

## **Manual of European Environmental Policy**

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# Waste incineration

<b>Formal reference</b>	
<a href="#">2000/76/EC</a> (OJ L332 28.12.2000)	Directive on <a href="#">incineration of waste</a>
Proposed 2.12.1998 <a href="#">COM(98)558</a>	
<b>Legal base</b>	Article 192 TFEU (originally Art. 175 TEC)
<b>Binding dates</b>	
Entry into force	28 December 2000
Formal compliance	28 December 2002
Standards apply to 'new' plants	28 December 2002
Standards apply to 'existing' plants	28 December 2005

The Industrial Emissions Directive [2010/75/EU](#) repeals Directive 2000/76/EC from 7 January 2014.

## Purpose of the Directive

The aim of the Directive is to prevent or limit negative effects on the environment and risks to human health, from the incineration and co-incineration of many types of waste including municipal and hazardous waste. The Directive covers some waste not already covered by the Directives on municipal incineration (Directives [89/369/EEC](#) and [89/429/EEC](#)) and hazardous waste incineration (Directive [94/67/EC](#)), which are repealed by Directive 2000/76/EC. The Directive is based on the premise that the harmfulness of the emissions does not depend on the source, but is a property of the substances emitted and sets emission limit values (ELVs) for these. The Directive also controls releases to water.

## Summary of the Directive

A co-incineration plant is defined as a plant whose main purpose is the generation of energy or production of material products, where waste is used as a regular or additional fuel. The Directive applies to all types of non-hazardous wastes, including sewage sludge, clinical waste and tyres and also to hazardous wastes including some waste oils, solvents and clinical wastes which were excluded from Directive 94/67/EC on hazardous waste incineration. In addition to experimental plants used for research, development and testing in order to improve the incineration process and which treat less than 50 tonnes of waste per year, plants treating the following type of wastes are excluded from the scope of the Directive:

- Vegetable waste from agriculture and forestry.
- Vegetable waste from the food processing industry, if the heat generated is recovered.
- Fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered.
- Wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular wood waste originating from construction and demolition waste.
- Cork waste.
- Radioactive waste.

- Animal carcasses.
- Waste resulting from the exploration for, and the exploitation of, oil and gas resources from off-shore installations and incinerated on board the installation.

The handling operations preceding incineration are subject to the following stricter requirements in the case of hazardous waste. The operator of the incineration or co-incineration plant is required to take all the necessary precautions concerning the delivery and reception of waste in order to prevent or limit as far as practicable negative effects on the environment and human health. Prior to accepting hazardous waste at the incineration or co-incineration plant, the operator is required to have available information about the waste and to also follow specific reception procedures. Furthermore, the operator must determine the mass of each category of waste according to the EU waste list before accepting the waste.

The Directive lays down the following operating requirements:

- The Total Organic Carbon (TOC) content of slag and bottom ashes must be less than 3 per cent or their loss on ignition must be less than 5 per cent of the dry weight of the material.
- Incineration and co-incineration plants must be operated in such a way that the gas from the combustion has a minimum temperature of 850 °C for 2 seven under the most unfavourable conditions.
- In case the hazardous waste to be incinerated or co-incinerated has a content of more than 1 per cent of halogenated organic substances (expressed as chlorine), the temperature has to be raised to 1,100 °C.
- Incineration and co-incineration plants must have and operate an automatic system to prevent waste feed in certain circumstances and also to prevent emissions at ground level.
- Any heat generated by the incineration or the co-incineration process must be recovered as far as practicable.
- Infectious clinical waste must be placed straight into the furnace.
- The management of the incineration or co-incineration plant must be controlled by a 'natural person'.

The Directive sets up ELVs for many atmospheric pollutants from standard incinerators (Annex V) and for co-incineration in cement kilns (Annex II.1) and in combustion plants (Annex II.2). Annex V provides the daily and half-hourly average ELVs for total dust, gaseous and organic substances, hydrogen chloride, hydrogen fluoride, sulphur dioxide and the sum of nitrogen monoxide and nitrogen dioxide. The ELVs for the nitrogen oxides are either 200 mg/m<sup>3</sup> or 400 mg/m<sup>3</sup> depending on the incineration plants nominal capacity (over or under 6 tonnes/h). Exemptions to the ELVs for NO<sub>x</sub> may be authorized by the competent authority in specific circumstances (until 1.1.2008 or 1.1.2010, depending on the conditions) as well as for dust (until 1.1.2008). Annex V also sets out the average values (within defined sample periods) for cadmium, thalium, mercury, antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel, vanadium and the total concentration of dioxin and furans. The concentrations of carbon monoxide in the combustion gas are also restricted. The ELV for dioxins and furans is set at 0.1 ng/m<sup>3</sup> to be sampled over a period of 6–8 h. For calculating the total concentration of dioxins and furans, the Directive uses the international toxic equivalent scheme (I-TEQ), which does not include dioxin-like polychlorinated biphenyls (PCBs). Annex II covers largely the same substances as Annex V but the ELVs and the provisions are different. As with incinerators there are exemptions to the ELVs for NO<sub>x</sub> (until

1.1.2008 or 1.1.2007, depending on the condition) and for dust (1.1.2008). The ELVs are more stringent for incinerators than co-incinerators. However, if in a co-incineration plant more than 40 per cent of the resulting heat release comes from hazardous waste the ELVs set out in Annex V will apply. The ELVs of Annex V will also apply for the co-incineration of untreated mixed municipal waste.

