europe 2017	The data on the brewing sector in 2016 was collated and published in 2017.
18	4.1	Source 208 was not updated	208, The Brewers of Europe 2017	The data on the brewing sector in 2016 was collated and published in 2017.
19	4.2.1.8	before or mostly after fermentation	After fermentation	Normally dilution takes place after fermentation to be able to use the increased capacity of the fermenters.
20	4.2.2.1	A large number of other compounds,, influence	A large number of other compounds,, influences	Alignment of verb and subject
21	4.2.2.3	Beer (or alcohol) recovery from surplus yeast, which may entail filtration, centrifugation, sedimentation or distillation.	Beer (or alcohol) may be recovered from the surplus yeast by filtration, centrifugation, sedimentation or distillation.	Rephrased to make the purpose more clear.
22	4.2.2.4	temperatures lower than those applied	temperatures lower than those applied	Typos
23	4.2.2.5	Heat may be recycled in the pasteurisation process	Heat may be recycled in the pasteurisation process.	To be deleted. Confusing as filtration has nothing to do with pasteurisation.
24	4.2.3.3	as from the filling of the bottles and onwards	as from the filling of the bottles and onwards	Improve legibility
25	4.2.3.5	Before discharge the head is rinsed. Weighing of the kegs controls the filling volume. The keg head is rinsed and capped.	Before discharge the head is rinsed. Weighing of the kegs controls the filling volume. The keg head is rinsed and capped.	Double statement on head rinsing.

No.	Chapter	Comment description	Proposal for modification	Rationale
26	4.3.2	between1% and 23%	between 1% and 23%	Space added before 1
27	4.3.2	If brackish or hard water well is used	If brackish or hard water well is used	It is not the well but water that is used
28	4.3.3	Spent kieselguhr	Spent kieselguhr	Space deleted before kieselguhr
29	4.3.4	products and solid waste. .	products and solid waste. -	One dot is sufficient
30	4.3.4	Table 4.2. shows	A lign to be inserted before	Improve legibility
31	4.3.4	brewers grains	brewers' grains	Typo
32	4.3.4	beer losses	delete space before beer	Alignment and consistency with previous bullet points
33	4.3.4	conveyor lubrication	needs to be mentioned as a bullet point	Alignment and consistency with previous bullet points
34	4.3.4	discharge of by-products, and possible	discharge of by-products,—and possible	Grammar
35	4.4.1.2	The exact heat energy saving by mashing vary, but	The exact heat energy saving by mashing varies, but	Grammar
36	4.4.1.3	Recovery of the heat from the vapour of the boiling wort vapour ...	Recovery of the heat from the vapour of the boiling wort vapour ...	Double use of 'vapour'
37	4.4.1.3	This reduces CO ₂ and other combustion associated emissions.	This reduces CO ₂ and other combustion associated emissions.	Typo
38	4.4.1.4	The increased amount of HGB-degree is indirectly proportional to saved boiling heat in the brewhouse and saved cooling energy at fermentation.	The increased amount of HGB-degree is indirectly proportional to saved boiling heat in the brewhouse and saved cooling energy at fermentation.	Is also mentioned under the heading 'Environmental performance and operational data'. No need for this to mention under the technical description.
39	4.4.1.4	Technical considerations relevant to applicability	Technical considerations relevant to applicability	Typo
40	4.4.1.4	May not be applicable due to the product specification .	May not be applicable due to the product specification. -	End of sentence
41	4.4.1.5	In the first option for this technique, an evaporiser captures the cooling energy arising from evaporation of CO ₂ , which	In the first option for this technique, an evaporiser captures the cooling energy arising from evaporation of CO ₂ , which	Grammar
42	4.4.1.5	Reduction of energy consumption .	Reduction of energy consumption.—	End of sentence
43	4.4.1.5	Technical considerations relevant to applicability	Technical considerations relevant to applicability	Typo
44	4.4.1.6	May not be applicable due to the product specifications .	May not be applicable due to the product specifications.	End of sentence
45	4.4.1.7	Achieved environmental benefits	Insert line before	Consistency with other outlay
46	4.4.1.7	(less sugar)	(less sugar).	End of sentence
47	4.4.1.7	Technical considerations relevant to	Technical considerations relevant to	Typo

No.	Chapter	Comment description	Proposal for modification	Rationale
		applicability	applicability	
48	4.4.2.1	Hot water is normally produced in a heat exchanger ...	Hot water is normally produced in a heat exchanger ...	Alignment of paragraph
49	4.4.2.1	Environmental performance and operational data	Insert line before	Consistency with other layout
50	4.4.2.1	This reduces CO2 and other combustion associated emissions.	This reduces CO2 and other combustion associated emissions.	Typo
51	4.4.2.2	After the coarse filtration stage,	Insert line before	Consistency with other outlay
52	4.4.2.2	cross media effects : Electricity consumption to run filter pumps, cross flow membrane system and ultrafiltration.	cross media effects : Extra electricity consumption is required to run filter pumps, cross flow membrane system and ultrafiltration.	The proposed phrasing is more clear
53	4.4.3.2	Filtration of beer with natural minerals e.g. bentonite, perlite and diatomaceous earth, provides a rough filtration, leaving some matter in the product	Filtration of the beer is carried out before bottling to remove the remaining yeast and insoluble turbid particles. Filtration can be carried out with natural minerals, e.g. bentonite, perlite and kieselguhr.	Text as written is factually incorrect.
54	4.4.3.2	Energy consumption to recover the filter material and	Energy consumption to recover the filter material and	Space deleted before the
55	4.4.3.3	Efficient by-products management.	Efficient by-products management.	Space deleted before efficient
56	4.4.4.1.1	Raw material tranfet to silos	Raw material transfetr to silos	Typo
57	5.2.8.1.2	pH-level	Write: pH level	
58	5.3.3	Missing units, Table 5.3	Insert units for WWTP sludges	
59	7.2.3.3	Slightly amend the table	1) In the line for "purified smoke", in column "Cleaning (water consumption/waste water pollution) " add the following "Reduced, powerful detergents are not needed because purified smoke does not contain tar deposits" 2) Change for the Friction and Superheated Steam "Air treatment column" from 'reduced' to 'needed'.	This minor addition is consistent with new text provided in the other BREF sections (7.4.3.1). Smoking with friction smoke produces emission to air and therefore, air treatment is needed, please see explanation of friction smoke in chapter 7.2.3.3 on page 402, paragraph 3 and data reported 'reduced' is a misleading formulation as the air is treated with a wet scrubber to reduce the air emission, please see "Fact Sheet – CSC CleanSmoke vs. Steam Smoke".
60	10.3.2.5	Adjust headline	Modify the description of purified smoke as follows: "Smoke generated from purified primary smoke condensates is used to smoke the product in a smoke kiln"	In order to understand smoked products there must be a distinction between conventional smoking and products made with liquid (purified) smoke, which is an additive (see regulation EC 1333/2008). Liquid smoke is not a conventional smoking process and is not recognized as a

