

# HELSINKI COMMISSION

Baltic Marine Environment  
Protection Commission



## HELCOM RECOMMENDATION 24/4 \*)

Adopted 25 June 2003  
having regard to Article 20, Paragraph 1 b)  
of the Helsinki Convention

### REDUCTION OF EMISSIONS AND DISCHARGES FROM THE IRON AND STEEL INDUSTRY

#### 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** 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** 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 including heavy metals, cyanides and oil listed in Annex I, Part 1 which are generally recognised as harmful substances,

**RECALLING FURTHER** the Ministerial Communiqué 1998, calling to implement the strategy on the cessation of discharges, emissions and losses of hazardous substances by the year 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,

**DESIRING** more information about the discharges from iron and steel industry,

**RECOGNIZING** that iron and steel industry is a major source of metal, oil and cyanide discharges,

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\*) Superseding HELCOM Recommendations 11/7, 13/4 and 17/5

**RECOGNIZING** the importance of the prevention of pollution from iron and steel industry by

- (i) minimizing the hazards to human health and to the environment from toxic, persistent and bioaccumulative substances by the application of best available techniques;
- (ii) developing industrial processes (in particular, recycling of waters) and preventing incidental effluent discharges;
- (iii) developing waste- and stormwater treatment techniques and reuse or further utilization and/or processing of the sludge in a manner causing as little environmental hazard as possible;
- (iv) developing processes and techniques for the collection and treatment of atmospheric emissions,

**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 Contracting Parties take the following measures to reduce emissions and discharges from iron and steel industry:

### **1. General requirements**

- 1.1 discharges should be avoided by using such operations (e.g. dry gas cleaning techniques) which cause no discharges to water;
- 1.2 process water, polluted cooling water and polluted stormwater should be treated separately from unpolluted cooling water at each plant;
- 1.3 installation of closed water systems should be developed for process water and polluted cooling water in order to reach a circulation rate of at least 95%;
- 1.4 production processes, utilization of by-products, waste- and stormwater treatment technology should be developed in order to minimize discharges (e.g. slag granulation by process water);
- 1.5 internal and external measures should be taken to minimize accidental discharges (e.g. installation of sufficient storage capacity for untreated waste waters);
- 1.6 sludges and other solid waste should be utilized or when not possible disposed of in a manner causing minimal environmental hazard (e.g. preferably by treating and entering the sludges to the blast furnace, sintering plant or electric arc furnace).

### **2. Requirements for the reduction of waste water discharges**

The mixing or diluting of different waste waters (i.e. mixing of treated process water with cooling water) for the purpose of compliance with the limit values established for the effluent should not be allowed.

This means that all limit values mentioned below refer to the process waste water. After having fulfilled requirements under para 1, the following limit values should not be exceeded as annual mean values (for  $C_{Nvol}$  24h value);

Type of process	Suspendable solids	Oil	C <sub>Nvol</sub>
Blast furnace	10 mg/l	-	0,2 mg/l
Sintering plant	10 mg/l	-	-
Open-heart furnace	10 mg/l	-	-
Basic oxygen furnace	10 mg/l	-	-
Electric arc furnace	10 mg/l	-	0,1 mg/l
Continuous casting	10 mg/t	5 g/t	-
Hot rolling	50 g/t ( or 1 t/a ) <sup>1)</sup>	10 g/t (or 0.2 t/a ) <sup>1)</sup>	-
Cold rolling	10 g/t	5 g/t	-

<sup>1)</sup> for existing plants only

For plants with integrated waste water systems the total annual discharges (of SS and oil from continuous casting, hot rolling and cold rolling) should not exceed the sum of the annual production multiplied with the values above for each process.

### 3. Requirements to emissions to the air

3.1 dust emissions from all processes in the iron and steel industry should be avoided or collected and filtered before being allowed to enter into the atmosphere;

3.2 fugitive emissions from all processes should be avoided as far as technically feasible e.g. by encapsulation, evacuation hoods combined with good housekeeping practices;

3.3 fabric filters or technology environmentally equivalent should be used for dust cleaning e.g. in sintering plants, for secondary gases from blast furnaces and basic oxygen furnaces, in electric arc furnaces and at cutting and grinding operations;

When measures under 3.1-3.3 are applied the particulate matter content of the filtered gases should not exceed 10 mg/m<sup>3</sup> (ndg); In any case, the particulate matter content of the filtered gases should not exceed 50 mg/m<sup>3</sup> (ndg);

3.4 the total emissions (fugitive emissions from charging and tapping and filtered gas) from all processes should be measured or estimated and reported;

3.5 a good process and device control and regular monitoring should be maintained in order to keep emissions low. Dust emissions shall be continuously monitored if the particulate emission is 5 kg/h or more or the cadmium emission is 5 g/h or more and that installations with a particulate emission of 2 to 5 kg/h shall be equipped with measuring instruments which continuously determine waste gas opacity, e.g., optical transmission;

3.6 measures should be taken to avoid cadmium and mercury in all products that can end up as scrap. The Contracting Parties should report on plans and measures they have taken and present a timetable for further reductions;

3.7 measures should be taken to reduce the use of chlorinated oils and emulsions in metal-working plants and the melting of chlorinated plastic together with steel products, in order to minimize the amount of chlorinated compounds in used scrap. The Contracting Parties should present plans and measures they have taken and present a timetable for the reductions;

3.8 further measures should be taken to reduce emissions of mercury and dioxins. The Contracting parties should report on emissions as well as plans and measures they have taken and present a timetable for further reductions.

#### **4. Analysing methods**

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

**RECOMMENDS ALSO** that the Contracting Parties report to the Commission every three years starting in 2006,

**RECOMMENDS FURTHER** that measurements and requirements for heavy metals as well as possible measurements and requirements for the environmental properties (e.g. toxicity and persistency) of the oil products used should be examined in 2006,

**DECIDES** that this Recommendation should be reconsidered in 2005, especially concerning limit values for continuous casting, hot and cold rolling, and limit values for dioxin emission and particulate emission.