

**HELCOM Recommendation 27/1** <sup>1)</sup>

Adopted 8 March 2006  
having regard to Article 20, Paragraph 1 b)  
of the Helsinki Convention

**LIMITATION OF EMISSIONS INTO ATMOSPHERE AND DISCHARGES INTO WATER  
FROM INCINERATION OF WASTE****THE COMMISSION,**

**RECALLING** Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area from land-based sources by using, *inter alia*, Best Environmental Practice for all sources and Best Available Technology for point sources,

**HAVING REGARD** to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or the relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

**HAVING REGARD ALSO** to the Ministerial Declaration of 1988, to the Baltic Sea Declaration of 1990 and to the Baltic Sea Environment Declaration of 1992, calling, *inter alia*, for a substantial reduction of the load of pollutants most harmful to the ecosystems of the Baltic Sea,

**RECOGNISING** that incineration of waste is a land-based source from which considerable emissions of harmful substances, including heavy metals and dioxins are likely to reach, directly or indirectly, the maritime area,

**RECOGNISING ALSO** that the release of harmful substances arising in domestic combustion appliances can be minimised by applying Best Available Techniques,

**KEEPING IN MIND** the HELCOM Recommendation 25/2 requirements to make all efforts to minimize emissions and discharges of hazardous substances and nutrients by effective use of BAT or comparative measures,

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<sup>1</sup>) This Recommendation supersedes HELCOM Recommendation 16/8.

**RECOMMENDS** that

1. Atmospheric emissions from waste incineration should not exceed the following levels at 11% O<sub>2</sub> (ndg):

<b>Parameter</b>	<b>A (mg/m<sup>3</sup>)</b>
Dust	10
CO	50
HCl	10
HF	1
SO <sub>2</sub>	50
NO <sub>x</sub> (as NO <sub>2</sub> ) For existing plants with a nominal capacity exceeding 6 tonnes per hour or new incineration plant	200
NO <sub>x</sub> (as NO <sub>2</sub> ) For existing plants with a nominal capacity of 6 tonnes per hour or less	400
Cd + Tl	0,05
Hg	0,05
Sb+As+Pb+Cr+Co+Cu+Mn+Ni+V	0,5
Dioxins and furans	0,1 ng TEQ/ m <sup>3</sup>

Measurements should be based on internationally accepted methods. Emission levels in the table are daily average values for all parameters except metals and dioxins/furans which are based on "spot-sample-values" in accordance with requirements specified in the EU Directive 2000/76/EC on incineration of waste.

2. Discharges of waste water from cleaning of exhaust gases should not exceed the following levels (24 h samples) in column A:

Parameter	A (mg/l)	B Sampling
Total suspended solids	30	Based on spot daily or flow proportional sample
Hg	0,03	Monthly measurement of a flow proportional representative sample of the discharge over a period of 24 hours with one measurement per year exceeding the values given, or no more than 5 % where more than 20 samples are assessed per year
Cd	0,05	
Tl	0,05	
As	0,15	
Pb	0,2	
Cr	0,5	
Cu	0,5	
Ni	0,5	
Zn	1,5	
Dioxins and furans	0,3 ng/l	At least every 6 months measurements of a flow proportional representative sample of the discharge over a period of 24 hours. However, one measurement at least every 3 months should be carried out fore the first 12 months of operation.

pH-level for water should not be below 7,0.

Measurements should be based on internationally accepted methods and in accordance with requirements specified in the EU Directive 2000/76/EC on incineration of waste.

**DECIDES** that the specific actions described in the Appendix should be kept updated and be revised when appropriate by the Land-based Pollution Group,

**RECOMMENDS ALSO** that the Contracting Parties report on the implementation of the Recommendation to the Commission based on reporting requirements developed by the Land-based Pollution Group.

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**Appendix**

**The application of Best Environmental Practice (BEP) and Best Available Technology (BAT) to waste minimization, handling and incineration should include the following actions:**

*A. Waste minimization and recycling*

Introduction of general policies aiming at an overall minimization of total mass of domestic waste and recycling of materials whenever possible. Such policies would reduce emissions and discharges by reducing the total amount of waste that has to be handled and disposed of. Less production of fresh raw materials might also reduce the environmental load.

Recyclable material in household waste are e.g. scrap metals, newsprints, cardboard paper, glass, aluminium cans and tin cans;

*B. Dangerous materials*

Introduction of general policies aiming at an overall reduction or total elimination of heavy metals, halogenated substances and toxic compounds in consumer goods, packaging etc. for mass consumption. Product control measures are effective way of keeping environmentally dangerous substances out of the domestic waste stream and thus reducing overall emissions from waste incineration;

*C. Waste collection and separation*

Introduction of general waste collection and separation schemes as a means of controlling the quality of the waste fed to the incinerators. Recyclables, hazardous waste and similar dangerous materials as well as non-combustibles should not enter incinerators, in order to reduce the overall emissions.

Collection schemes should include source separation of recyclables and hazardous products such as batteries containing Hg or Ni/Cd, used motor oils, solvents, paints mercury-containing switches and thermometers, pharmaceuticals, lead accumulators, chlorinated plastics, etc.;

*D. Open-air incineration*

Open-air incineration of waste should not be allowed, not even in small scale, because such incineration gives rise to very high specific pollution loads.

Routines at landfill sites for domestic waste should be carried out in such a way that unintentional fires can be avoided to a very high extent. One single accident may produce more pollution than emission from one whole year's operation in a good full-size incinerator;

*E. The waste incineration process*

The incineration process should fulfill the following requirements:

- recovery of heat for production of hot water for district heating systems, steam for electricity generation etc., thus eliminating the need for usage of other fuels for the energy production,
- controlled combustion temperature, at least combustion gas temperature of 850°C for two seconds. Temperature should be higher (1100 °C) in case of incinerating hazardous waste containing more than 1% of halogenated organic substances, expressed as chlorine. When starting and stopping the process or whenever the temperature falls below 850°C, auxiliary fuels should be used,
- controlled air supply,
- measurement equipment for continuous monitoring of the combustion process and cleaning devices. Monitoring should include carbon monoxide, oxygen, nitrogen oxides,

total organic carbon, sulphur dioxide, hydrogen chloride, hydrogen fluoride, dust as well as combustion temperature,

- efficient cooling of the flue gases and frequent particle removal (soot blowing), minimizing the residence time for the flue gases in the temperature interval of 600°C-200°C,
- fabric filters or equally efficient arrestment systems for removal of dust from the flue gases,
- efficient arrestment systems for removal of acids, organics and organohalogenes, e.g. dioxins, from the flue gases. Dry or semi-dry lime systems as well as wet systems could be applicable,
- treatment of condensates and liquid remainders from the flue gas purification by chemical precipitation with lime, sulphide and polymer. Sedimentation, sand filtration and filtration with activated carbon,
- handling of slag and fly-ash in closed or wet systems to avoid spreading of dust and secondary pollution. Fly-ash disposal in dry landfills to avoid leaching. Pretreatment by solidification can reduce leaching from the residues.