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			chamber" .	smoking process. It will cause a lot of confusion if these processes are not described correctly. Therefore it must distinguished between conventional smoke in one section in the chapter and liquid (purified) smoke in a separate section in chapter 10.
61	10.4.3.1.2	Add text under the headline 'environmental performance and operational data'	Thermal oxidation is efficient, but it comes at a cost of high energy consumption; up to 300 times higher than combined filter methods. Especially starting up thermal oxidation is expensive, implying that it is more suited for continuous smoking.	It is important to understand that the different techniques have different advantages and disadvantages. In the case of thermal oxidation It is important to balance the reduction of TVOC with the cost of energy (and NOx) compared to other methods. Thermal oxidation is less suitable for batch smoking.
62	10.4.3.1.3	Change headline 'wet scrubber'	change to: Combined treatment (wet scrubber and electrostatic filter)	Data represented is based on a combination of techniques.
63	10.4.3.1.3	Add text under section 'environmental performance and operational data'	The combined techniques has a slightly higher TVOC emission than thermal oxidation, but energy use is 150-300 times lower.	It is important to balance the benefit of high efficiency of thermal oxidation with the cost of energy (and Nox) compared to other methods.
64	10.4.3.1.4	Change headline	Modify the description of purified smoke as follows: "Smoke generated from purified primary smoke condensates is used to smoke the product in a smoke kiln chamber" .	Liquid smoke is the general term used by the industry. 'Purified smoke' is related to a commercial brand.
65	10.4.3.1.4	Add text to clarify the differences between products made from conventional smoking and products made from liquid smoke procedures.	Modify the description of purified smoke as follows: "Smoke generated from purified primary smoke condensates is used to smoke the product in a smoke kiln chamber" .	The product resulting from applying liquid smoke is a different product than a product made with conventional smoking process. Liquid smoke (purified smoke) is not a smoking method, it is an additive and therefore if applying the traditional smoking method or applying purified smoke will result in two different products. According to the regulation on Food Information to Consumers 1169/2011), annex VII, Part D no. 1 (https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R1169&rid=1) flavouring used in food should be mentioned on the label in the list of ingredient. Smoke flavouring(s) can be designated either "flavouring", "smoke flavouring(s) produced from food(s) or food category or source(s) (e.g) smoke flavouring produced from beech), if the flavouring component contains flavourings as defined in Regulation 1334/2008 and imparts a smoky flavour to the food. In Regulation 1334/2008 defines 'smoke flavouring*': shall

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				mean a product obtained by fractionation and purification of a condensed smoke yielding primary smoke condensates, primary tar fractions and/or derived smoke flavourings as defined I points (1), (2) and (4) of Article 3 of Regulation (EC) No 2065/2003.
66	15.3.1.3	There are other substances either in the wastes or by-products, such as beet pulp' --> incorrect terminology.	Beet sugar factories valorize all parts of the raw material sugar beet by co-production of sugar, beet pulp, molasse etc. A further co-product is lime fertilizer from juice purification.	Terminology can lead to difference in various interpretations e.g. about food waste.
67	15.3.1.3	While the remaining by-products such as lime, beet pulp and weed are sold or reused => incorrect terminology. Figure 15.5. shows a typical process flow diagram .. on the production of waste, waste water and by-products. => Figure 15.5 should be re-drafted and the text of the description of the figure should be amended accordingly.	It seems that the box 'Waste Water' covers all the what is below (fluming water, washing water etc.) whereas this is not the case. This box should be deleted. The text "type and amount of waste water, waste and by-products .." should be changed to "major material streams during beet sugar production with relation to process water cycles operated".	This chart is misleading as process water is named as waste water and products are partly named waste or by-products.
68	15.3.1.5.1	Figure 15.7: a clarification is necessary that the data is expressed in norm, wet conditions.	Clarify the wet and dry conditions of data reported in the BREF.	Certainty purpose
69	15.3.1.5.3	Figure 15.8: same comment as comment number 4. Also, reference oxygen level (16%) must be added.	Clarify the wet and dry conditions of data reported in the BREF.	Certainty purpose
70	15.3.1.5.4	Figure 15.9: clarification necessary (comment n.5) + reference oxygen level (16%) to be added.	Clarify the wet and dry conditions of data reported and the oxygen level in the BREF.	Certainty purpose
71	15.3.1.5.5	Figure 15.10: for installation 112-2 bandwidth to be shown, not only the maximum value .	Update figure with the values	
72	15.3.1.5.5	Figure 15.10: clarification necessary about data: see comment number 5.	Clarify the wet and dry conditions of data reported in the BREF.	Certainty purpose
73	15.4.1.2	FBDs': abbreviation to be explained.	Footnote explaining abbreviation	Clarity
74	15.4.1.2	Economics': part to be deleted.	Add to the text that costs are site-specific and differ for new and existing plants. Keep the current text, but add that this is an example and cite the source of the figures.	Costs are very site specific and highly depend on green-field installation or modification of existing sugar factory.

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75	15.4.1.4	Description: change waste gas to hot flue gas.	The drying gas, e.g. air or hot flue gas, has a temperature between 500°C and up to 1000°C.	To be in line with chapter 17 (BAT 34).
77	15.4.1.6	Recycling of hot waste gases: change to recycling of hot gases	Recycling of hot gases'	To be in line with chapter 17 (BAT 34).
77	15.4.4.1.5	LTD of sugar beet pulp: add values.	Add 10-20 mg/Nm, wet at 21%? O ₂ for installation #287	See chapter 15.4.1.5.2.
78	17.1	"xxii energy efficiency plan (see BAT 6 a0)." Numbering has changed.	xxii energy efficiency plan (see BAT 6 a).	Editorial
79	17.1.3	"BAT 6: In order to increase energy efficiency, BAT is to use technique a0 and and an appropriate combination of the common techniques listed in technique a below." Numbering has changed.	"BAT 6: In order to increase energy efficiency, BAT is to use technique a0 and and an appropriate combination of the common techniques listed in technique a b below."	Editorial
80	17.1.5	The section included a BAT on the use of refrigerants without ozone depletion potential and with low GWP (BAT 9). BAT 9 was deleted prior to the Final Meeting even though only a minority of the TWG argued for deletion or relaxation of BAT 9. The deletion of BAT 9 was not planned to be discussed during the Final Meeting.	Reinsert BAT 9 in draft 1 of the FDM BREF	SE, DE, AT and EEB formulated a split view on the issue to reinsert BAT 9 which forms the underlying rationale for this comment. The split view was accepted. In short: + Deletion of BAT 9 is justified by the fact that BAT 9 covers issues that are generally controlled by the relevant EU regulations. However, other relevant EU regulations exist for other environmental issues, nevertheless we have developed BATC covering the same environmental issues. (SO ₂ from combustion; removal of mercury in non-ferrous metallurgical industries in NFM BREF; prohibition to use ozone depleting carbon tetrachloride for the elimination of nitrogen trichloride or the recovery of chlorine from tail gas in CLM BREF) + In the comments on Draft 1, there was only a minority of the TWG that argued for deletion or relaxation of BAT 9. Only two MS (FR, ES) and one industry organisation (EDA) argued for the deletion of BAT 9, and one (DK) and one industry organisation (CLITRAVI) for making it less stringent. Two MS and one industry organisation called for more precise wordings. + Section 2.1.6 of the Final Draft states that the main air pollutants from FDM processes are inter alia refrigerants containing halogen. (p39, Final Draft)

