

## **Manual of European Environmental Policy**

The following pages are a section from the Manual of European Environmental Policy written by the Institute for European Environmental Policy.

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This section is the text of the Manual as published in 2012. It is therefore important to note the following:

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The Manual should be cited as follows:

Farmer, A.M. (2012) (Editor). Manual of European Environmental Policy. 1043pp. Routledge, London.

# Titanium dioxide

<b>Formal references</b>	
<a href="#">78/176/EEC</a> (OJ L54 25.2.1978)	Directive on waste from the titanium dioxide industry
Proposed 14.7.75 – COM(75)339 OJ C/1975/222/110	
<b>Legal base</b>	Articles 115 TFEU (originally Art. 100 EEC Treaty) and 352 TFEU (originally Art. 235 EEC Treaty)
<a href="#">83/29/EEC</a> (OJ L32 03.02.1983)	(Amendment).
Proposed 8.7.82 – COM(82)430 OJ C/1982/196/6	
<b>Legal base</b>	Articles 115 TFEU (originally Art. 100 EEC Treaty) and 352 TFEU (originally Art. 235 EEC Treaty)
<a href="#">82/883/EEC</a> (OJ L378 31.12.1982)	Directive on procedures for the surveillance and monitoring of environments concerned by waste from the titanium dioxide industry
Proposed 17.12.80 – COM(82)831	
<b>Legal base</b>	Articles 115 TFEU (originally Art. 100 EEC Treaty) and 352 TFEU (originally Art. 235 EEC Treaty)
<a href="#">89/428/EEC</a> (OJ L201 14.07.1989)	Directive on procedures for harmonizing the reduction and the eventual elimination of pollution caused by waste from the titanium dioxide industry
Proposed – COM(88)849	
NB Directive declared void by the Court of Justice 11.6.91	
<b>Legal base</b>	Article 192 TFEU (originally Art. 130s EEC Treaty)
<a href="#">92/112/EEC</a> (OJ L409 31.12.1992)	Directive on procedures for harmonizing the reduction and elimination of pollution caused by waste from the titanium dioxide industry
Proposed 7.10.91 – <a href="#">COM(91)358</a>	
<b>Legal base</b>	Article 114 TFEU (originally Art. 100aEEC Treaty)
<b>Binding dates</b> (Directive <a href="#">78/176/EEC</a> )	
Notification date	22 February 1978
Formal compliance	22 February 1979
Pollution reduction programmes submitted to Commission	1 July 1980
Programmes to be introduced	1 January 1982
Programme targets to be met	1 July 1987
First three-yearly report to be submitted to Commission	22 February 1981

The [Industrial Emissions Directive](#) 2010/75/EU repeals the titanium dioxide Directives covered in this section from 7 January 2014.

## **Purpose of the Directives**

The main aim of the Directives is the prevention and progressive reduction of pollution caused by waste from the titanium dioxide (TiO<sub>2</sub>) industry. Eventually, all pollution is to be eliminated. Titanium dioxide is a white pigment used in paints and for other purposes. Its manufacture may result in a much larger quantity of waste than product and this has frequently been dumped at sea or discharged into estuaries. ‘Red mud’ in the Mediterranean resulting from discharges from an Italian titanium dioxide plant drew strong protests from Corsica in 1972 resulting in a Court case and restrictions on the plant. A further aim of the Directive is to reduce the resulting distortion to competition.

## **Summary of the Directives**

### **Summary of Directive 78/176/EEC**

General duties are placed on Member States to ensure that titanium dioxide waste is disposed of without endangering human health or harming the environment and to encourage recycling.

All discharge, dumping, storage and injection of waste must be subjected to prior authorization by the competent authority. Authorization may be granted for a limited period only and may be renewed. Authorization may only be given if the waste cannot be disposed of by more appropriate means, and an assessment shows that no deleterious effects will result. An Annex I lists the particulars of the waste, the site and the methods of disposal that must be supplied in order to obtain an authorization.

Disposal must be accompanied by monitoring of the waste and of the environment in accordance with particulars laid down in an Annex II. The Commission was to propose more precise monitoring procedures (this resulted in Directive 82/883/EEC – see below).

