Commission Implementing Decision of 28 February 2012 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the manufacture of glass (notified under document C(2012) 865) (Text with EEA relevance) (2012/134/EU)

Article 1 The BAT conclusions for the manufacture of glass are set...

Article 2 Application and Interpretation Signature

# ANNEX

# BAT CONCLUSIONS FOR THE MANUFACTURE OF GLASS

# SCOPE

# DEFINITIONS

# GENERAL CONSIDERATIONS

Averaging periods and reference conditions for air emissions Conversion to reference oxygen concentration Conversion from concentrations to specific mass emissions

### DEFINITIONS FOR CERTAIN AIR POLLUTANTS

#### AVERAGING PERIODS FOR WASTE WATER DISCHARGES

- 1.1. General BAT conclusions for the manufacture of glass
  - 1.1.1. Environmental management systems
    - 1. BAT is to implement and adhere to an environmental management...

### Applicability

1.1.2. Energy efficiency

7.

- 2. BAT is to reduce the specific energy consumption by using...
- 1.1.3. Materials storage and handling
  - 3. BAT is to prevent, or where that is not practicable,...
  - 4. BAT is to prevent, or where that is not practicable,...
- 1.1.4. General primary techniques
  - 5. BAT is to reduce energy consumption and emissions to air...
  - 6. BAT is to carry out a careful selection and control...
    - BAT is to carry out monitoring of emissions and/or other...
  - 8. BAT is to operate the waste gas treatment systems during... Applicability
  - 9. BAT is to limit carbon monoxide (CO) emissions from the...
  - 10. BAT is to limit ammonia (NH3) emissions, when applying selective...
  - 11. BAT is to reduce boron emissions from the melting furnace,... Monitoring
- 1.1.5. Emissions to water from glass manufacturing processes

- 12. BAT is to reduce water consumption by using one or...
- 13. BAT is to reduce the emission load of pollutants in...
- 1.1.6. Waste from the glass manufacturing processes
  - 14. BAT is to reduce the production of solid waste to...
- 1.1.7. Noise from the glass manufacturing processes
  - 15. BAT is to reduce noise emissions by using one or...
- 1.2. BAT conclusions for container glass manufacturing
  - 1.2.1. Dust emissions from melting furnaces
    - 16. BAT is to reduce dust emissions from the waste gases...
    - 1.2.2. Nitrogen oxides (NOX) from melting furnaces
      - 17. BAT is to reduce NOX emissions from the melting furnace...
      - 18. When nitrates are used in the batch formulation and/or special...
    - 1.2.3. Sulphur oxides (SOX) from melting furnaces
      - 19. BAT is to reduce SOX emissions from the melting furnace...
    - 1.2.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
      - 20. BAT is to reduce HCl and HF emissions from the...
    - 1.2.5. Metals from melting furnaces
      - 21. BAT is to reduce metal emissions from the melting furnace...
    - 1.2.6. Emissions from downstream processes
      - 22. When tin, organotin or titanium compounds are used for hotend...
      - 23. When SO3 is used for surface treatment operations, BAT is...
- 1.3. BAT conclusions for flat glass manufacturing
  - 1.3.1. Dust emissions from melting furnaces
    - 24. BAT is to reduce dust emissions from the waste gases...
  - 1.3.2. Nitrogen oxides (NOX) from melting furnaces
    - 25. BAT is to reduce NOX emissions from the melting furnace...
    - 26. When nitrates are used in the batch formulation, BAT is...
  - 1.3.3. Sulphur oxides (SOX) from melting furnaces
    - 27. BAT is to reduce SOX emissions from the melting furnace...
  - 1.3.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
    - 28. BAT is to reduce HCl and HF emissions from the...
  - 1.3.5. Metals from melting furnaces

1.4.

- 29. BAT is to reduce metal emissions from the melting furnace...
- 30. When selenium compounds are used for colouring the glass, BAT...
- 1.3.6. Emissions from downstream processes
- 31. BAT is to reduce emissions to air from the downstream...
- BAT conclusions for continuous filament glass fibre manufacturing
  - 1.4.1. Dust emissions from melting furnaces
    - 32. BAT is to reduce dust emissions from the waste gases...
    - 1.4.2. Nitrogen oxides (NOX) from melting furnaces
    - 33. BAT is to reduce NOX emissions from the melting furnace... 1.4.3. Sulphur oxides (SOX) from melting furnaces
      - 34. BAT is to reduce SOX emissions from the melting furnace...
    - 1.4.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
      - 35. BAT is to reduce HCl and HF emissions from the...
    - 1.4.5. Metals from melting furnaces
      - 36. BAT is to reduce metal emissions from the melting furnace...