No.	Chapter	Comment description	Proposal for modification	Rationale
				<p>+ Section 2.3.4.5 contains information on the use of refrigerants without ozone depletion potential and with low GWP. (p128, Final Draft)</p> <p>+ All HFC are not covered by the Montreal Protocol or Regulation (EC) No 1005/2009 on substances that deplete the ozone layer or Regulation (EU) No 517/2014 on fluorinated greenhouse gases. E.g. Hydrofluoroolefins (HFOs) and hydrofluoroethers (HFEs) - not covered by any bans or commitments, only reporting obligations.</p>
81	17.1.5	Re-instate BAT 9 on use of refrigerants as per joint split views of EEB, AT, DE, SE	Reinsert BAT 9 in draft 1 of the FDM BREF	<p>See the split view provided. On procedural aspects: In the comments on Draft 1, there was only a minority of the TWG that argued for deletion or relaxation of BAT 9. Only two MS (FR, ES) and one industry organisation (EDA) argued for the deletion of BAT 9, and one MS (DK) and one industry organisation (CLITRAVI) for making it less stringent. Two MS and one industry organisation called for more precise wording.</p> <p>In spite of this weak support, the Bureau proposed to delete BAT 9. Further, which is even more astonishing, the Bureau proposed not to discuss this at the final TWG. Since Germany opposed to this, a short discussion could be held at the very end of the meeting, late Friday afternoon, after five full days of meeting. At that time there were also other leftovers/issues which others had lifted for a last commenting round. Hence, it was quite obvious to all participants that the Bureau would be very reluctant to reinstate BAT 9. Keeping BAT 9 as initially proposed in D1 received large support from the TWG and a few dissenting views. At least it is clear that this is the more balanced view from the various interest groups represented. Nevertheless, the EIPPCB removed BAT 9 as its "last offer". First this did not reflect what the majority of the TWG has expressed on that point and second it is contrary to the working mandate laid upon the collective TWG as to the objective of the BREF. <i>On the substance / technical arguments please refer to the split view.</i></p>
82	17.1.5	The section included a BAT on the use of refrigerants without ozone depletion potential and with low GWP (BAT 9). BAT 9 was deleted prior to the Final	Reinsert BAT 9 in draft 1 of the FDM BREF	+ Deletion of BAT 9 is justified by the fact that BAT 9 covers issues that are generally controlled by the relevant EU regulations. However, other relevant EU regulations exist for other environmental issues, nevertheless we have

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		<p>TWG Meeting even though only a minority of the TWG argued for deletion or relaxation of BAT 9. The deletion of BAT 9 was not planned to be discussed during the Final TWG Meeting (very little time could be dedicated at the issue).</p>		<p>developed BATC covering the same environmental issues. (SO₂ from combustion; removal of mercury in non-ferrous metallurgical industries in NFM BREF; prohibition to use ozone depleting carbon tetrachloride for the elimination of nitrogen trichloride or the recovery of chlorine from tail gas in CLM BREF)</p> <p>+ In the comments on Draft 1, there was only a minority of the TWG that argued for deletion or relaxation of BAT 9. Only two MS (FR, ES) and one industry organisation (EDA) argued for the deletion of BAT 9, and one (DK) and one industry organisation (CLITRAVI) for making it less stringent. Two MS and one industry organisation called for more precise wording.</p> <p>+ Section 2.1.6 of the Final Draft states that the main air pollutants from FDM processes are inter alia refrigerants containing halogen. (p39, Final Draft)</p> <p>+ Section 2.3.4.5 contains information on the use of refrigerants without ozone depletion potential and with low GWP. (p128, Final Draft)</p> <p>+ All HFC are not covered by the Montreal Protocol or Regulation (EC) No 1005/2009 on substances that deplete the ozone layer or Regulation (EU) No 517/2014 on fluorinated greenhouse gases. E.g. Hydrofluoroolefins (HFOs) and hydrofluoroethers (HFEs) - not covered by any bans or commitments, only reporting obligations.</p> <p>+ BAT 9 would be helpful even for industry. Following EU 517/2014 Annex V, a reduction of CO₂-eq. Emissions of 79% referring to 2015 is recommended. That means that industry must start NOW and change their refrigerants.</p> <p>+ In Germany F-gases are responsible for about 1.5% of the GWP, what is in the same order of magnitude of emissions from aviation.</p> <p>+ The use of natural refrigerants (e.g. hydrocarbons, CO₂, ammonia) is feasible</p>
83	17.1.5	<p>The section included a BAT on the use of refrigerants without ozone depletion potential and with low GWP (BAT 9). BAT 9 was deleted prior to the Final Meeting even though only a minority of</p>	Reinsert BAT 9 in draft 1 of the FDM BREF	<p>SE, DE, AT and EEB formulated a split view on the issue to reinsert BAT 9 which forms the underlying rationale for this comment. The split view was accepted.</p> <p>In short:</p>

No.	Chapter	Comment description	Proposal for modification	Rationale
		the TWG argued for deletion or relaxation of BAT 9. The deletion of BAT 9 was not planned to be discussed during the Final Meeting.		<p>+ Deletion of BAT 9 is justified by the fact that BAT 9 covers issues that are generally controlled by the relevant EU regulations. However, other relevant EU regulations exist for other environmental issues, nevertheless we have developed BATC covering the same environmental issues. (SO₂ from combustion; removal of mercury in non-ferrous metallurgical industries in NFM BREF; prohibition to use ozone depleting carbon tetrachloride for the elimination of nitrogen trichloride or the recovery of chlorine from tail gas in CLM BREF)</p> <p>+ In the comments on Draft 1, there was only a minority of the TWG that argued for deletion or relaxation of BAT 9. Only two MS (FR, ES) and one industry organisation (EDA) argued for the deletion of BAT 9, and one (DK) and one industry organisation (CLITRAVI) for making it less stringent. Two MS and one industry organisation called for more precise wording.</p> <p>+ Section 2.1.6 of the Final Draft states that the main air pollutants from FDM processes are inter alia refrigerants containing halogen. (p39, Final Draft)</p> <p>+ Section 2.3.4.5 contains information on the use of refrigerants without ozone depletion potential and with low GWP. (p128, Final Draft)</p> <p>+ All HFC are not covered by the Montreal Protocol or Regulation (EC) No 1005/2009 on substances that deplete the ozone layer or Regulation (EU) No 517/2014 on fluorinated greenhouse gases. E.g. Hydrofluoroolefins (HFOs) and hydrofluoroethers (HFEs) - not covered by any bans or commitments, only reporting obligations.</p>
84	17.1.6.a	Clarify that anaerobic digestion should include resource valorisation	Add to the description: "The digestate may be used e.g. as a soil improver."	This section concerns "resource efficiency". Anaerobic digestion should therefore be addressed regarding resource recycling and should not consider only energy recovery.
85	17.1.6.e	Clarification	Replace "high load" with "significant flow" in the applicability restriction.	Unclear what is meant by "high load". Presumably it does not refer to high PHOSPHORUS load (because >50 mgP/l is already specified). High ORGANIC load is not relevant for phosphorus recovery (and may even be counter-productive for struvite recovery).
86	17.1.6.e	Clarification	Replace "high phosphorus content" with "high total phosphorus content" in the	Struvite recovery can also be operated at levels of phosphorus significantly lower than 50 mgP/l. This depends

No.	Chapter	Comment description	Proposal for modification	Rationale
			applicability restriction.	on the other ions present, organics present, flow rate, pH buffering, etc. Struvite precipitation may be economic at much lower concentrations depending on the discharge phosphorus consent conditions.
87	17.1.6.e	Clarification	Replace "high phosphorus content" with "high total phosphorus content" in the applicability restriction.	Not clear if referring to total P or soluble P or mgP or mg-phosphate (P2O5) or PO4 ... NOTE: although struvite recovery is related to soluble-P (ortho-P) not Total P, it is logical to define the cut-off as Total P because Total P can be converted to soluble-P by chemical or biological digestion/hydrolysis processes.
88	17.4.4	Table 17.9: Numbering of the footnote is wrong	Start numbering of the footnote with "1"	Editorial
89	17.4.4	Table 17.9: Numbering of the footnote is wrong	Start numbering of the footnote with "1"	Editorial
90	18	An incorrect reference occurs in table 18.2 'Split views' (i.e. penultimate row).	7	Typo