Member States must take steps to remedy unsatisfactory situations that may arise (five such are listed) if necessary by suspending disposal. Member States must send to the Commission programmes for the progressive reduction and eventual elimination of pollution. The programmes must be introduced by 1 January 1982 and must include targets to be achieved by 1 July 1987.

Within six months of receiving all the national programmes, the Commission may submit proposals to the Council for harmonizing them, both as regards pollution reduction and the conditions of competition. The word ‘may’ was amended to ‘shall’ by Directive 83/29/EEC and the period for submitting proposals extended to 15 March 1983. However, the Commission having placed an obligation on itself then failed to meet the amended deadline – see below.

Where a Member State considered that in the case of an individual establishment no additional measures were necessary to fulfil the requirements of the Directive, it had to provide the Commission with the evidence leading to that conclusion by 20 August 1979. The Commission could indicate its agreement, but if it did not agree, additional measures had to be included in the programme (Article 10).

Prior authorization is required before any new industrial establishment can be built and an environmental impact survey (sic) must be conducted. Authorization may only be granted to firms giving an undertaking to use only such materials, processes and techniques available on the market as are least damaging to the environment.

Member States must supply the Commission with information relating to authorizations, the results of monitoring and any remedial measures taken. Every three years, Member States must submit a report to the Commission on the progressive reduction of pollution. The Commission must communicate this report to the other Member States. The Commission must in turn report every three years to the Council and Parliament.

### **The Monitoring Directive 82/883/EEC**

This Directive fulfils the obligation placed on the Commission by Directive 78/176/EEC to propose procedures for surveillance and monitoring (the parent Directive required a proposal within one year but the Commission overran the date by nearly two years).

The Directive lays down in five Annexes the steps to be taken in monitoring air, salt water, fresh water, storage and dumping on land, and injection into soil.

### **The ‘harmonizing’ Directive 92/112/EEC**

As required by Directive 78/176/EEC, Directive 89/428/EEC laid down procedures for harmonizing programmes for the reduction and elimination of pollution from existing titanium dioxide plants. The Court of Justice, however, ruled that the Directive was void because, as the Commission had insisted, the Ministers had adopted the Directive with the wrong legal base (Article 130S EEC). The Commission believed that Article 100A, rather than Article 130S, was the appropriate legal base for such a harmonizing Directive which aimed to eliminate distortions to competition (see below). A new ‘harmonizing’ Directive was therefore adopted in 1992 which has Article 100A as its legal base.

Directive 89/428/EEC provided for bans on the dumping and discharge of the most polluting forms of waste from the manufacture of titanium dioxide, including solid and strong acid wastes. It also put forward discharge reduction programmes for weaker acids and treatment wastes. Directive 92/112/EEC has similar aims and objectives but it amends the implementation deadlines.

Member States are required to prohibit from 15 June 1993 the dumping of any solid waste, strong acid waste, treatment waste, weak acid waste or neutralized waste into coastal or surface waters. The discharge of solid and strong acid waste is prohibited for both sulphate and chlorine processes, the ban for sulphate processes also includes treatment waste. Discharges of less polluting wastes (e.g. weak acid waste, neutralized waste) are to be reduced to meet specified limits by 31 December 1993 for existing industrial establishments using the sulphate process and 15 June 1993 for those using the chlorine process. Allowance

is given for Member States to defer these deadlines if serious techno-economic difficulties are experienced. However, the bans on dumping and the discharge of strong acids and solid waste can only be deferred until the 30 June 1993. Attainment of discharge targets for the less-polluting wastes can only be deferred until the end of 1984 for weak acid and neutralized waste discharged from sulphate processes.

## **Development of the Directives**

One of the wastes from titanium dioxide production is ferrous sulphate and there seems little doubt that it was the conflict between France and Italy in the early 1970s over the dumping at sea of this waste from the Montedison factory at Scarlino resulting in 'red mud' that gave rise to the Directive.

