Review Process for the Large Volume Organic Chemicals (LVOC) Industry BREF

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The Scope of the LVOC BREF

- 3 BREFs address the organic chemicals production activities listed in Section 4.1 of Annex 1 to the IED – LVOC, Organic Fine Chemicals (OFC) and Polymers (POL)
- LVOC processes are generally:
  - Producing commodities rather than consumer products
  - Continuous rather than batch
  - Located on integrated sites

The LVOC BREF and its Review Process

- The work on the original LVOC BREF began in 1999, and the document was officially adopted by the European Commission in 2003
- The kick-off meeting for the review of the LVOC BREF was held in December 2010 – it is therefore the first BREF review to have started under the IED
- The plan is for the review to be completed during 2013

The Current LVOC BREF Structure

- **Chapter 1:** Introduction
- **Chapter 2:** Generic chemical transformations and unit operations
- **Chapter 3:** Brief "thumbnail" descriptions of over 90 LVOC processes
- **Chapters 4 - 6:** Generic BAT issues
- **Chapters 7 – 14:** Illustrative chapters providing detailed information about the production of 7 (groups of) substances

Current Illustrative Chapters

- Lower olefins
- Aromatics
- Ethylene oxide and glycols
- Formaldehyde
- Acrylonitrile
- EDC/VCM
- TDI

The Future LVOC BREF Structure

- **Chapter 1:** Introduction
- **Chapter 2:** Generic chemical transformations and unit operations and generic BAT issues
- **Chapter 3:** Upgraded "thumbnail" descriptions that focus on environmental footprints
- **Chapters 4 - :** Illustrative chapters providing detailed information about the production of ≥ 12 (groups of) substances

New Illustrative Chapters

- Styrene
- Propylene oxide
- Phenol
- Ethylbenzene
- Ethanolamines
- Hydrogen Peroxide!

Objectives for the Review of the LVOC BREF

- Focus from the beginning on BAT conclusions that will be useful for competent authorities
- Exclude information that is not related to BAT conclusions, and avoid unnecessary repetition - mention issues and process features in their environmental context
- Conduct a data collection exercise to:
  - Overcome the lack of data in the current BREF
  - Update existing data and obtain data for new chapters

Data Collection

- The data collection exercise will:
  - Focus on what is really needed - avoid “data fishing”
  - Anticipate BAT conclusions
  - Respect the IED’s specific requirements
- A systematic and transparent process is therefore being adopted for the development of questionnaires

The IED's Specific Requirements

- In developing the data collection exercise, consideration is being taken of the following:
  - Scope (emissions; energy, raw material and water consumption; waste generation) and significance
  - Normal and "other than normal" operating conditions
  - Format of expression and reference conditions
  - Averaging periods
  - Monitoring methods

Other Requirements

- The data collection exercise will also seek:
  - Relevant information about the techniques employed
  - Other relevant contextual information
- In developing the data collection exercise, account is being taken of:
  - The availability of data
  - Any sensitivities attached to the data

Example – Steam Cracker Furnace NO_X Emissions

- NO_X emissions are significant from steam cracker furnaces and will be subject to permit conditions
- "Other than normal" operating conditions are likely to include de-coking in addition to start-up and shut-down operations:
  - NO_X emission concentrations will be higher during de-coking
  - NO_X emissions should be lower during start-up

Example – Steam Cracker Furnace NO_x Emissions

- Techniques that will be considered include:
  - Burner type
  - End-of-pipe abatement
  - Steam injection
  - Combustion air control
  - Choice of fuel?
- Information relating to the "10 headings" will be sought for each

Example – Steam Cracker Furnace NO_x Emissions

- Contextual information that will be required to support the collected data include:
  - Fuel used
  - Degree of coke build-up
  - Feedstock
  - Any shared stack arrangements
  - Operating rate

Example – Steam Cracker Furnace NO_X Emissions

- Influences on the choice of averaging period(s):
  - Methods used for expressing emissions
  - Approaches to monitoring
  - Preferences of competent authorities
- Standard methods for spot and continuous monitoring of NO_X are available - a totally consistent approach across and within Member States is unlikely to currently exist

Example – Steam Cracker Furnace NO_X Emissions

- NO_X emissions could be expressed in one or more of the following ways:
  - Concentration
  - Mass emission rate
  - Specific mass emission rate
- Reference conditions would be required for concentrations – mimic LCPD requirements?
- Multi-product nature might present an issue for specific rates expressed relative to production – use HVC?

Thank you for your attention

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