ANNEX B: COMMENTS ON THE FINAL DRAFT OF THE BEST AVAILABLE TECHNIQUES (BAT) REFERENCE DOCUMENT FOR THE FOOD, DRINK AND MILK INDUSTRIES THAT ARE REPRESENTING THE VIEW OF CERTAIN MEMBERS OF THE FORUM

No.	From	Chapter	Comment description	Proposal for modification	Rationale
1	FoodDrinkEurope	4.4.1.5	Cross media effects: Energy consumption for running the heat exchanger, in case an intermediate cooling medium (glycol) is used (< 1% extra electricity consumption compared to the savings).	Move: "Energy consumption for running the heat exchanger, in case an intermediate cooling medium (glycol) is used (< 1% extra electricity consumption compared to the savings)."to Achieved environmental benefits Cross media effects: in case of retrofit, the stand-alone evaporator (e.g. with air blower) can be omitted, thereby saving electricity or when the CO2 is evaporated by water or steam savings in water consumption and heat will be achieved.	The proposed phrasing is better linked to the chapter title
2	Clitravi	10.4.3.1.1	Change headline 'adsorption'	Change headline to: Combined treatment (wet scrubber and adsorption)	As previously stated by 'Clitravi', carbon adsorption is not efficient on humid exhaust implying that adsorption will not work, unless pre-treatment has occurred. Please confirm this with the Italian representatives at the final meeting in TWG, who declared this was the case for the reference number 331. This information cannot be found in the original data collection scheme.
3	Clitravi	10.4.3.1.4	Meat products produced by applying purified (liquid) smoke instead of the conventional smoking method is not representative for the European meat industry. It cannot be used as a technique which can be used across production lines. It results in different products than the conventional smoking processes.	Accept split view on purified (liquid smoke) submitted by the meat industry through Clitravi.	The purpose of the BREF is "to reflect actual production techniques and emissions therefrom in relation to the environment". If this purpose is to be fulfilled, it is important that it is acknowledged in the BREF FDM that there is a misunderstanding in relation to the usage of purified smoke. The meat industry does not acknowledge this use of purified (liquid) smoke as a valid technique. Purified (liquid) smoke result in other products than conventional smoke. The aim of the BREF is not to regulate products but to regulate emission levels from processes. However, with the enforcement of purified smoke as a technique the BREF will regulate the product instead of the process. This issue needs to be clarified in the BREF - or the very least reflected in the BREF FDM through the split view.
4	Clitravi	10.4.3.1.4	Delete section 'environmental performance and operational data'	Delete section	It is a positive element in the BREF that it describes the environmental performance and operational data on liquid smoke. However the current description is being compared to conventional smoking. The meat products

No.	From	Chapter	Comment description	Proposal for modification	Rationale
					resulting from these two production processes are not the same and cannot be compared. Therefore liquid smoke is not an alternative to conventional smoking. the reference to the life cycle assessment is not relevant in an IED context. Data presented under environmental performance and operational data must be measured at an IED plant and must be represented to the TWG. The data in this section has not been a part of the data collection. The reference 286: Germany 2017 is labelled as 'personal communication'. This is not acceptable. The TWG has to be able to access and verify the data in the BREF. 'Personal communication*' does not meet this criteria. The process described is not a technique to reduce the emission from the process; it is a completely different process leading to a different meat product.
5	FoodDrinkEurope	15.3.1.1	The graph (Figure 15.3) does not reflect the final panel used to derive informative performance level of 0,15-0,4 in chapter 17.	The graph should be updated (at least data no. 1 and 2 should be deleted).	Incorrect data.
6	FoodDrinkEurope	15.3.1.5.1	Figure 15.7: installation 112 is missing.	Add installation 112	Completeness
7	FoodDrinkEurope	15.3.1.5.3	Figure 15.8: same comment as number 5.	Add installation 112	Completeness
8	FoodDrinkEurope	15.3.1.5.4	Figure 15.9: installation 112 is missing.	Add installation 112	Completeness
9	FoodDrinkEurope	15.4.1.3	Technical considerations relevant to applicability: change 'may' to 'typically'.	Typically not applicable due to local climatic conditions and/or lack of space'.	Precision
10	France, Sweden, European Environmental	17.1.2	On footnote (2): keep monitoring requirements for indirect releases for COD, TN, TOC, TP, TSS and BODn but allow for flexibility depending on the requirements of the downstream WWTP.	Replace footnote (2) by the following: "In case of indirect discharges, the monitoring frequency can be adapted according to the requirements of the downstream waste water	<ul style="list-style-type: none"> Removing the monitoring of parameters which have been identified as KEIs in indirect releases from BAT 4 does not make sense from an environmental point of view. As mentioned in the Background paper: "Monitoring of indirect discharges is usually regulated by bilateral agreements between FDM operators and downstream WWTPs". Including the monitoring of indirect releases in BAT 4 would acknowledge this practice as a good one in order to ensure that the releases can be properly treated downstream.

No.	From	Chapter	Comment description	Proposal for modification	Rationale
				treatment plant."	<ul style="list-style-type: none"> As required by articles 14 and 15 of the IED, ELVs must be set where the emissions leave the installation. Therefore monitoring of indirect releases is necessary for compliance check. In practice, monitoring provisions are part of the permits regardless of direct or indirect way of release. The frequency is based on national regulation and/or on the requirements of the downstream WWTP operator. Data collected through questionnaires during the BREF review shows that the majority of the IED FDM installations with indirect discharge have a monitoring in place.
11	European Environmental Bureau	17.1.2	Clarify what is meant with "relevant". It may be footnote number number 4 ...	p\Preferred option a) delete footnote 5 (4) or option b) Replace the words "identified as relevant" by "occurring".	<p>Footnote 5 (4) was introduced at the meeting because France and industry wanted to reduce the monitoring frequency for waste water monitoring. It was suggested by the EIPPCB as a compromise to prevent further weakening on the monitoring frequency. However the term "identified as relevant", gives too wide margin of discretion and flexibility to the competent authority to judge on what would be "relevant" occurrence of the substance to exempt the operator from monitoring requirements to water.</p> <p>The wording could be understood as providing flexibility to permit writers to use a "risk based approach" / or site specific conditions to dismiss monitoring altogether, even if the substance is occurring in the inventory / stream, which we understand is not the intention of the wording. The EIPPCB stated that the term "identified as relevant" would mean that the substance would be effectively present / detected in the inventory. We agree with this point but then suggest to make the wording crystal clear: the term "occurring" should be used instead, - permit writers would only do interpretation of wordings retained in the final text of the BAT-C, and not follow re-assuring opinions made by COM officials on the subject. Spain and Sweden supported the EEB proposal, no stakeholder opposed it except the EIPPCB, arguing on the basis of "consistency" with similar wording used in another BREF.</p> <p>This "consistency with similar wording used earlier" is not a sound argument to replicate -in our views similar mistakes- , if we are to deliver progress we should ensure the BAT-C text is clear and straightforward for implementation. As commonly reminded by DG ENV in the introductory remarks, BAT Conclusions should provide added value, be consistent with the EU Acquis objectives, and contain clear language (precise, coherent). These expectations are not met by using vague wording in footnotes, potentially enabling the use of loopholes for future implementation and thus undermining the environmental protection objectives. The COM takes an unduly risk promoting unlevel playing field in implementation or exploitation of loopholes due to imprecise wordings of BAT-C, the sole argument was</p>