The Commission's original proposal was much more stringent than Directive 78/176/EEC as eventually agreed. As well as requiring authorization and monitoring, it also specified a phased reduction of emissions so that by 1985 only 5 per cent of the total untreated emissions would be allowed to be dumped at sea or in estuaries. The UK Minister, Denis Howell, declared in the Council on 16 October 1975 that Britain could not accept the proposal in that form since it embodied uniform standards for controlling discharges of waste, regardless of environmental circumstances. The UK argument was that since the British factories discharged continuously to estuaries with large tidal excursions and high flow rates, the acid in the water was rapidly neutralized on mixing with sea water and the resulting precipitates, as well as the iron, titanium and other trace metals, were quickly dispersed. The British sites were in fact chosen so that discharges were to estuaries already high in suspended solids. The lack of tide in the Mediterranean, on the other hand, made dispersion difficult and intermittent dumping of concentrated acids from ships – the acid was concentrated to reduce shipping costs – produced stronger concentrations in the sea water instantaneously than a continuous discharge of dilute acid from a pipeline.

The titanium dioxide proposal was used in Britain to emphasize the disadvantages of the limit value approach embodied in part of the Dangerous Substances Directive [76/464/EEC](#) (see section on dangerous substances in water). The further point was made that waste from titanium dioxide production did not include substances in List I of that Directive (except in trace amounts) and that all Member States had agreed that emissions of other substances were to be controlled by reference to environmental quality objectives. Commissioner Scarascia Mugnozza, speaking in the European Parliament's debate only a few weeks after the compromise Decision reached by the Council on Directive 76/464/EEC, conceded that the compromise Decision was a relevant factor in discussing the titanium dioxide proposal.

The solution eventually agreed for titanium dioxide, which had emerged under the British Presidency of the Council, was that Member States would draw up and submit to the Commission their own programmes for progressive reduction of pollution. There can be little doubt that Britain was the principal opponent of uniform controls, but the danger of excessively stringent standards was also very much in the minds of others. The Economic and Social Committee, for instance, in its report of 25 February 1976 pointed to the danger of the titanium dioxide industry moving to countries outside the Community, with an associated loss of jobs, if the financial consequences of complying with the Directive were too high.

Britain was also responsible for the abortive Article 10, which allowed Member States to submit to the Commission, in respect of a particular factory, that no pollution reduction programme was necessary if no pollution was being caused. This provision, introduced under pressure from the British industry, resulted in the first environmental case being brought before the European Court (see below).

Directive 78/176/EEC is an example of the 'sectoral approach' envisaged in the first action programme of 1973 which grouped the titanium dioxide industry together with the paper pulp industry and the iron and steel industry for early attention. The 'sectoral approach' is shorthand for dealing with a particular industry rather than with a particular pollutant or a particular environment. With the failure to agree a proposed Directive on paper pulp (COM(74)2256 OJ C99 2.5.75), the sectoral approach appeared to have been abandoned but the fourth action programme suggests that it may be revived (the daughter Directives of 76/464/EEC follow the sectoral approach, such as mercury from the chloralkali industry). Though in 1983 Directive 78/176/EEC could have been considered as an exception to be explained as the product of exceptional circumstances (an acute local problem resulting in a dispute between two Member States), it can no longer be so described. It has continued to be a matter of Community if not international concern.

The development of Directive 78/176/EEC was influenced not only by arguments about competition but also by doubts about the technical report on which it was based.

## **Technical issues**

The Commission proposal for the Directive was published not just with the usual explanatory memorandum but also with a 77 page technical report (COM(75)339). This report described the preparation and uses of titanium dioxide, the market situation, the processes for titanium dioxide production, the raw materials, the kinds of waste that arise, the methods of treatment, and both long-term and short-term environmental effects. The section on environmental effects quoted extensively from the French government's report published in connection with the Montedison case. It did not say, though in fairness it could have done, that the growth of the titanium dioxide industry had enabled the use of toxic substances such as lead and zinc to be reduced in paints. Titanium dioxide is itself believed to be harmless and has largely replaced the toxic pigments, though mainly because it is a better pigment.

Titanium dioxide is extracted from ore by one of two processes; the sulphate and chloride, the more recent chloride process generating less waste by allowing the use of a purer ore, which is scarce and expensive. The sulphate process gives rise to ferrous sulphate, acids and traces of some heavy metals. The technical report said that in the immediate vicinity of discharge of these wastes there was reduced oxygenation and increased acidity resulting in a local reduction of zooplankton biomass and departure of fish but that evidence of actual damage to fish was inconclusive. However, a UK Government memorandum to Parliament dated 14 November 1977 said that 'all the scientific evidence indicates that titanium dioxide waste can be disposed of to the sea without harming the environment; as the only feasible alternative would be neutralization using lime and dumping of the resultant solid waste on land, the net effect of the Commission's proposals would have been to increase pollution and impose unnecessary costs on the UK industry'.

