

CONVENTION ON THE PROTECTION OF THE MARINE  
ENVIRONMENT OF THE BALTIC SEA AREA

HELSINKI COMMISSION - Baltic Marine  
Environment Protection Commission

HELCOM 17/96  
17/1  
Annex 15

17th Meeting  
Helsinki, 12-14 March 1996

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## HELCOM RECOMMENDATION 17/10

Adopted 13 March 1996  
having regard to Article 13, Paragraph b)  
of the Helsinki Convention

### BASIC PRINCIPLES FOR REALIZATION OF BAT AND BEP IN FOOD INDUSTRY

#### THE COMMISSION

**RECALLING** that according to Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention), the Contracting Parties shall take all appropriate measures to control and minimize land-based pollution of the marine environment of the Baltic Sea Area, and in particular eutrophication processes,

**RECOGNISING** that plants of food industry are notable sources of discharges of organic matters and nutrients to water,

**DESIRING** to implement new environmental management standards in food industry environmental performance,

**DESIRING ALSO** to improve knowledge on food products life-cycle assessment,

**DESIRING ALSO** to reduce the load of organic matter and nutrients,

**RECOMMENDS** that the Governments of the Contracting Parties should apply for example the following BAT and BEP measures in the different branches of food industry (see Attachment):

1. Reduction of waste water volume and pollution load by the following in-plant measures:
  - automatic control of processes;
  - installation of cooling circuits instead of run-through-cooling;
  - use of vapour condensates for cleaning operations;
  - recycling of preheated water from heat exchangers for cleaning operations;
  - recycling of low polluted waste waters for cleaning operations;
  - multiple use of cleaning waters;
  - use of biodegradable cleaning agents;
  - decentral cleaning stations in order to shorten the pipes for cleaning agents;
  - push away of liquid products in pipes with compressed air and vacuum instead of water;
  - use of nitric acid for cleaning operations instead of other acids;
  - control of product losses by continuous waste water sampling and analyses;
  - improving the basic technology for reducing raw material losses;

- installation of safety mechanisms to prevent overflowing;
- use of peroxyacids instead of chlorine-containing cleaning agents and disinfectants, to avoid generation of hazardous chlorinated substances;
- mechanical cleaning before cleaning with liquids and disinfection to minimize the use of cleaning agents and disinfectants;
- controlled discharge of waters containing disinfectants in order to protect subsequent biological treatment;
- collection of product residues for further use, e.g. as feed for animals and fertilizers;
- separate collection and disposal of disinfectant rests and used concentrates;
- separate collection and treatment of fat, blood and nutrients;
- transportation of processed fish and sea products in a plant preferably without water;
- equipment of floor drains with fixed sink strainers.

## 2. Reduction of pollution load by end-of-pipe measures

After having implemented the relevant measures under 1., plants of food industry which discharge more than 25 m<sup>3</sup>/d into water bodies, or to municipal waste water treatment plant without biological treatment including phosphorus removal, should meet the following requirements (2-hour or 24-hour values):

COD	250 mg/l
BOD <sub>5</sub> (BOD <sub>7</sub> )	25 mg/l (30 mg/l)
tot-P	2 mg/l *)
NH <sub>4</sub> -N	10 mg/l *) **)

\*) for plants above 500 m<sup>3</sup>/d

\*\*\*) if temperature in biological reactor is above 12 C°.

Wherever possible concentration values should be complemented with specific production-orientated load values.

Internationally accepted standardized sampling, analysing and quality assurance methods (e.g. CEN-standards, ISO-standards and OECD-Guidelines) should be used whenever available.

By planning end-of-pipe treatment plants fulfilling the requirements above, future requirements to the reduction of tot-N (denitrification) have to be taken into account.

## 3. Reduction of emissions into the atmosphere

To reduce the emissions of substances into the air the following measures have to be taken into account:

- capsulation of devices and installations;
- appropriate storage of substances;
- desucking of waste gas;
- purification of waste gas.

In single cases limit values for substances or groups of substances might be needed. Setting up limit values (e.g. for total carbon or dust) the following items should be considered:

- waste gas concentration;
- load of substances;
- duration of emissions;
- local spread-out conditions;
- distance to next settlement;
- measurements of smell if detection limit of analytical devices is too high.

#### 4. Reduction of energy consumption

The recycling of heat through heat exchangers should be achieved.

Further possibilities to regain energy (e.g. generation of biogas by anaerobic treatment of highly polluted waste waters or sludges) should be evaluated.

#### 5. Environmental management improvement

To improve the environmental management and cooperation between the plant and the permitting environmental authority and other organizations/institutions, in order to implement this Recommendation, the following measures should be taken:

- the plant should provide a list of raw materials and chemicals including the quantities and ecotoxicological properties (safety data sheet) to the responsible environmental authorities;
- self-controlling of the plant and its reporting should be specified by the responsible environmental authority;
- the authorities should take into account promotion of pilot projects in order to establish examples for other plants;
- development and exchange of information including the work of branch associations and research institutions should be intensified;

**RECOMMENDS ALSO** that this Recommendation should be implemented for new plants as from 1 January 1998 and for existing plants as from 1 January 2000 (2005 for countries in transition),

**RECOMMENDS FURTHER** that the Contracting Parties should report to the Commission on implementation of this Recommendation in 2000 and thereafter every three years,

**DECIDES** that this Recommendation should be revised in 2002 considering limitation of tot-N in the waste water from food industry.

## **Attachment**

### Branches of Food Industry

- 1) Milk processing
- 2) Production of fruit and vegetable products
- 3) Production of refreshing beverages and bottling of beverages
- 4) Processing of potatoes
- 5) Meat industry
- 6) Breweries
- 7) Production of alcohol and liquors
- 8) Production of feed from plant products
- 9) Production of hide glue, gelatine and bone glue
- 10) Production of malt
- 11) Fish processing industry
- 12) Sugar production
- 13) Processing of oil seed, sweat oil and nutrient fat
- 14) Processing of molasses
- 15) Production of starch

**REPORTING FORMAT FOR HELCOM RECOMMENDATION 17/10 CONCERNING BASIC PRINCIPLES FOR REALIZATION OF BAT AND BEP IN FOOD INDUSTRY**

**Country:** \_\_\_\_\_ **Year:** \_\_\_\_\_

The following items have to be reported for every branch (according to Attachment 1) separately:

- 1) Number of plants in the branch,
- 2) Overall description of the situation in the branch referring to items 1 (in-plant measures), 3 (emissions to the atmosphere), 4 (energy consumption) and 5 (environmental management improvement),
- 3) Plants which discharge into water bodies, or to municipal waste water treatment plants without biological treatment, and their discharge situation (for every plant above 25 m<sup>3</sup>/d separately),
  - 3.1 Waste water volume (m<sup>3</sup>/d, m<sup>3</sup>/a)
  - 3.2 Discharge concentrations, loads and used methods of analysis

	Concentration mg/l	Method of analysis	Specific load kg/t product (if available)
COD			
BOD <sub>5</sub> (BOD <sub>7</sub> )			
NH <sub>4</sub> -N *)			
tot-P *)			

\*) only for plants above 500 m<sup>3</sup>/d