

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

HELSINKI COMMISSION - Baltic Marine
Environment Protection Commission

HELCOM 23/2002
Minutes of the Meeting

23rd Meeting
Helsinki, Finland, 5-7 March 2002

Annex 14

HELCOM RECOMMENDATION 23/12 *)

Adopted 6 March 2002
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

REDUCTION OF DISCHARGES AND EMISSIONS FROM PRODUCTION OF TEXTILES ¹⁾

THE COMMISSION,

RECALLING Paragraph 1 of Article 6 of the Convention on the Protection of Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the marine environment 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 also to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

RECALLING ALSO that according to Paragraph 2 of Article 2 of the Helsinki Convention land-based pollution includes also airborne pollution,

RECALLING Article 5 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 marine environment of the Baltic Sea caused by harmful substances,

RECALLING ALSO Annex I, Part 1 of the Convention, according to which the Contracting Parties shall, in their preventive measures, give priority to the groups of substances listed in Annex I, Part 1 which are generally recognised as harmful substances,

RECALLING FURTHER the Ministerial Communiqué 1998, calling to implement the HELCOM Recommendation 19/5 on the HELCOM Objective with regard to Hazardous Substances, which is to prevent pollution of the Convention Area by continuously reducing discharges, emissions and losses of hazardous substances, with the ultimate aim of concentrations in the environment near background values for naturally occurring substances and close to zero for man-made synthetic substances, until 2020,

RECALLING FURTHER that the Ministerial Declaration 1988, of the ninth meeting of the Helsinki Commission calls for a considerable reduction of land-based pollution,

*) Superseding HELCOM Recommendation 16/10

¹⁾ Nace 17, according to the European standard classification system NACE

RECOGNIZING the importance of reducing the discharges into waters and the emissions into the atmosphere from the production of textiles because of the use or creation of substances with toxic, persistent and bioaccumulative properties during the production process,

RECOMMENDS to the Governments of the Contracting Parties that they apply the precautionary principle, the principle of the Best Available Techniques and the substitution principle, by which is meant substitution of the use of hazardous substances by less hazardous substances or preferably non-hazardous substances where such alternatives are available,

RECOMMENDS that the Governments of the Contracting Parties to the Helsinki Convention agree on the following definitions for the purposes of this Recommendation

- "Textile" means any product derived from the manufacture of natural fibres such as wool, cotton, flax and/or the manufacture of fibres synthesized and processed from petrochemicals and modified wood pulp such as polyester, nylon, polypropylene and viscose. These products can be yarns, fabrics or consumer products (e.g. garments, carpets, upholstery, technical textiles)
- "Textile Production" means the preparation of natural and man-made (semi-natural and synthetic) fibres, including both:
 - a) the mechanical processes such as carding, spinning, weaving, knitting or tufting, and
 - b) the physicochemical processes which mainly take place in aqueous ('wet') media, such as the pretreatment, the colouring or printing and the finishing of the fibres, yarns and fabrics.

The upstream delimitation is the production of the raw material from which a treatable fibre can be produced (both the growing of natural fibres and the production of (semi-)chemical fibres, such as viscose); these processes are not considered in this Recommendation.

The downstream delimitation is determined by the last process which alters the intrinsic properties of yarns and fabrics, before they are handled or reassembled into final products (clothing industry, etc.),

RECOMMENDS FURTHER to the Governments of the Contracting Parties that they take the following measures to reduce pollution from production of textiles:

1. General requirements

The application of best available techniques (BAT) to the production of textiles should include the following techniques of abatement, recycling and treatment to reduce the discharges into waters and the emissions into the atmosphere:

- non-use of Chromium (VI) as oxidation agent for sulphur dyes;
- non-use of the hazardous substances polychlorinated biphenyles (PCB) and pentachlorophenol;
- non-use of arsenic, mercury and their compounds as biocides;
- substitution of hazardous substances as e.g. trichlorobenzenes and alkylphenoethoxilates (APEO);
- use of chlorinated substances as solvents only in air-closed systems with recirculation of the solvent except for use in small quantities for spot removal in order to avoid wasting of valuable produced textile. They should only be used when their overall environmental impact is considered less damaging than other methods for grease removal;
- use of hydrocarbons which contain minimized content of aromatic hydrocarbons (with a percentage of carbon atoms linked in aromatic rings of less than 1 per cent).

According to a case-by-case evaluation it should be decided whether the following techniques could be realized in the plant:

- substitution of bleaching with chlorine-containing substances (e.g. hypochlorite) by bleaching with non-chlorine-containing substances (e.g. H₂O₂);
- separation, concentration (e.g. ultra filtration) and reuse of synthetic sizes (e.g. polyacrylates and polyvinylalcoholes);
- no discharge into waste water of liquid or solid unused concentrates (e.g. remains of dyes, sizes or painting pastes);
- reuse of sodium hydroxide from washing water from the mercerizing process;
- separation of hot and cold waste water to establish regaining of heat;
- reuse of low contaminated washing waters by e.g. counterflow techniques for continuous processes; in discontinuous processes overflow-rinsing should be avoided (i.e. the process bath should be emptied before rinsing takes part);
- use of equipment that gains the conservation of energy, water and chemicals (e.g. controlled addition of chemicals by automatized colour-kitchen and computerized recipes).