No.	From	Chapter	Comment description	Proposal for modification	Rationale
					"drafting consistency" not the intended desired outcome on the substance . We think the latter objective overrides textual consistency concerns. We should not take a "wait and see approach" and realise in the implementation phase this simple wording improvement (more clear and precise in intentions) would have made a difference.
12	European Sustainable Phosphorus Platform	17.1.6.e	Specify requirements	Under Description, for Phosphorus Recovery, add: "The recovered phosphate product should be conform to quality requirements for fertilisers defined in the EU Regulation on Fertilising Products (when this comes into force) or should be saleable as an industrial chemical".	This ensures that the recovered phosphorus product has recognised quality, so enabling resource valorisation.
13	European Sustainable Phosphorus	17.1.6.e	Allow flexibility	Modify "Phosphorus recovery as struvite" to "Phosphorus recovery, e.g. as struvite" in column Technique for Phosphorus recovery as struvite.	'See rationale for comment n°14 in Annex A
14	Italy	17.1.7	In table 17.1, the BAT-AEL range for TP emissions from dairies does not adequately reflect the performances of the Italian best&well performing installations specifically selected for the purpose of the BRef plant-specific data collection.	In table 17.1, in the case of TP emissions from dairies, Italy firmly requests to increase the upper end of the BAT-AEL (for direct emissions to a receiving water body) to 7 mg/l.	As widely detailed and repeatedly stressed throughout the course of the FDM BREF review, the Italian dairy sector is characterized and rather specialized to produce multiple sub-categories of base milk and derivates as a fairly dynamic percentage [ref. <i>Final Draft (October 2018), page 328</i>], carrying out research-based adaptation to technical progress and constant optimization of raw material utilization, whenever necessary, and without prejudice to the very stringent hygiene and food safety requirements. Indeed, to follow the market demand, the plants should be able to quickly react in terms of products, volume, flexibility, new flavors, new proposal, freshness, etc., having considerable impacts on production schedule, changeover, flexibility, with the consequences of more frequent cleaning of equipment and process lines, tanks, fillers, to guarantee the requested service level and product portfolio. Such conditions generate a higher volume of liquid flow discharged to the WWTP as well as a higher concentration of e.g. phosphorus content therein. Based on the specific production condition, the TP content in the waste water might vary significantly according to several factors: - type of dairy products, seasonality and process technologies, particularly in

No.	From	Chapter	Comment description	Proposal for modification	Rationale
					<p>the case of formulated products based on cream and high fat content products;</p> <p>- chemical products used for washing operations (also related to machine cleaning) and their frequency, as well as lubricants, also related to packaging transport conveyors.</p> <p>Clear examples of the time variability of the performance levels were provided by the IT reference plants specifically selected for the purpose of the BREF data collection exercise [see e.g. IT reference plants: #313, #315]. It is expected that in the near future the production complexity will grow with lower production batches and a higher number formulated products. [ref. IT note DVA-2018-0013477 sent to the EIPPC Bureau on 12 June 2018]</p> <p>It should be noted that the outcomes of the assessment carried out by the EIPPC Bureau on such an issue confirmed the validity of the above mentioned considerations [ref. EIPPCB Document 'Assessment of split view rationales', Seville, 26 September 2018; Section 4.4.2, page 23; ref. Final Draft (October 2018), page 678].</p>
15	European Environmental Bureau	17.1.7	In table 17.1 remove the footnote 9 for TP so the upper range BAT-AEL is 2mg/Nm ³ for all sectors	Remove footnote 9	<ul style="list-style-type: none"> • Phosphorus removal is relatively easy, cost efficient and does not need any high-tech solutions. A biological WWTP working properly (achieving BAT-AELs with other parameters) can abate phosphorus to the level proposed in the split view with no changes or minor changes only (such as adding chemical co-precipitation). The chemicals used in phosphorus removal are often EOW products and therefore inexpensive. The cost for chemical precipitation using ferric chloride has been estimated being 2–5 €/kg(removed) (2 while the marginal benefits in phosphorus reduction in the Baltic Sea region are estimated being 200–1000 €/kg(3). • Current state of European surface Waters(⁴) and in particular the Baltic Sea is poor mainly because of eutrophication. Phosphorus is a key parameter in the eutrophication and the only parameter in increasing the cyanobacterial growth in the Baltic Sea in particular. Over a half of the nutrient load to the Baltic Sea is caused by agriculture. However, especially phosphorus removal from a point sources is an efficient and inexpensive way to reduce the total emissions. Allowing a high load for phosphorus for FDM industry also gives a wrong signal on the importance of abatement of nutrient emissions and the need to protect EU's surface waters. The phosphorus annual input e.g. to the Baltic Proper has been estimated being ca. 12.000 tons while the maximum allowable input is estimated being 7.000 tons(1). • 2 mg/l has been used as ELV in IED permits for many sectors in some member states for a long time. E.g. in Finland <2 mg/L is used as ELV in environmental permits for installations far below IED threshold.

No.	From	Chapter	Comment description	Proposal for modification	Rationale
					<ul style="list-style-type: none"> • Of the 200 reference plants that provided emissions data and specified a technique used, the majority achieve much less than 2mg/l, BAT-AEL should reflect the level of best performing plants and act as a driver towards improved environmental protection. • The emission limit value for phosphorous discharge to water is set up to 2mg/l for UWWTP. Direct discharge of phosphorous from FDM installations should not be put in a competitive advantage through more laxist BAT-AEL, the competent authority can even derogate from through Article 15(4) of the IED.
16	Denmark, France, Germany	17.2.3	Concerning the BAT AEL for channelled dust emissions to air from grinding in compound feed manufacture (BAT 16, table 17.4) there is no need to distinguish between new and existing plants. The very low BAT AEL of < 2 - 5 mg/Nm ³ for new plants gives a wrong message and is disproportionate. A limit value of 10 mg/m ³ leads already to very low real operating emissions which are considered as insignificant and marginal. A single BAT AEL for new and existing plants should be presented.	< 2 - 10 mg/Nm ³ ; no distinction for new and existing plants (the rationale equally applies for all BAT AELs for dust listed in this table).	<ol style="list-style-type: none"> 1. No distinction between new and existing plants: The distinction between new and existing plants and the very low emission level for new plants gives the wrong message that there is a problem to be addressed and a need for improvement. Such a distinction is not based on any technical arguments. 2. Need for a safety margin due to natural variation in emission: When setting ELVs in a permit, operators are obliged and competent authorities expect that ELVs are complied with under all normal operating conditions. Within a certain range, variations in raw materials, product types, air flow, performance of the abatement technique, etc. are normal. Therefore, it is necessary to leave a safety margin between measured values and the ELV. With an ELV of 10 mg/Nm³ the actual achieved emission levels will be well below 10 mg/Nm³ (and even below 5 mg/Nm³ in most cases), in particular when using a bag filter. But also then, emissions may still vary over time within a given range. This is reflected in the collected data where emission points with bag filters show actual emissions levels varying between < 2 and < 10 mg/Nm³ in different years (measurements once a year). In these cases the local authority has set ELVs of 10-20 mg/Nm³. Furthermore, lowering the BAT-AEL from < 2-10 mg/Nm³ to < 2-5 mg/Nm³ may also result in a higher frequency of the bag exchanges, higher control efforts of the filter performance, increased energy consumption, etc. for a parameter that is not considered relevant at the achieved concentrations (current performance with bag filters). 3. Limited environmental benefit compared to economic and cross media effects: <ol style="list-style-type: none"> a/ Normally, dust emitted from the FDM sector in concentrations released after bag filters is not perceived as key environmental issue. It is of different nature than dust emitted from the NFM or I&S sectors or from shredders of metallic waste, large combustion plants and waste incineration plants where heavy metals and POPs (or even dioxins) may attach to the dusty particles. b/ In addition, the reported air flow from relevant emission points of the FDM sector in many cases (e.g. for breweries and grain milling) is relatively low

