HAZBREF Interim Stakeholder Meeting in Tallinn

Background paper for the breakout groups on Day 2, Wednesday 22 May 2019

Topic 1: What are "substances of concern" in industrial emissions?

Moderated by Nannett Aust & Johann F. Moltmann, UBA

Background

Criteria for determining best available techniques (BAT) are, for example, the reduction of emission of hazardous substances or the use of less hazardous substances (Annex III, 2. IED). Under the IED-regime, BREFs and their corresponding BAT conclusions already address to a certain extent the use and potential release of chemicals which are used in particular industrial activities. However, the magnitude of potentially hazardous substances is not addressed in a systematic and comprehensive manner. In order to minimise the release of hazardous chemicals into the environment, it is in particular necessary to improve BATs for substances which show a hazard potential either in toxicological respect or with regard to fate and behaviour in the environment.

The potentially large number of chemicals used in industrial processes, their varying intrinsic properties, the different abatement efficiencies and the overall concern they may cause suggests seeking certain target substances of particular relevance for industrial sector subject for BREF reviews. It is important to keep in mind, that BAT apply only for chemicals used at industrial sites; the whole field of consumer use and protection, releases during the post-industrial life-cycle, as well as waste issues are not considered under the IED (out of scope). This drastically reduces the relevance of many substances for consideration in BREFs, even if they show a widespread occurrence in the environment (resulting from professional and consumer use).

The European Chemicals Regulation REACH (EC) No 1907/2006 explicitly addresses 'the prevention and control of emissions to the environment from industrial sites following the principles laid down in the Industrial Emission Directive (IED) and the BREFs' (cf. Guidance on Information Requirements and Chemical Safety Assessment, Part D: Framework for exposure assessment, Version 2.0, August 2016, page 11 ff.).

'The particular role of **REACH** in the interaction with the other pieces of legislation is the generation and communication of **substance specific information** with regard to the hazards intrinsic to the substance, the properties determining the behaviour of the substance and the required conditions to ensure safe use all along the supply chain (including waste treatment). Downstream users will know best how their installation or product is designed in order to comply with the different legislations they are subject to. However, the **REACH information brings a substance-focussed dimension** to safe use of chemicals that complements the **site-specific approach (taken under IED** or the Chemical Agents Directive (CAD) and the Carcinogen and Mutagens Directive, CMD)' (ibid. 12).

'Substance specific information provided in exposure scenarios will support operators in identifying the most relevant substances (in terms of hazard), their environmental fate and measures to prevent or reduce emissions' (ibid. 13).

During the initial phase of the WP 2, it became obvious that the identification of target substances should be based on a selection of substances from the chemical universe (i.e. substances registered in Europe) with regard to their use in specific industrial sectors (i.e. textile industry, surface treat-

ment of metals and plastics, polymers and fertiliser additives), as well as with regard to intrinsic properties of concern. For individual chemicals, but not for technical functions, such hazard and environmental fate information is available in the ECHA CHEM database and requires sophisticated search strategies. The problem with this approach is, that is has been done under various aspects many times already and usually results in a large number of priority substances, which for practical reasons has to be narrowed down with respect to their possible relevance for BREFs. This may be carried out by applying criteria related to industrial use of hazardous substances and their partition to the compartments air, water, products or waste. However, in the course of the HAZBREF project it was repeatedly highlighted that not only a substance lists of chemicals used in a BREF-sector that should be avoided are needed, but also information related to substances that present certain functional chemicals groups and that have a high potential to be released into the environment. Those chemical groups should be identified together with their inherent biodegradability/ eliminability and presented with appropriate abatement techniques that allow the reduction of emissions of these pollutants to the environment.

Guiding questions for the 4 rounds of topic 1 are (to be addressed in sequence):

- Clarification of the terms "hazardous", "substances of concern", "substances relevant for BREFs", "substances relevant for the environment";
- What should HAZBREF understand under the term “relevant target substances”? Is a focus on lists of individual substances helpful, or should the BREF-process focus on functional substance groups?
- How do operators currently identify hazardous substances? Do competent authorities exhibit any control of the selection and release of substances with low biodegradability?
- Which are the expectations from the BREF TWG and/or operators towards possible support a project (such as HAZBREF) may provide with regard to substance properties data? Is there an overlap in the understanding of the terms "hazardous" and "concern" between regulators and data users?
- What is for your understanding of the original meaning of "BAT"? Does it also include measures for preventing and reducing emissions caused by chemicals that are not retained by abatement techniques? What should be the impact of applying BAT with regard to hazardous substances?
- What do the reviewers of BREFs (TWG) want to achieve with BATs on relevant chemicals? What do TWG members expect from HAZBREF?

