



a practical approach to BAT

International Environmental Forum: Kazakhstan - BeNeLux

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an introduction to BAT – definition (1/2)

Best Available Techniques (BAT) is an *integrated* approach to reduce impact of the industry on the environment based on the principle of "the polluter pays and corrects".

Adopting a Best Available Techniques (BAT) approach provides governments with the means to set realistic emission limits while giving industry support on adopting the best available techniques and technologies for environmental performance.

an introduction to BAT – definition (2/2)

- "techniques" includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;
- "available" means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages;
- "best" means most effective in achieving a high general level of protection of the environment as a whole.

an introduction to BAT – priorities

The framework was introduced in the European Union in 1996 by the IPPC to control the pollution in three media: air, water and soil (IPPC = integrated pollution prevention and control).

- Highest priority : on clean(er) air - and water emissions
- Secondary priority : on energy efficiency / waste generation to reduce the overall amount of emissions and waste that create pollution
- Lessor priority : on odor and noise as it is often more of a local nuisance making it complicated for generic measures.

an introduction to BAT - scope

BAT conclusions are determined per branche: BAT for NO_x emissions in large combustion plants can be different from BAT for NO_x emissions in iron/steel production

BAT is about techniques being implemented

- using the techniques → BAT AEL (with BAT associated emission levels)
- monitoring guidelines and frequencies becoming more important through the years (comparing BAT conclusions 2012 (steel) and 2017 (chemical industry) for instance)

an introduction to BAT – BREF's

BAT for a given industrial sector are described in 'BAT reference documents' called BREFs, which are the result of an information exchange process between European Union Member States, the industries concerned, environmental protection organizations and the European Commission.

The BREFs most important chapter describes the BAT conclusions, which are the reference standards for setting permit conditions of large industrial installations and finally being adopted by the EU commission

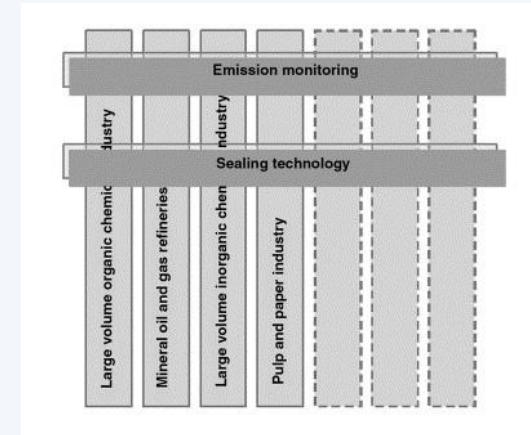


an introduction to BAT – horizontal and vertical BREF's

Vertical BREF's cover all processes in one industrial sector where Horizontal BREF's cover one process in all industrial sector. Vertical BREF's have precedence over horizontal

horizontal BREF's are for example available

- emissions from storage;
- energy efficiency;
- common waste gas treatment (draft version);
- industrial cooling.



The image shows a screenshot of a BAT GAP analysis table. The table is titled 'BAT GAP analysis' and contains several columns. The columns include 'BAT conclusion', 'BAT conclusion reference', 'BAT conclusion description', 'BAT conclusion status', 'BAT conclusion compliance', 'BAT conclusion compliance date', 'BAT conclusion compliance status', 'BAT conclusion compliance date', 'BAT conclusion compliance status', 'BAT conclusion compliance date', 'BAT conclusion compliance status'. The table is filled with data, and some cells are highlighted in red, indicating non-compliance or areas of concern.

BAT Experience in NL/EU – current practice

- In Netherlands: every permit application is accompanied with BAT GAP analyses: an extensive analyses of every BAT conclusion and proof that the applicant is compliant with the BAT conclusions.
- In case of non-compliant: an action / program proposal to being compliant in near future, or substantiated request to deviate
- BAT is evolving in time, every few years BAT conclusions are renewed (7-10 is currently observed)

BAT Experience in EU/NL – observations

- over 15 years working with BAT, emissions have reduced with 94%
- front runners have no / less problems meeting BAT requirements
- experience with and extensive knowledge on the interpretation and implementation of BAT is important for permitting requests for large industrial activities
- BAT conclusions are a cooperation between government, NGO and industry: BAT is not the most stringent / lowest possible emission level
- The more recent BAT conclusions tend to be more stringent / closer to lowest possible than more older BAT conclusions

BAT and W+B – our Experience (1/2)

1. Development of BAT documents. Examples: the Cement BAT conclusions as input for EU discussion, using blast furnace gas in large combustion plant and Aluminum & Zink
2. Review permit applications on behalf of the Dutch government including the largest steel factory of the Netherlands (7 million tons of steel a year)
3. Support industrial clients with setting up their BAT documentation, monitoring systems, GAP Analysis, permit applications and priority investment programs

BAT in Kazakhstan - Legislation

The new RoK Environmental Code came into force July 01 2021 which introduced the concept "the polluter pays and corrects". It states:

- the 50 largest companies in the RoK account to 80% of the emissions in the RoK
- by 2025 they should have replaced their old technologies with BAT, for all other industries by 2031
- If not implemented, emission rates will increase significantly; e.g. 2025: x 2, 2028: x 4, 2031: x 8, etc.

BAT in Kazakhstan - Most effected sectors

The most effected sectors in Kazakhstan are the manufacturing industries, power generation enterprises as well as mining, construction, chemical, oil and gas processing

The first 4 BAT reference books were approved at the meeting of the Committee of the best available techniques:

- "Fuel combustion in large plants for energy production"
- "Cement and lime production"
- "Oil and Gas Refining"
- "Inorganic chemicals production".

our suggested approach - start now with a GAP Analysis

- Inventory of processes / techniques and emissions
- BAT GAP analyses: compare BAT with reality including monitoring requirements
- Three possible outcomes
 - Compliant
 - Noncompliant
 - Not enough data/information
- Gather more info / data to close information GAP
- Prepare program / action plan to tackle the non compliances

our suggested approach - benefit

- The main benefit is that possible non conformities are detected in an early stage. Taking measurements can take a while and have to be planned very carefully, i.e. during turnarounds.
- Our GAP-analysis gives a clear overview on all the actions that have to be performed to make the production site comply to the local BAT regulation.
- Early identification of non-compliance is also allowing a timeframe / roadmap for achieving compliance in the most beneficial manner to the company reducing the risk of costly last minute 'fixes' when BREF's become (suddenly) more strict

our suggested approach – success story(ies)

Examples of clients we have provided these services for are: DuPont, DOW, Chemours, EverZinc, Darling Ingredients, Vion, Vattenfall, Aviko, Agristo, LambWestonMeijer, Shin-Etsu, ABInbev. We performed BAT analysis and training in various countries in Europe but also have experience outside of Europe for example in the Philippines, Oman, Qatar, Israel and Fujairah.

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