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					<p>which leads to relatively low mass flows (g dust/hour). E.g. for a huge grain milling installation part of the data collection, there are 5 stacks concerned by the BAT-AEL for a total flow around 35 000 m³/h that leads to 70 to 175 g/h in real operating conditions. The low mass flows even at a large plant highlight the disproportionality of such a BAT-AEL.</p> <p>c/ Such a BAT-AEL may lead to increased energy consumption, and additional costs for the installation in terms of maintenance, energy and monitoring. Indeed increased cost of monitoring may be implied by the need to obtain an adequate uncertainty level for showing compliance with levels in the range 2-5 mg/Nm³ (for instance, in FR and DK, limits of quantification (LQ) required are set generally to 10% of the ELVs for air emissions). An expected increased time spent on sampling will increase the costs.</p>
17	Denmark	17.2.3	The BAT AEL on 20 mg/Nm ³ for emission of dust from pellet cooling for existing plants is not BAT for all types of existing installations in EU due to economic and cross media effects.	Add a footnote for pellet cooling stating that the upper level may not apply to existing installations producing expandat or similar products or feed that is heated to at least 81 degree for specific bacterial control (eg. Salmonella), and set an alternative upper level on 40 mg/Nm ³ for such installations.	<p>1) The data collected for the animal feed sector are sparse and do not represent the variation in dust emission due to product types, production methods (e.g. batch production) and climatic conditions throughout Europe. As an example, the production of expandat or similar products generates a type of dust, which is not represented in the collected data. This type of feed is widely produced in Denmark due to animal welfare. In addition, the Danish installations have a requirement due to heat the feed to at least 81 degree in order to minimize salmonella. This will require more steam consumption compared to other countries without the same requirement. Since this will influence the water content in the exhaust, it will have a higher water content and thus be more sticky compared to others The collected data are therefore not adequate for deriving BAT AEL's for such existing plants. 2) When new cyclones are established at a new plant, these are designed and dimensioned based on a balanced approach taking into account product type, air flow, energy consumption and permitted emission level. The emission level will depend on cyclone speed, and hence on energy consumption. Demanding a lower emission at existing plants than cyclones are initially dimensioned for, may require costly retrofit of the installations and lead to higher energy consumption. An emission level of 20 mg/Nm³ may therefore not be BAT due to economic and cross media effects. As an example, the total cost of retrofitting existing plants in Denmark is estimated to 12 mio Euros for the sector (in average 550.000 Euros per plant). In addition to this, the cost of increased maintenance is estimated to 147.000 Euros per year for the sector (in average 6.700 Euros per plant). The cost of increased energy consumption is estimated to 127.000 Euros per year for the sector (in average 5.800 Euros per year per plant). This cost is equivalent to an increased energy consumption of 1.600.000 kwh/year for the sector. The BAT AEL for pellet cooling of 20 mg/Nm³ will not be BAT for most existing plants in Denmark due to economical and cross media</p>

No.	From	Chapter	Comment description	Proposal for modification	Rationale
					consequences.
18	Copa-Cogeca	17.2.3	Copa-Cogeca supports the split view submitted by FEFAC together with DK, FR and DE submitted on BAT 16 in relation to the BAT-AEL of <2-5 mg/Nm ³ set for dust emissions from grinding in new plants.	To set at <2-10 mg/Nm ³ the BAT-AEL for dust emission from grinding for both new and existing plants	Copa-Cogeca supports the rationale taken from the split view: <ul style="list-style-type: none"> • Dust emitted by feed mill is not harmful for the environment • According to EN 13284-1:2001, the minimum level to achieve accurate measurement according to this standard of dust is 10 mg/Nm³. BAT AELs for dust emissions should therefore be formulated according to these levels. • Emissions of dust depend on many parameters: type of process (expansion means more dust), type of feed material used (different dusting potential from different feed ingredients used), climate (low temperature means more sticky dust and therefore need to use cyclones that are less efficient for dust emission abatement).
19	Copa-Cogeca	17.2.3	Copa-Cogeca as well as Denmark submitted a split view on BAT 16 channelled dust emissions to air from pellet cooling to expand the emission levels from <2-20 mg/Nm ³ to <2-40 mg/Nm ³	Add a footnote stating that the upper level may not apply to existing plants and to set an upper level on 40 mg/Nm ³ that only apply to existing plants.	The rationale is taken from the split view: <ul style="list-style-type: none"> • The data gathered during the BREF revision process is not sufficient enough to establish BAT-AELs for pellet cooling for existing plants. The thinly gathered data does not reflect the variation in dust emission because of product type, variation in production methods across the EU. With such a limited set of data it is not acceptable to derive BAT-AEL for existing plants (See REF J). • The proposed emission level on 20 mg/Nm³ is not Bat. When a new plant is established, new cyclones are designed and dimensioned to the production at the plant taking into account product type, air flow, energy consumption and permitted emission level. However, the emission level on existing plants correlate to both the used cyclones and the energy consumption. Setting a lower emission level than the cyclones at existing plants are designed for, will result in a costly retrofitting of the installations and therefore lead to higher energy consumption. The economic cost will be too high. The BAT ultimately dictates that an entire plant will have to be replaced. It is not just a matter of replacing a filter (See REF A). <p>The focus of the BREF is to handle major key environmental parameters. It is our estimation that this type of dust and the emission level from this type is not regarded as a major key environmental parameter at national level.</p>
20	FEFAC	17.2.3	FEFAC together with DK, FR and DE submitted a split view on BAT 16 in relation to the BAT-AEL of <2-5 mg/Nm ³ set for dust emissions from grinding in new plants.	To set at <2-10 mg/Nm ³ the BAT-AEL for dust emission from grinding for both new and existing plants	See Split view <ul style="list-style-type: none"> • According to EN 13284-1:2001, the minimum level to achieve accurate measurement according to this standard of dust is 10 mg/Nm³. BAT AELs for dust emissions should therefore be formulated according to these levels. • Emissions of dust depend on many parameters: type of process (expansion means more dust), type of feed material used (different dusting potential from different feed ingredients used), climate (low temperature means more sticky