According to the schedule, each of the four groups will discuss each topic. In the case of topic 1, the idea is not to repeat the same discussion with each group, but to build on the outcome of each group one after the other. This has the advantage that more questions may be discussed and the overall outcome is broader.

For this topic, the moderator is accompanied by a provocateur who fuels the discussion with pointed remarks and a person who records the discussion on a flipchart. Discussions may be supported by, for example, a poster, were participants give votes or make remarks.

Topic 2: IED and other substance-related EU-legislation: Use of available data to enhance implementation

Moderated by Michael Suhr, UBA

Background

This session discusses the interaction and interface between various legislative frameworks that aim to protect the environment from adverse effects caused by the use of chemicals, namely, the Water Framework Directive (WFD), REACH, the POP-Regulation and the Industrial Emission Directive (IED). The different regulations establish different provisions and use different concepts and tools but they share a common objective: the prevention and reduction of emissions of hazardous substances. The industrial installation will be placed in the centre of the discussion in this break out-group. We will explore the role that other regulations should have in the permitting and supervision process of installations in order to develop a sound management of chemicals in industrial installations that is efficient and effective. Are there common standards for a chemical management that may qualify as BAT? Would a better transfer of knowledge and information support the implementation of risk reduction measures including an easier accessibility to data on chemicals?

The ***WFD*** establishes a comprehensive regime for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The WFD specifies the following objectives in relation to chemical pollutants:

- to **prevent deterioration of surface and groundwater quality, and to achieve good status for surface water and groundwater**;
- to **progressively reduce pollution from priority substances** and cease or phase out emissions, discharges and losses of priority hazardous substances to surface waters by adoption of control measures;
- to reverse any significant and upward trend in the concentration of any pollutant resulting from the impact of human activity.

The list of polluting substances to be considered in BAT Reference Documents and BAT conclusions respectively that are elaborated in the IED context include substances listed in Annex X to Directive 2000/60/EC. The break out group will discuss whether current Technical Working Groups and the EIPPCB are good enough when elaborating BAT in this regard or do we need to develop a more systematic and comprehensive approach?

REACH aims at the safe use and handling of substances and mixtures on the European market. For all substance produced in or imported to the European Union in quantities of one tonne or more per year, per company, information about uses and hazardous properties shall be provided in a registration dossier. The objective of REACH is "*to ensure a high level of protection of human health and the environment, including the promotion of alternative methods for assessment of hazards of substances (...)*" (Art. 1 par. 1 REACH).

REACH is based on the principle of placing greater responsibility on industry. That means, it is the task of manufacturers, importers or downstream users to ensure that they manufacture, place on the market or use only those substances that do not adversely affect human health or the environment. The rule is: *"no data - no market".* The regulation also promotes the progressive substitution of the most dangerous chemicals – the so-called **s**ubstances of **v**ery **h**igh **c**oncern (SVHC). The break out group will discuss whether the implementation of risk reduction measures are good

enough to ensure a high level of protection of the environment or is it recommendable to develop more support by the BAT concept of the IED? REACH is not the only legislation in the EU aiming to protect human health and the environment from adverse effects caused by manufacture and use of chemicals. E.g. companies using substances as such or in mixtures also have risk management obligations under the IED.

The aim of the **IED** is to **prevent and reduce emissions to the environment from industrial sites** by setting permit conditions based on the use of best available techniques (BAT). Criteria for determining BAT (Annex III, No. 2 IED) include the use of less hazardous substances. BAT conclusions published as Implementing Decisions shall be the **reference for setting the permit conditions**. Competent authority shall set emission limit values that ensure that emissions do not exceed the emission levels associated with the techniques described within these BAT conclusions.

The particular role of **REACH** in the interaction with the IED is the generation and communication of ***substance specific information*** with regard to the hazards intrinsic to the substance, the properties determining the behaviour of the substance and the required conditions to ensure safe use along the supply chain. ***REACH*** information brings a ***substances-focused dimension*** to safe use of chemicals ***that complements the site-specific approach taken under the IED***. The challenge is to combine both approaches in an intelligent and less burdensome manner. And to also be aware of potential priority substances released from their installations.

Operators are not always in a position to use systematically the substance-specific data provided in REACH exposure scenarios for identifying the most relevant substances (in terms of hazard), their environmental fate and measures to prevent or reduce emissions.

