



CWW BREF 2016

What is new for the chemical industry?

Part 1

Workshop on CWW BREF, 23/11/2016
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Agenda of the workshop

- **General Aspects of CWW BREF**
 - Scope
 - BAT on Waste water management
 - Comparison CWW 2003
 - Excursus German law
- **Stream Inventory**
- **CWW – BAT associated emission level**





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CWW BREF: Scope

- Whole chemical industry (section 4 IED)
- Independent waste water treatment plants not covered by the Urban Waste Water Treatment Directive and discharged by an installation undertaking activities covered under Section 4 of the IED (section 6.11 IED)
- **Combined treatment** of waste water from different origins **if the main pollutant load originates** from the activities covered under Section 4 of Annex I of the IED





CWW BREF: Issues covered by BAT conclusions

- Environmental management systems
- Water saving issues
- Waste water management, collection and treatment
- Waste gas management, collection and treatment → but **no BAT-AEL for emissions into air**
- Flaring
- Diffuse emissions of volatile organic compounds (VOC) to air
- Odour emissions
- Noise emissions





CWW BREF: Issues covered by BAT conclusions

- **Environmental management systems**
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CWW BREF: Issues not covered by BAT conclusions

- Specific process-integrated techniques and recovery of pollutants
 - see specific chemical BREFs
- Treatment/incineration of waste water sludge
 - see BREF waste treatment/waste incineration
- Treatment of waste
 - see BREF waste treatment





It is BAT to implement and adhere to an EMS

Beside generally features, specifically for the chemical sector, it is BAT to incorporate the following features in the EMS:

- on multi-operator installations/sites:
establishment of a **convention that sets out the roles, responsibilities and coordination of operating procedures of each plant operator** in order to enhance the cooperation between the various operators;
- establishment of **inventories of waste water and waste gas streams**





BAT-C: Features of the waste water inventory

→ See following presentation by Bernd Serr





It is BAT to enhance the reuse of waste water and to recover and reuse raw materials

- based on stationary mass balances
- process-integrated measures, e.g.
 - segregation of waste water streams,
 - process alteration,
 - pre-treatment of waste water
 - subsequent re-use (in the same or other process)
 - counter-current product washing
 - ...





It is BAT to segregate uncontaminated waste water streams from waste water streams that require treatment

→ The segregation of uncontaminated waste water streams may not be applicable in the case of existing waste water collection systems.





It is BAT to provide an appropriate buffer storage capacity

- for waste water **incurred during other than normal operating** conditions
- **based on a risk assessment** (taking into account e.g. the nature of the pollutant, the effects on further treatment, and the receiving environment)
- Contains appropriate further measures (e.g. control, treat, reuse).
- The interim storage of contaminated rainwater requires segregation, which may not be applicable in the case of existing waste water collection systems.





It is BAT to use an integrated waste water management and treatment strategy

- based on the inventory of waste water streams
- basis for choice of the appropriate combination of
 - process-integrated measures
 - Recovery of pollutants at source
 - Pre-treatment
 - Final waste water treatment





Comparison with CWW 2003 (I)

A step forward compared to CWW 2003:

- **BAT conclusions are mandatory and has to be implemented in the national legislation and in the permits**
- Standardisation of requirements regarding monitoring (frequency, analysis method, sampling point)





Comparison with CWW 2003 (II)

Parameter	Emission level 2003 [mg/L] daily average	Emission level 2016 [mg/L] yearly average
TSS	10-20 ⁽¹⁾	5.0-35
COD	30-250	30-100
Total inorganic N (sum of NH ₄ -N, NO ₂ -N and NO ₃ -N)	5-25	5.0-20
Total P	0.5-1.5	0.50-3.0

New in 2016:

BAT AEL for TOC, total Nitrogen, AOX, heavy metals
Monitoring requirements for toxicity tests and Pb





Annex 22: Chemical Industry (I)

- A – Scope of application
- B – General requirements
- C – Requirements for waste water at the point of discharge (e.g. COD, Nitrogen_{total}, Phosphor_{total})
- D – Requirements for waste water prior blending (e.g. heavy metals, halogenated hydrocarbons)
- E – Requirements for waste water for the site of occurrence (e.g. chromium VI)
- F – Requirements for existing discharges
- G – Requirements concerning waste
- H – Obligations of the operator





Annex 22: Chemical Industry (II) – general

requirements

- Proof of compliance with the general requirements by stream inventory
- Regarding individual waste water streams
- Equal ranking: process-integrated measures / end of pipe measures
- Stipulation of mutagenic potential
- Demand of 80% biodegradability
- For TOC, halogenated hydrocarbons and heavy metals: stipulation of specific loads
 - **short term emission limit value** calculated by balance of loads
 - **long term emission limit value** (yearly average) given by BREF CWW





Standards expressed as short term values

Why are short-term emission limit values the most appropriate format for setting permit conditions?

- They best reflect the current environmental situation of a plant
 - provide CAs with the data base for intervening
 - They reveal fluctuations and peak emissions
 - They establish environmental performance at any given moment. Larger installations should normally strive for this target.
- Emission control of installations is not possible based on yearly average values (YAV) only
 - YAVs are useful for:
 - benchmarking,
 - description of steady-state situation without variations,
 - describing long-term trend





Load versus concentration in minimum requirements

- **COD and AOX** should both be expressed as **emission loads**.
Reduction of water consumption usually leads to an increase of emission concentration even though the emission load is the same or even reduced. The introduction of water saving measures should not be hindered by setting concentration limits only.
- **TSS, BOD, TNb and P** shall be expressed as **emission concentrations**. These parameters mainly depend on the design and operation of waste water treatment. Water saving measures have no relevant influence.
- For monitoring of emission limit values as load, the load can be calculated by a combination of the measured concentration with the waste water flow and the production rate.





Thank you very much for your attention
and discussion!

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