No.	From	Chapter	Comment description	Proposal for modification	Rationale
					<p>dust and therefore need to use cyclones that are less efficient for dust emission abatement).</p> <ul style="list-style-type: none"> The data set for dust emissions from grinding is based on a limited pool of compound feed manufacturing plants not representative whether geographically or in terms of diversity of scenarios (see above parameters), in particular in terms of type of feed materials used which varies significantly across the EU (more cereals in the south and east, more co-products in the north).
21	Denmark, France, Germany	17.3.4	<p>Concerning the BAT AEL for channelled dust emissions to air from channelled dust emissions to air from handling and processing of malt and adjuncts (BAT 19, table 17.7) there is no need to distinguish between new and existing plants. The very low BAT AEL of < 2 - 5 mg/Nm³ for new plants gives a wrong message and is disproportionate. A limit value of 10 mg/m³ leads already to very low real operating emissions which are considered as insignificant and marginal. A single BAT AEL for new and existing plants should be presented.</p>	<p>< 2 - 10 mg/Nm³ for new and existing plants (the rationale equally applies for all BAT AELs for dust listed in this table)</p>	<p>See above</p>
22	Italy	17.4.2	<p>In table 17.9, for 'Market milk', a different 'upper end' of the BAT-AEPL range should be added for those installations also producing yogurt and 'process cheese'.</p>	<p>In table 17.9, Italy firmly requests to include a footnote associated to 'market milk' installations (first row), as follows: - The upper of the range is 4.5 m³/ton of raw material when producing yogurt and 'process cheese'.</p>	<p>As repeatedly emphasised throughout the course of the FDM BRef review, the production of yogurt and 'process cheese', even if in limited quantities (e.g. 20% alone or less) may significantly affect the overall water consumption of an installation mainly (i.e. at least 80%) devoted to the productions of 'Market milk', due to the high volume of water used in processing methods and the strong limitation of water recycling and/or reuse associated to the very stringent hygiene and food safety requirements currently in place (depending on the type of multiple sub-categories of base milk and derivatives produced by the plants). <i>[ref. IT note DVA-2018-0013477 sent to the EIPPC Bureau on 12 June 2018]</i></p> <p>It should be noted that the outcomes of the assessment carried out by the EIPPC Bureau on such an issue confirmed the validity of the above mentioned considerations <i>[ref. EIPPCB Document 'Assessment of split view rationales', Seville, 26 September 2018; Section 6.1, page 34; ref. Final Draft (October 2018), page 678].</i></p>

No.	From	Chapter	Comment description	Proposal for modification	Rationale
23	Denmark, France, Germany	17.8.2	Concerning the BAT AEL for channelled dust emissions to air from channelled dust emissions to air from grain milling (BAT 27, table 17.15) the very low BAT AEL for dust of < 2 - 5 mg/Nm ³ plants is disproportionate. A limit value of 10 mg/m ³ leads already to very low real operating emissions which are considered as insignificant and marginal.	< 2 - 10 mg/Nm ³ (the rationale equally applies for all BAT AELs for dust listed in this table).	See above, except item 1.
24	Italy	17.10.2	In table 17.20, for 'Stand-alone refining', a different 'upper end' of the BAT-AEPL range should be properly acknowledged for specialty oils and fats refineries processing crude and/or refined oils for specific functional or nutritional applications.	Italy requests to supplement the table 17.20 with an additional footnote (associated to 'stand-alone refineries'), as follows: Stand-alone refining BAT-AEPL (yearly average): 0.15 - 0.9 m ³ /tonne of oil produced ⁽¹⁾ ⁽¹⁾ The upper of the range is 2 m ³ /ton of oil produced for specialty oils and fats refineries processing crude and/or refined oils for specific functional or nutritional applications.	The BAT-AEPL range for 'Stand-alone refining' does not take into duly account the performances of the specialty oils and fats refineries processing crude and/or refined oils for specific functional or nutritional applications. The above mentioned processing may include specific refining steps such as hardening (or hydrogenation of oils), fractionation or interesterification, with the aim of giving the oil physical characteristics needed for the end application. In particular, for the hardening step the water consumption is acknowledged between 0.8 and 2 m ³ of drinking water and/or demineralised water per tonne of product [ref. Final Draft (October 2018), page 511]. Furthermore, the interesterification step is reported as a particularly water-intensive process due to the use of liquid ring pumps, which are associated with waste water generation as a cross-media effect [ref. Final Draft (October 2018), page 519]. It seems also clear that to make edible some vegetable oils, additional passages of deodorization and discoloration are necessary compared to those carried out by the traditional "stand-alone" refineries. In the lights of the above, Italy recommends to point out the peculiarity of those refining step within the table 17.20, by means of a dedicated footnote. [ref. IT note DVA-2018-0013477 sent to the EIPPC Bureau on 12 June 2018] It should be noted that the outcomes of the assessment carried out by the EIPPC Bureau on such an issue confirmed the validity of the above mentioned considerations [ref. EIPPCB Document 'Assessment of split view rationales', Seville, 26 September 2018; Section 8.1, pages 39-40; ref. Final Draft (October 2018), page 679].
25	Denmark	17.10.3	Concerning the BAT AEL for channelled dust emissions to air from channelled dust emissions to	< 2 - 10 mg/Nm ³ ; no distinction for new and existing plants (the	See above

No.	From	Chapter	Comment description	Proposal for modification	Rationale
			<p>air from handling and preparation of seeds as well as drying and cooling of meal (BAT 30, table 17.21) there is no need to distinguish between new and existing plants. The very low BAT AEL of < 2 - 5 mg/Nm³ for new plants gives a wrong message and is disproportionate. A limit value of 10 mg/m³ leads already to very low real operating emissions which are considered as insignificant and marginal. A single BAT AEL for new and existing plants should be presented.</p>	<p>rationale equally applies for all BAT AELs for dust listed in this table)</p>	
26	Denmark, France, Germany	17.12.3	<p>Concerning the BAT AEL for channelled dust emissions to air from channelled dust emissions to air from starch, protein and fibre drying (BAT 33, table 17.27) there is no need to distinguish between new and existing plants. The very low BAT AEL of < 2 - 5 mg/Nm³ for new plants gives a wrong message and is disproportionate. A limit value of 10 mg/m³ leads already to very low real operating emissions which are considered as insignificant and marginal. A single BAT AEL for new and existing plants should be presented.</p>	<p>< 2 - 10 mg/Nm³; no distinction for new and existing plants (the rationale equally applies for all BAT AELs for dust listed in this table)</p>	See above
27	European Environmental Bureau	17.13.3	<p>We disagree with the substantive alteration made on the dust emission levels associated with sugar beet drying, despite lengthy debate at the Final TWG meeting on this point. The new proposal changes the focus of lower emissions to be achieved by LTD / alternative techniques to the HTD. HTD comes with significantly higher emissions so should not be</p>	<p>In table 17.30 (dust BAT-AEL) 1a) retain the chapeau heading as it was expressed previously, not providing an implicit BAT preference to HTD option or 1b) slightly amend the chapeau introduction and insert at the end " provided that neither BAT 35d, nor</p>	<p>The EEB disagrees with the fundamental alteration of the Final TWG outcome on the dust emissions from beet pulp drying. The extreme level of 100mg/Nm³ is an embarrassment for the BREF process if maintained because it is a worse outcome compared to the previous BREF. 12 years ago, the FDM BREF of 2006 (page 546) concluded that for HTD (Dust) "The dust concentration in the air after cyclone treatment of the five sugar installations using natural gas was about 35 mg/Nm³, while two factories using coal for their boiler and heavy oil/natural gas for the drying, had an average dust concentration of about 82 mg/Nm³. The emissions of 50 – 60 mg/Nm³ wet dust and 0.08 kg TOC/t of sliced beet have been reported from Germany, measured under reference conditions 12 vol-% O₂ content of air.</p>

