

Recommendation on Best Available Techniques in the Food Industry

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The Commission,

recalling Paragraph 1 of Article 2 of the Danube River Protection Convention in which the Contracting Parties shall strive at achieving the goals of a sustainable and equitable water management, including the conservation, improvement and the rational use of surface waters and ground water in the catchment area as far as possible;

recalling also Paragraph 2 of Article 2 of the Danube River Protection Convention according to which the Contracting Parties pursuant to the provisions of this Convention shall cooperate on fundamental water management issues and take all appropriate legal, administrative and technical measures, to at least maintain and improve the current environmental and water quality conditions of the Danube River and of the waters in its catchment area and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused;

recalling further Paragraph 2 b of Article 5 of the Danube River Protection Convention in which the Contracting Parties shall separately or jointly adopt legal provisions providing for requirements including time limits to be met by waste water discharges;

recalling further Paragraph 1 of Article 7 of the Danube River Protection Convention in which the Contracting Parties taking into account the proposals from the International Commission shall set emission limits applicable to individual industrial sectors or industries in terms of pollution loads and concentrations and based in the best possible way on low- and non-waste technologies at source.

Where hazardous substances are discharged, the emission limits shall be based on the best available techniques for the abatement at source and/or for waste water purification;

recalling further Part 1 of Annex 1 of the Danube River Protection Convention in which best available techniques are defined;

recommends to the Contracting Parties of the Danube River Protection Convention that the following measures should be applied in the sectors (see Annex 1) of food industry:

1. Technical In-Plant Measures for the Reduction of Waste Water Volume and Abatement of Pollution load

Waste water should only be discharged if waste water volume and pollution load are minimised by in-plant measures using best available techniques, i.a.

- automatic control of processes;
- 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;
- control of product losses by continuous waste water sampling and analyses;
- improving the basic production 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 minimise the use of cleaning agents and disinfectants;
- controlled discharge of waters containing disinfectants in order to protect subsequent biological treatment steps;
- collection of product residues for further use, e. g. as feed for animals and fertilisers;
- 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 inside a plant preferably without water.

2. Reduction of Pollution Load by End-of-Pipe Measures

After implementation of relevant measures listed under 1., plants of the food industry discharging more than 100 m³/d to water bodies, or to municipal waste water treatment plants without biological treatment, should meet the following requirements (grab sampling, 2-hour, 8-hour or 24-hour sampling):

COD	250	mg/l
BOD	25	mg/l
tot-P	2	mg/l *)
NH ₄ -N	10	mg/l *) **)

*) for plants with a raw waste water load more than 20 kg/d tot-P

***) for plants with a raw waste water load more than 100 kg/d tot-N and if the temperature in biological reactor is above 12 °C

BOD = BOD₅ = five-day biochemical oxygen demand consumption with suppression of nitrification

COD = COD_{cr} = chemical oxygen demand consumption using the dichromate method

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

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

3. Environmental Management Improvement

To improve the environmental management and cooperation between the plant and the permitting environmental authority and other organisations/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 the 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 should be intensified.

Recommends also that this Recommendation should be implemented for new plants as from 1 January 2002 and for existing plants from 1 January 2006;

Recommends further that the Contracting Parties should report (see Annex 2) to the Commission on implementation of this Recommendation in 2003 and thereafter every three years.

Sectors of the Food Industry

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

Reporting Format for Recommendation on Best Available Techniques in the Food Industry

Country: _____ Year: _____

The following items have to be reported for every sector (according to Annex 1)

1. Number of plants in the sector
2. Overall description of the situation in the sector referring to items 1. (Technical In-Plant Measures) and 3. (Environmental Management Improvement).
3. The following data have to be reported for every plant (above 100 m³/d), which discharges into water bodies.
 - 3.1 Name of the plant, its location and the respective water body
 - 3.2 Waste water volume (m³/d, m³/a)
 - 3.3 Discharge concentrations, loads, the mode of sampling (grab, or 2h-, 8h-, or 24h-sampling) and methods of analysis

	Concentration mg/l (annual mean)	Method of sampling and analysis	Specific load kg/t product (if available)	Annual load (t/a)
COD				
BOD				
NH ₄ -N *)				
tot-P **)				

*) only for plants above 100 kg/d tot-N raw waste water load

***) only for plants above 20 kg/d tot-P raw waste water load