2. Requirements for the reduction of waste water discharges

2.1 The following limit values should not be exceeded for discharges into surface water

	2 h or 24 h sampling	
Chemical Oxygen Demand (CODCr)	160 mg/l	
Phosphorous total (tot-P)	2 mg/l	
Colour ¹⁾ , ²⁾ : spectral absorption coefficient at	436 nm	7 m-1
	525 nm	5 m-1
	620 nm	3 m-1

¹⁾ according to Section 2 of EN 27887

²⁾ other determination methods could be used if it can be shown that the results are comparable and equivalent

2.2 The following limit values should not be exceeded for discharges into surface waters and municipal treatment plants

Active Chlorine	1.0 mg /l ³⁾
Adsorbable organic halogens (AOX)	1.0 mg/l
Chromium-VI (Cr-VI)	0.2 mg/l
Chromium, total (Cr-tot)	0.7 mg/l
Copper (Cu)	0.5 mg/l
Zinc (Zn)	2.0 mg/l

³⁾ only be measured if hypochlorite or chlorodioxide is used in the plant

2.3 Toxicity Tests

For plants discharging into water bodies the toxicity effect of the waste water should be determined by two toxicity tests which could be chosen out of the following four toxicity tests:

Toxicity to Fish	TU(fish, 96 h) 2
Toxicity to Daphnia	TU(daphnia, 48 h) 8
Toxicity to Algae	TU(algae, 72h) 16
Toxicity to Bacteria	TU(<i>Vibrio fischeri</i> , 0,5 h) 8

Where for this Recommendation $TU(\text{testing organism, required acute toxicity testing time}) = \text{concentration of the substance to be tested} / \text{NOEC}$. For a waste water testing this equation can be written as follows: $TU = 100 / \text{no effects dilution rate (\%)} \text{ of waste water}$. The “no effect dilution rate” should be observed with standard toxicity tests. The CEN, ISO or OECD acute toxicity testing standards should be used.

E.g. for daphnia criteria TU 8 means that the sewage water should be of such quality that it has to be diluted at the highest by 1:7 in order to achieve a level of no effect concentration in a standard acute toxicity test for daphnia (where the testing time is 48 h).

Acute toxicity testing should be carried out at least for two of the four above presented organisms. Results from those tests have to comply with the requirements above.

3. Requirements for the reduction of emissions to the air

The following limit values should not be exceeded for emissions into the atmosphere out of the production of textiles

	if mass flow kg/h	concentration mg/m ³
chlorine	≥ 0.05	5
sum of volatile organic compounds	≥ 3.0	150

These requirements have to be met only for textile producing plants, which

- colour flock, yarn or fabric by use of carriers;
- or
- bleach yarn or fabric by use of alkalies, chlorine or compounds containing chlorine;
- or
- finish textiles by more than 500 m² textiles/hour.

4. Analysing methods

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

RECOMMENDS ALSO that these measures should be implemented from the date of adoption of this Recommendation,

RECOMMENDS FURTHER that the Contracting Parties report to the Commission in year 2006 and thereafter every three years.

REPORTING FORMAT FOR HELCOM RECOMMENDATION 23/12 CONCERNING REDUCTION OF DISCHARGES AND EMISSIONS FROM PRODUCTION OF TEXTILES

Lead Country:

Country:

Year:

1. Number and location of plants discharging directly into surface waters or into municipal sewers

2. Summarized description of the sector including:

- application of BAT as specified in paragraph 1 of the Recommendation;
- efforts to substitute hazardous substances as specified in paragraph 1 of the Recommendation;
- efforts taken to avoid, recycle and pretreat the waste water
- actions taken to reduce discharges and emissions during the last 3 years.

3. Emission data on plants discharging directly into surface waters, for each plant separately, including:

3.1 Data on discharges directly to surface waters

Plant	Waste water volume (m ³)	Concentration in mg/l							
		CODCr ¹⁾	tot-P ¹⁾	Active Chlorine ²⁾	AOX	Cr-VI	Cr-tot	Cu	Zn

¹⁾ 2 hr sampling

²⁾ Only be measured if hypochlorine or chlorodioxide is used in the plant

3.2 Data on emissions to the air^{*)}

Plant	Chlorine		Sum of volatile organic compounds	
	Mass flow (kg/h)	Concentration(mg/m ³)	Mass flow (kg/h)	Concentration(mg/m ³)

^{*)} Only for textile producing plants, which:

- colour flock, yarn or fabric by use of carriers;
- bleach yarn or fabric by use of alkalies, chlorine or compounds containing chlorine;
- finish textiles by more than 500 m² textiles/hour.

3.3 Results from toxicity tests and colour measuring

Results from toxicity tests	
Results from colour measuring	

4. Summarized data on plants discharging directly to municipal sewers including:

- information on discharges and air emissions;
- number or percentage of plants which comply with the different requirements of the Recommendation (Please specify e.g. which parameters / requirements cause problems for compliance).

5. Summary of evaluation of compliance with the requirements of the Recommendation including:

- problems encountered in the implementation of the requirements and the foreseen development of the situation.

6. Specify means used when nationally putting into force the Recommendation

- via general reference in the national legislation
- via a specific adoption of an amendment to existing national legislation
- via administrative or other means, please specify.

Possible problems identified when putting into force nationally the Recommendation.