No.	From	Chapter	Comment description	Proposal for modification	Rationale
			<p>considered the primary BAT option to drying beet pulp (as is implicit in the revised BAT-C). The footnote should therefore be kept because it gives direction as to what levels could be achieved through different techniques of drying. Irrespective of previous, the dust higher BAT-AEL level (100mg/Nm³) needs to be brought down to max 30mg/Nm³ as suggested by Germany at the Final TWG. This level was not opposed by the various stakeholder interest groups present.</p>	<p>BAT35e, nor BAT35f cannot be implemented", 2) retain the footnote 1 as agreed at Final TWG that levels below 5mg/Nm³ is typically achieved by using low temperature drying techniques 3) amend the upper BAT-AEL range to 30mg/Nm³.</p>	<p>The dust in the exhaust air of a drier also depends on the moisture content of the dried pulp. A solid content above 91 % may lead to higher dust in the air. The solid content needs to be higher than 86 % because a higher moisture content can reduce the biological stability of the pulp." This text is not a conclusion for BAT-AEL levels but represents observed emissions 14 years ago.</p> <p>If operators would just manage better the pre-drying process (with LTD and applying BAT 34+35 which includes mechanical pressing prior to pulp drying, steam dryers as well as solar drying) and / or use natural gas with proper cyclone abatement when doing HTD then the level of 35mg/Nm³ is met. With this very large BAT-AEL range and disappearance of footnote 1 to explain how the lower end of the range can be achieved, any incentive for environmental improvement is lost, this also included a combined approach of applying various techniques to lower emissions from drying or alternative techniques to HTD, which is the more practiced standard technique - but not the "best" way of drying sugar beet pulp, especially if the range of 100mg/Nm³ is kept. Further there are at least 2 ref plants from Spain that demonstrated that the lower range of emissions can be achieved for sugar beet drying (solar drying) and other data from Germany (ref plant 112) show the lower emission levels are achieved with LTD. procedural point: We fundamentally disagree with the EIPPCB view expressed by email of 20 July 2018 stating that one data set of one ref plant "is considered insufficient to set a BAT-AEL range". This viewpoint is not in line with the BREF review rules. We would ask for a clarification from the European Commission on how they understand the BREF review rules explicitly stating (at page 17)."It should be noted that evidence (i.e. solid technical and economic information) to support a technique as being BAT can come from one or more installations applying the technique somewhere in the world. In cases where the information on the technique comes from only one installation and/or only from installations located in third regions, a thorough assessment of the applicability within the sector will be carried out by the TWG. " We doubt that this thorough assessment of applicability has been carried out.</p>

28	European Environmental Bureau	17.13.3	<p>First the upper end of the range in Table 17.31 needs to be brought down to max 70 mg/Nm³. Second a clarification of the chapeau heading is needed, so to not give a misperception to permit writers that these extreme levels are usually met, therefore the gaseous fuels availability issue should be clarified in a footnote.</p>	<p>in Table 17.31 1) amend the BAT-AEL (upper range) from 100 mg/m³ to 70 mg/m³ and 2) Add in the footnote 1: "The upper range of the emission level of up to 70mg/Nm³ is achieved when the operator has to exceptionally resort on other fuels than natural gas due to energy network constraints".</p>	<p>As to proposal for modification 1 (upper range down to 70mg): if status quo is preserved then the revised BREF would consistute an embarrassment as to the claim to set state of the art performance benchmarks for the sector, because it would not drive any progress compared to the previous FDM BREF on that parameter but rather reflect currently observed emissions from underperforming plants using unfavorable fuels.</p> <p>The main points of the EEB split view:</p> <ul style="list-style-type: none"> • for existing plants, BAT 21 of the LCP BAT Conclusions defines for coal and lignite boilers with 100-300 MWth (typical beet pulp dryer capacity) a BAT-AEL for SOX converted to 32 - 67 mg/m³. Therefore it is consistent to require 70 mg/m³ as an upper BAT-AEL level, which is also data-driven (4 ref plants using coal (352-4, 352-2, 352-3, 414-2) achieve average and maximum SOX emissions below 70 mg/m³ in all three measurement campaigns and 3 ref plants using coal (352-1, 412-1, 412-2) achieve average and maximum SOX emissions below 70 mg/m³ in two of three measurement campaigns. Those are the "typical" emission ranges achieved, some of those plants do not even use the FGD to its technical capacity. or we could rather state those are "historic" emissions, because some of those ref plants date even back to 1925! Ref plant 111_1 (lignite fired) even dates back to 1865, the scrubber has been fitted in 2008 and despite an ELV of 820mg/Nm² achieved SOX values of 74,5 mg/Nm³ at 95th percentile in 2014. • At the Final Meeting it was agreed to define as BAT 43 d): "Use of fuels with low sulphur content", combined with the applicability restriction: "Only applicable when natural gas is not available". Therefore the BAT-AEL refers only to the use of low sulphur fuels. Typically these have a sulphur content of less than 0.5 %, but as the value was not defined, also 1% may be regarded as "low sulphur fuel", therefore it is important to amend the upper BAT-AEL to prevent from unnecessary high sulphur emissions not linked with viable technical solutions or incentive to burn low quality cheaper) fuels with higher environmental burden. • One reference plant using fuel oil (413-2) achieves average and maximum SOX emissions below 70 mg/m³ in two of three measurement campaigns (continuously measured). This is an "ancient" plant dating back to 1912! <p>As to proposal no 2, introduction of footnote on the use of other fuels than gaseous fuels:</p> <p>The industry acknowledged that the standard fuel is natural gas, only in case of network supply constraints, where the network provider restricts the natural gas fuel availability, the operator may be temporarily forced to rely on alternative backup fuels. This exceptional character of the resulting high SOX emissions should be reflected in the BAT-AEL through a clearer wording of the footnote, making it clear that the use of coal/lignite is not BAT.</p> <p>In order to better reflect the common understanding made at the Final TWG</p>
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					meeting, the heading of the table as to the non availability of gaseous fuels should be clarified in a footnote, it was specified by industry that those high emission levels are reached if the operator <u>has to exceptionally resort on other fuels than natural gas due to energy network constraints</u> . The industry acknowledged that. This exceptional character of the resulting high SOx emissions should be reflected in the BAT-AEL through a clearer wording of the footnote, making it clear that the use of coal/lignite is not BAT / and in any case the resulting emissions should stay below 70mg/Nm ³ (see point 1)
29	Denmark, France, Germany	17.2 17.3 17.8 17.10 17.12	Other measures can be more relevant than lowering the BAT AELs: Instead of simply lowering BAT AELs for dust that, according to BAT 5, is monitored by once every year, a measure for improvement could be added to the BAT conclusions: Continuous qualitative control of the normal operation of the filter (functioning and efficiency) e.g. by differential pressure measurement or by triboelectric measurement methods.	Add a footnote in Tables 17.4, 17.7, 17.15, 17.21, 17.27 concerning the BAT-AELs which would read "Continuous qualitative control of the normal operation (functioning and efficiency) of the bag filter is conducted, e.g. by differential pressure measurement or by triboelectric measurement methods".	This would give added value since it would support the control of performance without removing the safety margin (that is still needed). Additional benefit of continuous qualitative monitoring is that it would also serve as a tool to justify where and when emissions are considered to be sufficiently stable to reduce monitoring frequencies (e.g. footnote (2) in BAT 5 of the FDM-BREF: "If the emission levels are proven to be sufficiently stable, a lower monitoring frequencies can be adopted (...)").
30	FoodDrinkEurope	17.2 17.3 17.8 17.10 17.13		Add a footnote in Tables 17.4, 17.7, 17.15, 17.21, 17.27 concerning the BAT-AELs which would read "Qualitative control of the normal operation (functioning and efficiency) of the bag filter is conducted, e.g. by differential pressure measurement or by triboelectric measurement methods, or other equivalent measure".	