The still intermediate report "*Analysis of the interfaces, links or gaps between the different pieces of EU-legislations*" drawn up in the context of Work Package 3 of HAZBREF revealed that there is room for strengthening the link and synergies between the different legislative frameworks (REACH, WFD, POP-regulation and IED). BAT conclusions could support in particular the implementation of measures required under the umbrella of the WFD and REACH. For example, the report suggests that the relevance of the following groups of substances should be assessed as a routine procedure during the front-loading phase of BREF reviews:

- *Priority hazardous substances* (Annex X WFD): BAT requirements for these substances should strive for achieving (almost) zero emission in order to implement the phasing out target;
- *Priority substances* (Annex X WFD): BAT requirements for these substances should aim at a minimisation of releases; in addition it should be ensured that the emissions of one facility for itself does not exceed the EQS;
- *Watch list of substances for Union-wide monitoring in the field of water policy.* Not necessarily be considered for BAT requirements. However, BREF reviews should consider those substances identified as relevant and that prospectively may become priority substances;
- *River Basin Specific Pollutants (RBSPs) identified in certain EU Member States and released from industrial installations*, under certain conditions, also could qualify for key environmental issue (KEI) for BREF reviews, e.g. if identified as RPSP in at least 3 Member States;
- *Substances relevant for groundwater protection being subject to threshold value setting* (GWD Annex II pollutants) should be considered in order to minimize introduction of those substances into water bodies via inter alia airborne pollutants or industrial discharges.

These suggestions are subject to results of discussions with Member States, industry, environmental NGOs and the Commission and have the status of mere proposals from HAZBREF. They are part of the proposed questions for discussion in this break out-group (see question 4 below).

The following questions are proposed for discussion in this break out-group:

- In your view, what is the role of the IED and BAT conclusions with regard to chemicals management in companies that use substances that may have adverse effects to the environment? How do you see the role of REACH in this context? What is the role of the WFD and the POP-regulation?
- If you agree that a better communication and use of generated data from different expert communities such as REACH, WFD, POP-regulation and the IED may create benefits, do you have proposals how this improvement could be achieved?
- Do you have ideas for a practical method how to include more systematically information on hazardous substances in BREFs? What aspects are relevant when developing a methodology for addressing hazardous substances more systematically and at the right time in BREF process?
- Should BAT conclusions include routinely an assessment of the occurrence and release of priority substances identified in the context of the Water Framework Directive (and of the POP-regulation)? Can you give examples of substances that have been overlooked in BREFs?
- Where starts and ends the responsibility of competent authorities that are in charge of controlling industrial emissions? Do their responsibilities sufficiently include potential emissions caused by the use of chemicals in installations including priority substances?
- A key tool for carrying out industry's own responsibility for chemicals used in their processes are safety data sheets (SDS) that should contain relevant information from the Chemical Safety Assessments and exposure scenarios. Do you have evidence whether this information is incomplete regarding biodegradability, acute/chronic toxicity including CMR or endocrine effects?
- If there are gaps in SDS, do you think this should be improved by greater dissemination and transfer of information within the supply chain only (e.g. improving transparency of and accessibility to such information), or should this be supported by permit requirements?

Participants of the conference may propose additional questions!

Topic 3: BATs for management of hazardous chemicals.

Moderated by Janusz Krupanek, IETU

Background

Application of Best Available Techniques (BAT) at industrial installations is the key element of the Directive 2010/75/EU on industrial emissions (IED). The IED is the main European Union instrument regulating emissions of pollutants released from industrial installations. The Directive aims to achieve a high level of protection of human health and the environment taken as a whole by reducing industrial emissions in the EU. The IED is based on an integrated approach meaning that the permits must take into account the whole environmental performance of the plant, covering e.g. emissions to air, water and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, and restoration of the site upon closure.

In principle, the permit conditions including emission limit values must be based on the Best Available Techniques (BAT). BAT Reference Documents (BREFs) and BAT conclusions are the result of an exchange of information between experts from Member States, industry, environmental organizations and the European Commission. BAT conclusions are formulated and adopted by the Commission as Implementing Decisions. The IED requires that these BAT conclusions are the reference for setting permit conditions for the installations.

In principle, the BATs are related to all pollutants or substances that are emitted and pose a risk to the environment and human health. Nevertheless, BAT conclusions do not always address best practices for chemicals management of hazardous substances. The targets for the management of hazardous substances are defined in various European legislations, conventions and also in activities of non-governmental organizations.

Basically, the management of hazardous substances is based on REACH Registration, Evaluation, Authorization and Restriction of Chemicals European Union Regulation (18 December 2006) which regulates conditions for safe handling and use of chemicals. REACH secures procedures of risk assessment of the registered substances and provision of information in the value chain by the producers and importers of chemicals, which is the backbone of management of chemicals in the industry.

On the other hand, HAZBREF project activities confirmed that BATs are an effective instrument for improving the performance of industrial installations with regard to hazardous substances. To strengthen and better integrate the management of chemicals that are potentially released to the environment a few more focused BATs may be considered. BATs can be complemented with regard to efficient measures or techniques for reducing emissions of specific hazardous substances. With this respect, possible future BATs may comprise techniques such as general chemical management with defined key features, integrated process techniques, substitution and abatement techniques.