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- 1.4.6. Emissions from downstream processes
  - 37. BAT is to reduce emissions from downstream processes by using...
- 1.5. BAT conclusions for domestic glass manufacturing
  - 1.5.1. Dust emissions from melting furnaces
    - 38. BAT is to reduce dust emissions from the waste gases...
    - 1.5.2. Nitrogen oxides (NOX) from melting furnaces
      - 39. BAT is to reduce NOX emissions from the melting furnace...
      - 40. When nitrates are used in the batch formulation, BAT is...
    - 1.5.3. Sulphur oxides (SOX) from melting furnaces
      - 41. BAT is to reduce SOX emissions from the melting furnace...
  - 1.5.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
    - 42. BAT is to reduce HCl and HF emissions from the...
  - 1.5.5. Metals from melting furnaces
    - 43. BAT is to reduce metal emissions from the melting furnace...
    - 44. When selenium compounds are used for decolourising the glass, BAT...
    - 45. When lead compounds are used for the manufacturing of lead...
  - 1.5.6. Emissions from downstream processes
    - 46. For downstream dusty processes, BAT is to reduce emissions of...
    - 47. For acid polishing processes, BAT is to reduce HF emissions...
- 1.6. BAT conclusions for special glass manufacturing
  - 1.6.1. Dust emissions from melting furnaces
    - 48. BAT is to reduce dust emissions from the waste gases...
    - 1.6.2. Nitrogen oxides (NOX) from melting furnaces
      - 49. BAT is to reduce NOX emissions from the melting furnace...
      - 50. When nitrates are used in the batch formulation, BAT is...
    - 1.6.3. Sulphur oxides (SOX) from melting furnaces
      - 51. BAT is to reduce SOX emissions from the melting furnace...
    - 1.6.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
      - 52. BAT is to reduce HCl and HF emissions from the...
    - 1.6.5. Metals from melting furnaces
      - 53. BAT is to reduce metal emissions from the melting furnace...
    - 1.6.6. Emissions from downstream processes
      - 54. For downstream dusty processes, BAT is to reduce emissions of...
      - 55. For acid polishing processes, BAT is to reduce HF emissions...
- 1.7. BAT conclusions for mineral wool manufacturing
  - 1.7.1. Dust emissions from melting furnaces
    - 56. BAT is to reduce dust emissions from the waste gases...
    - 1.7.2. Nitrogen oxides (NOX) from melting furnaces
      - 57. BAT is to reduce NOX emissions from the melting furnace...
      - 58. When nitrates are used in the batch formulation for glass...
  - 1.7.3. Sulphur oxides (SOX) from melting furnaces
    - 59. BAT is to reduce SOX emissions from the melting furnace...
  - 1.7.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
    - 60. BAT is to reduce HCl and HF emissions from the...
  - 1.7.5. Hydrogen sulphide (H2S) from stone wool melting furnaces

- 61. BAT is to reduce H2S emissions from the melting furnace...
- 1.7.6. Metals from melting furnaces
- 62. BAT is to reduce metal emissions from the melting furnace... 1.7.7. Emissions from downstream processes
  - 63. BAT is to reduce emissions from downstream processes by using...
- 1.8. BAT conclusions for high temperature insulation wools (HTIW) manufacturing
  - 1.8.1. Dust emissions from melting and downstream processes
    - 64. BAT is to reduce dust emissions from the waste gases...
    - 65. For downstream dusty processes, BAT is to reduce emissions using...
  - 1.8.2. Nitrogen oxides (NOX) from melting and downstream processes
  - 66. BAT is to reduce NOX emissions from the lubricant burn-off...
  - 1.8.3. Sulphur oxides (SOX) from melting and downstream processes67. BAT is to reduce SOX emissions from the melting furnaces...
  - 1.8.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
    - 68. BAT is to reduce HCl and HF emissions from the...
  - 1.8.5. Metals from melting furnaces and downstream processes69. BAT is to reduce metal emissions from the melting furnace...
  - 1.8.6. Volatile organic compounds from downstream processes
    - 70. BAT is to reduce volatile organic compound (VOC) emissions from...
- 1.9. BAT conclusions for frits manufacturing
  - 1.9.1. Dust emissions from melting furnaces
    - 71. BAT is to reduce dust emissions from the waste gases...
  - 1.9.2. Nitrogen oxides (NOX) from melting furnaces
  - 72. BAT is to reduce NOX emissions from the melting furnace... 1.9.3. Sulphur oxides (SOX) from melting furnaces
    - 73. BAT is to control SOX emissions from the melting furnace...
  - 1.9.4. Hydrogen chloride (HCl) and hydrogen fluoride (HF) from melting furnaces...
    - 74. BAT is to reduce HCl and HF emissions from the...
  - 1.9.5. Metals from melting furnaces
  - 75. BAT is to reduce metal emissions from the melting furnace...
  - 1.9.6. Emissions from downstream processes
    - 76. For downstream dusty processes, BAT is to reduce emissions by...
  - Glossary
  - 1.10. Description of techniques
    - 1.10.1. Dust emissions
    - 1.10.2. NOX emissions
    - 1.10.3. SOX emissions
    - 1.10.4. HCl, HF emissions
    - 1.10.5. Metal emissions
    - 1.10.6. Combined gaseous emissions (e.g. SOX, HCl, HF, boron compounds)
    - 1.10.7. Combined emissions (solid + gaseous)
    - 1.10.8. Emissions from cutting, grinding, polishing operations
    - 1.10.9. H2S, VOC emissions

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- (**1**) OJ L 334, 17.12.2010, p. 17.
- (2) OJ C 146, 17.5.2011, p. 3.
- (3) http://circa.europa.eu/Public/irc/env/ied/library?l=/ied\_art\_13\_forum/opinions\_article

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