The Directive requires waste water from the cleaning of exhaust gases discharged from an incineration or co-incineration plant to be limited as far as practicable, at least in accordance with the ELVs set out in Annex IV. Annex IV provides ELVs for total suspended solids, mercury, cadmium, thallium, arsenic, lead, chromium, copper, nickel, zinc, and the total concentration of dioxins and furans. The competent authority may authorize exemptions for total suspended solids until 1.1.2008.

Compliance with the ELVs laid down by this Directive is to be regarded as a necessary but not sufficient condition for compliance with the requirements of the Integrated Pollution Prevention and Control (IPPC) Directive [2008/1/EC](#), which covers municipal waste incinerators with a capacity exceeding 3 tonnes/h and hazardous waste incinerators with a capacity exceeding 10 tonnes/day. Directive 2008/1/EC does not impose ELVs for specific pollutants itself, but requires the permitting authorities to do so on the basis of BAT (best available techniques). Therefore, if the currently available BAT allows compliance with stricter ELVs than those in this Directive, the permitting authorities are, in principle, obliged to require them in the IPPC permit.

On 20 February 2006, the Commission adopted Decision [2006/329/EC](#) laying down a questionnaire for Member States to report on the implementation of the Directive. A further Decision [2010/731/EU](#) set out a questionnaire for Member States to report on implementation of the Directive for the period 1 January 2009 to 31 December 2011 and Commission Decision [2011/632/EU](#) set out a questionnaire for Member States to report on implementation of the Directive for the period 1 January 2012 to 31 December 2013.

## **Development of the Directive**

Directive 2000/76/EC started out as a proposal dealing with non-hazardous waste in October 1998. The aim was to set stricter limit values for emissions from existing and new incinerators based on BAT and to include emission standards for dioxins. The proposal was intended to replace the Directives on municipal waste incineration (Directives [89/369/EEC](#) and [89/429/EEC](#)). However, the European Parliament proposed to combine this proposal with the proposal dealing with aqueous discharge from incineration of hazardous waste that would have complemented the Hazardous Waste Directive [94/67/EC](#) by setting emission limits on aqueous effluents from incinerator scrubbers. Combining these two separate initiatives together meant that the proposed air emission limits for non-hazardous waste incineration would also apply to hazardous waste. Amendments were tabled to ensure that hazardous waste would be properly processed as some MEPs opposed the merger of the two proposals fearing that this would mean weaker emission standards for hazardous waste.

Most of the Member States supported the proposal. However, the United Kingdom was concerned that merging the Directives might have the effect of delaying the compliance deadline for hazardous waste incinerators. The Netherlands and Denmark proposed to tighten

the ELVs for hazardous waste incineration but this was rejected and a Common Position was adopted in June 1999 by the Environment Council.

The main amendments by the Parliament's rapporteur aimed to tighten ELVs for co-incineration to bring them closer to standard incinerators. Some MEPs interpreted the amendment of tighter co-incineration emission values as protectionist towards certain EU countries, such as Denmark, Germany and the Netherlands, which had under-exploited state-of-the-art incinerators. At the second reading, the Environment Committee rejected most of the amendments brought forward by the rapporteur.

The Conciliation Committee removed a Parliament amendment which would have required incinerators burning any waste containing more than 1 per cent of halogenated organics to operate at 1,100 °C rather than the normal 850 °C. This now applies only to hazardous waste. Lobbying from the UK agricultural lobby ensured that the Directive does not apply to animal carcass crematoria. These include pet crematoria and the large cattle crematoria were being used in the United Kingdom to destroy waste from a BSE cattle cull. The UK National Farmers' Union had estimated that there were 2,000–3,000 on-farm incinerators none of which would have met the Directive limits as they lacked abatement equipment.

## Implementation of the Directive

One study has been published on the implementation of the Directive<sup>1</sup>. The study examined reports submitted by 21 Member States. In total, 1,444 incineration and co-incineration plants were reported. Of these 595 (across 21 Member States) were dedicated waste incinerators (dealing with about 60 million tonnes of waste). The remaining 849 were co-incineration plants (across 13 Member States) and dealing with more than 13 million tonnes of waste. Stricter air ELVs (for dust, HCl, HF, SO<sub>2</sub>, NO<sub>x</sub> and Hg) had been imposed by three Member States to a number of plants. At least 13 per cent of the plants had been granted exemptions from operating conditions, usually minimum temperature and residence time. A large number of measurement exemptions were reported. The study concluded that 'overall, the analysis of the implementation of the WID revealed that the permitting in most Member States has been performed with a high degree of compliance at least for the reported installations'. However, it noted two areas of concern – the number of exemptions which seemed to go beyond what was allowed by the Directive and the lack of public information in many Member States.