The following questions are proposed for discussion:

- Which BATs would be the most recommendable for managing the hazardous substances: general management techniques, integrated process techniques, minimizing the use of hazardous chemicals, substitution, abatement techniques?
- Is there a need for a general BAT for chemical management and what should be the key elements? Could a requirement for e.g. a chemical inventory at the installation be included in the BAT conclusions?
- Should environmental permits specifically address the issue of hazardous substances and if yes, by which manner or means?
- Is there a need for additional procedures for assessing the environmental risks of hazardous chemicals at installations by the operators apart from current IED obligations?
- Is there a need for improving the information delivered by suppliers of chemicals in extended safety data sheets (SDS) or chemical safety reports used as basis for management decisions on hazardous substances?
- Could the information in REACH and other databases be used in the permitting process? How could it be done in practice?
- How should information on legal restrictions related to the use of specific hazardous substances or their mixtures be included in integrated permits?

Participants of the conference may propose additional questions!

Topic 4: IED and Circular Economy

Moderated by Helena Dahlbo, SYKE

Background

As noted in the Action plan for the EU Circular Economy, the Commission intends to generate guidance on the inclusion of CE into Best Available Techniques reference documents (BREFs) for several industrial sectors 2016 onwards, in the context of the regular planned reviews of the BREFs. The intended guidance would concern best waste management and resource efficiency practices in industrial sectors. According to the report on implementation of the Action Plan[1], the Commission has identified key environmental issues to be addressed when revising BREFs. These include aspects on CE, issues concerning water use and reuse in the relevant BREFs and the overall contribution of the Industrial Emissions Directive to the CE. Since 2015, Best Available Techniques reference documents including guidance on CE have been adopted for:

- Non-ferrous metals
- Common Waste Water and waste Gas Treatment / Management Systems in the Chemical Sector
- Intensive Rearing of Poultry and Pigs
- Large Volume Organic Chemicals
- Large Combustion Plants

Currently, a project launched by the Commission ("IED contribution to CE") is about to be finalized by Ricardo consultants. The project aims at providing an understanding of the contribution of the IED to meeting EU objectives on CE. Additionally, the recently published Make it Work and IMPEL guidance "Making the Circular Economy work"[2] has identified already existing elements in the IED and in the BREF process that can be used to promote CE.

This session will discuss the needs of additional elements and possibilities to include such to the BREF process and BAT conclusions for further promoting circularity of non-toxic materials.

In HAZBREF we consider the following three approaches for potential measures promoting the CE issues in the BREF process aiming at less pollution through cleaner material cycles (non-toxic material cycles).

1. **Production waste approach**: Focusing on the quantity and quality of the wastes generated at the installation. Can requirements be given on the use of raw materials, chemicals, or the installation processes from the point of view of how they affect the amount and recyclability of production/industrial waste generated?

2. **Secondary raw material approach**: Focusing on the use of secondary raw materials (materials that can be used in a manufacturing process instead of or alongside virgin raw materials, e.g. by-products

[1] See Commission staff working document - Accompanying the document "*Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Implementation of the Circular Economy action plan*" - SWD(2019) 90 final 4.3.2019

[2] *MiW and IMPEL Guidance – Making the circular economy work. Guidance for regulators on enabling innovations for the circular economy (prevention and recycling of waste)*. http://minisites.ieep.eu/assets/2382/MiW_and_IMPEL_Guidance_-_Making_the_Circular_Economy_work_-_February_2019.pdf

or end-of-waste) at the installation. Can requirements be given on the quality of secondary raw materials originating from other facilities/installations/sectors to be used at the installation (from the point of view of how this affects the recyclability of the wastes or products produced)?

3. **Product end-of-life approach**: Focusing on the recyclability of the product at the post-consumer end-of-life phase. Can requirements be given on the use of materials, chemicals or processes at the installation from the point of view of how they affect the post-consumer product recyclability?

Guiding questions of topic 4:

- Does the current scope of IED and BREF guidance enable the inclusion of CE aspects into BREFs? Do you have concrete examples where it enables/does not enable this?
- How should the scope of IED be extended for the purpose of better inclusion of CE aspects? What benefits/problems could this generate?
- How can connecting installations from different sectors (e.g., IED/non-IED) be promoted? How to improve/ensure the transfer of data and information in the value chain between the installations (to enable the use of secondary raw materials/industrial symbiosis)?
- Do you have experience of CE issues in IED permitting process in your country? Have you any good examples of CE applied to IED installations (by-products, use of secondary raw material etc.)?