The Commission proposal that only 5 per cent of the untreated wastes was to be discharged to sea was based on the assertion that several feasible treatment processes existed to reduce

pollution. The UK Lords' Scrutiny Committee commented tartly that the methods of treatment listed did not appear to justify this statement, and went on to point out that none of those methods had yet been put into commercial use.

## **Harmonizing national programmes**

Member States were to submit national programmes for reducing and eliminating pollution to the Commission by 1 July 1980 and six months after receipt of all these national programmes the Commission was to make proposals for harmonizing them. In fact, the Commission did not receive all the national programmes until 15 October 1981 and found that they were neither comparable nor provided adequate information. The Commission, therefore, had to ask for extra information and proposed a Directive extending the time period (see European parliamentary question OJ C93 7.4.83). This proposal was agreed as Directive 83/29/EEC which set a new deadline of 15 March 1983.

A 'harmonizing' Directive was not proposed, however, until 14 April 1983, COM(83)189. It proposed uniform reductions in discharges largely irrespective of the environments into which the discharges were made. As noted above, this was a course rejected when the parent Directive was being negotiated.

The UK made known its opposition to the proposal on the grounds of its incompatibility with UK policy and the economic difficulties it would produce. The proposal was effectively deadlocked by UK opposition in February 1987 when the Commission informed Member States that this proposal was one which it intended to re-issue under the new Article 100A of the Single European Act, enabling it to be subject to majority voting (see below). The UK abandoned its opposition in principle to the proposal following the Second North Sea Conference in November 1987 where it announced a more robust approach to water pollution control. The change of direction was also influenced by the titanium dioxide industry's adoption of a large pollution control programme which anticipated some of the proposal's requirements. Some Member States, however, insisted that Article 100A was not the appropriate legal basis for the Directive, which they accordingly adopted by unanimity in June 1989. Two years later, the Court of Justice ruled that the Directive was void (see below). The Commission then put forward a proposal for a new 'harmonizing' Directive with Article 100A EEC as its legal base. The Directive was adopted by the Council in December 1992.

## **Implementation of the Directives**

Information on national legislation transposing Directive 78/176/EEC can be found in their national [execution measures](#).

National implementation reports due in September 2011 are available in the [Reporting Obligations Database](#).

There is no comprehensive study published by the Commission available on the implementation of the titanium dioxide Directives. However, in 2007 a study<sup>1</sup> was produced for the Commission examining future changes to conditions for titanium dioxide plants in the light on developments under the Integrated Pollution Prevention and Control Directive [2008/1/EC](#). This study found that, in 2002 annual production in Europe was around 1.5 million tonnes, spread across 19 factories operating in 12 countries. In considering the

implementation of the Directives it argued that the technical conditions were obsolete and that full compliance was a requirement for membership of the Titanium Dioxide Manufacturers Association (to which all companies were members). Furthermore, the Large Volume Solid Inorganic Chemicals (LVIC-S) BAT Reference (BREF) note developed under Directive 2008/1/EC required significantly stricter conditions than the earlier Directives.

## Enforcement and court cases

Directives 78/176/EEC and 89/428/EEC have both given rise to actions in the Court of Justice, the significance of which proceed considerably beyond the titanium dioxide industry:

- OJ C153 20.6.79. The first official action taken in Britain following the notification of the Directive was a request from the government to the Commission for exemptions, under Article 10, from the need to prepare pollution reduction programmes in respect of the two establishments discharging into the Humber. This request was presumably made at the instigation of the two companies concerned. A similar request was also made by the West German government in respect of dumping in the North Sea. The Commission did not accept the British government's argument and, in a letter of 19 February 1979, refused to grant exemptions to the two establishments. Since the Directive provides no appeal against the Commission's Decision, the United Kingdom had to accept the Commission's opinion that programmes were necessary and informed the relevant water authority accordingly. The two companies were less easily satisfied and on 17 May 1979 they simultaneously brought an action in the European Court against the Commission seeking annulment of the Commission's opinion that programmes were necessary. The *Bulletin of the European Communities* (No 5, 1979, p. 118) asserted that this was the first action brought to the Court relating directly to environmental matters. The British government for its part has made it clear that it was not associated in any way with the action. All that is publicly known of this action is contained in the brief statement of case published in the *Official Journal* (OJ C153 20.6.79). The statement claims that the Court should not only annul the opinion contained in the Commission's letter of 19 February 1979 but should also declare the Directive illegal. The second point is thought to turn on the extent to which a draft Directive can be modified by the Council before being agreed without having to be resubmitted to the Parliament for an opinion. It is a point of the greatest importance and goes well beyond environmental policy. The action was eventually suspended and neither party (the companies and the Commission) sought to activate it.
- [Case C-300/89](#) 11.6.91. In June 1991, Directive 89/428/EEC on the harmonization of pollution reduction programmes was declared void by the Court of Justice on the grounds that the Council had proceeded on the wrong legal basis. Reforms introduced by the Single European Act included two new Treaty articles. The first (Article 100A) enabled legislation aimed at harmonizing measures affecting the internal market to be agreed by the Council by qualified majority vote. The second (Article 130S) relating expressly to environmental matters, retained the requirement for unanimous voting. A number of environmental Directives relating to product standards have a direct effect on the functioning of the internal market and were therefore agreed by qualified majority under Article 100A – vehicle exhaust emissions being a notable example. But there was a large grey area where it was not clear whether Article 100A or 130S should apply. Following the passage of the Single European Act, the Commission amended its original proposal for a harmonizing Directive, changing its legal basis to

Article 100A. The Council, however, decided that Article 130S was more appropriate and in June 1989 adopted the Directive unanimously. The Commission, supported by the European Parliament, then brought an action in the Court of Justice seeking an annulment of the Directive, arguing that the principal objective of the legislation was to harmonize standards relating to the operation of the internal market. It presented evidence in support of its case that differing pollution control standards imposed by Member States on titanium dioxide producers had resulted in a product price difference of between 10 and 20 per cent in 1984, increasing since then. For its part, the Council contended that harmonization was only an incidental objective of the Directive, whose principal aim was to reduce and eliminate pollution, and therefore Article 130S was more appropriate. In its judgement, the Court ruled that the goals of environmental protection and the removal of market distortions could not be prioritized, as they were indivisible. The judges cited Article 100A which expressly makes reference to the Commission's obligation when proposing harmonization measures to take as their basis a high level of environmental protection; and Article 130R which states that environmental protection shall be a component of the Community's other policies. They therefore ruled against the Council on the grounds that a measure does not automatically fall within Article 130S simply because it is aimed, equally with other objectives, at environmental protection.

There have been two cases concerning the failure by Member States to ensure adequate transposition of Directive 78/176/EEC:

- [C-68/81](#) 02.02.82. This was a judgement against Belgium for failure to transpose Directive 78/176/EEC within the prescribed time period.
- [C-435/99](#) 12.12.00. This was a judgement against Portugal for failure to transpose Directive 78/176/EEC within the prescribed time period.

## Further developments

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 the Directives concerning titanium dioxide plants. The proposal was adopted as the [Industrial Emissions Directive](#) 2010/75/EU. This Directive significantly strengthens the emission limits for titanium dioxide plants, taking account of conclusions reached in the development of BAT reference documents. As a result the titanium dioxide Directives covered in this section are repealed from 7 January 2014.

## Related legislation

The main related legislation with respect to titanium dioxide is the Integrated Pollution Prevention and Control Directive [2008/1/EC](#), which establishes the need for permits for titanium dioxide plants to have conditions for air, water and waste discharges based on Best Available Techniques. Other relevant legislation includes the Waste Framework Directive [75/442/EEC](#) and the Directive on Waste [2006/12/EC](#) and the Dangerous Substances Directive [2006/11/EC](#).

## Reference

1 AEAT (2007) *Analysis of the Simplification of the Titanium Dioxide Directives*,  
[http://ec.europa.eu/environment/waste/pdf/tio2\\_simplification\\_report\\_iss3.pdf](http://ec.europa.eu/environment/waste/pdf/tio2_simplification_report_iss3.pdf)