## Enforcement and court cases

There have been a number of cases decided in the European Court of Justice concerning Directive 2000/76/EC. Two preliminary ruling cases concern the interpretation of definitions of the Directive:

- [C-317/07](#) 4.12.08: In this preliminary ruling of 2008, clarifications over the definitions of Directive 2000/76/EC were required. A company applied to the local authority for an environmental permit concerning a complex with two separate plants on the same site: a plant producing gas from waste and a power plant whose steam boiler burns the purified gas, which is produced in the gas plant. The local authority took the view that it constitutes a co-incineration plant within the meaning of Directive 2000/76/EC, which was contested by the company. It was asked whether an incineration line was required to qualify a plant as being an incineration plant. The

Court stated that the definition of ‘incineration plant’ in Article 3(4) relates to any technical unit and equipment in which waste is thermally treated, on condition that the substances resulting from the use of the thermal treatment process are subsequently incinerated; in that connection, the presence of an incineration line is not a necessary condition for the purposes of such classification. In addition, the judges gave indication for gas plant whose objective is to obtain products in gaseous form, in this case purified gas, by thermally treating waste that must be classified as a ‘co-incineration plant’ within the meaning of Article 3(5) of Directive 2000/76/EC. Contrary a power plant which uses as an additional fuel, in substitution for fossil fuels used for the most part in its production activities, a purified gas obtained by the co-incineration of waste in a gas plant does not fall within the scope of that Directive.

- [C-251/07](#) 11.09.08: In this 2008 preliminary ruling the Court brought clarification over the definition of co-generation plant. It stated that where a co-generation plant comprises a number of boilers, each boiler and its associated equipment is to be regarded as constituting a separate plant. It also stressed that in defining what is an incineration plant, consideration must be given to what is the main purpose of the installation. It is for the competent authorities to identify that purpose on the basis of an assessment of the facts. The assessment must take into account the volume of energy generated or material products produced by the plant in relation to the quantity of waste incinerated in that plant and the stability and continuity of that production.
- [C-209/09](#) 25.02.10. This ruled that a power plant which uses as an additional fuel (in substitution for fossil fuels used for the most part in its production activities) gas obtained in a gas plant following thermal treatment of waste is to be regarded, jointly with that gas plant, as a ‘co-incineration plant’ within the meaning of Article 3(5) of Directive 2000/76/EC when the gas in question has not been purified within the gas plant.

One case concerned public participation in relation to Directive 2000/76/EC:

- [C-255/05](#) 05.07.07. In this case, Italian national legislation was contested as it did not make accessible to the public, a sufficient time in advance, a declaration in respect of the commencement of the operations of a new project for an installation for the incineration of waste under Directive 2000/76/EC and did not make the decisions relating to that declaration, including a copy of the authorization, available to the public. The Court found that Italy failed to fulfil its obligations under the Directive.

Three cases concern the failure by Member States to ensure adequate transposition of the Directive 2000/76/EC:

- [C-61/04](#) 13.01.05. This was a judgement against Greece for failing to transpose the Directive within the prescribed period.
- [C-97/04](#) 02.12.04. This was a judgement against Italy for failing to transpose the Directive within the prescribed period.
- [C-48/04](#) 02.12.04. This was a judgement against Portugal for failing to transpose the Directive within the prescribed period.

## Further developments

Leading up to the deadline of 28 December 2005 for compliance for existing plants, the Commission received a number of representations concerning the fact that Directive 2000/76/EC applies to the incineration or co-incineration of tallow. As a result, it undertook a study of options relating to this issue. It concluded that the application of the Directive to the burning of tallow brings important environmental benefits at a reasonable cost and, therefore, no amendment of the Directive would be justified.

In December 2007 the Commission published a proposal to revise the Integrated Pollution Prevention and Control Directive [2008/1/EC](#) and six sectoral industrial emission Directives ([COM\(2007\)844](#)), including Directive 2000/76/EC. The proposal was adopted as the Industrial Emissions Directive [2010/75/EU](#). This Directive alters some conditions for waste incinerators. As a result the Waste Incineration Directive is repealed from 7 January 2014.

## Related legislation

Waste incineration is one tool in the management of waste. It is, therefore, important to note that all Community [waste legislation](#) has a direct relevance to Directive 2000/76/EC, whether this aims to reduce waste generation or address alternative management options.

Directive 2000/76/EC has a clear relationship with those Directives which it replaced – those on municipal incineration (Directives [89/369/EEC](#) and [89/429/EEC](#)) and hazardous waste incineration (Directive [94/67/EC](#)). As noted above, permitting for incinerators under Directive 2000/76/EC is to undertake within the procedures set out under the IPPC Directive [2008/1/EC](#).

## Reference

1 Ökopol GmbH (2007) Assessment of the application and possible development of community legislation for the control of waste incineration and co-incineration, November 2007.