

**COUNCIL DIRECTIVE**

of 21 June 1989

**on procedures for harmonizing the programmes for the reduction and eventual elimination of pollution caused by waste from the titanium dioxide industry**

(89/428/EEC)

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 130s thereof,

Having regard to the proposal from the Commission <sup>(1)</sup>,

Having regard to the opinion of the European Parliament <sup>(2)</sup>,

Having regard to the opinion of the Economic and Social Committee <sup>(3)</sup>,

Whereas Council Directive 78/176/EEC of 20 February 1978 on waste from the titanium dioxide industry <sup>(4)</sup>, as last amended by Directive 83/29/EEC <sup>(5)</sup>, and in particular Article 9 thereof, requires the Member States to draw up programmes for the progressive reduction and eventual elimination of pollution caused by waste from industrial establishments in existence on 20 February 1978;

Whereas these programmes set general targets for the reduction of pollution caused by liquid, solid and gaseous wastes to be achieved by 1 July 1987; whereas these programmes were to be submitted to the Commission so that it could present suitable proposals to the Council for their harmonization with regard to the reduction and eventual elimination of this pollution and the improvement of the conditions of competition in the titanium dioxide industry;

Whereas, in order to protect the aquatic environment, dumping of waste and discharges of certain wastes, in particular of solid and strong acid wastes, should be prohibited and discharges of other wastes, in particular of weak acid and neutralized wastes, should be progressively reduced;

Whereas existing industrial establishments should employ the appropriate systems for treating the wastes in order to meet the requisite targets by the set dates;

Whereas installation of those systems can give rise to major technico-economic difficulties; whereas Member States should therefore be able to defer application of the

various provisions, on condition that a programme of effective reduction of pollution is drawn up and submitted to the Commission; whereas where Member States experience particular difficulties with regard to programmes for the elimination of discharges, the Commission should be able to extend the relevant time limits;

Whereas, in respect of discharges of certain wastes, Member States should be able to make use of quality objectives in such a way that the results are equivalent in all respects to those obtained through limit values; whereas such equivalence should be demonstrated in a programme to be presented to the Commission;

Whereas, without prejudice to the obligations placed on Member States by Council Directive 80/779/EEC of 15 July 1980 on air quality limit values and guide values for sulphur dioxide and suspended particulates <sup>(6)</sup>, as last amended by Directive 89/427/EEC <sup>(7)</sup>, and Council Directive 84/360/EEC of 28 June 1984 on the combating of air pollution from industrial plants <sup>(8)</sup>, it is expedient to protect the quality of the air by fixing appropriate emission standards in respect of gaseous discharges from the titanium dioxide industry;

Whereas, in order to verify the effective application of the measures, Member States should undertake monitoring in relation to the actual production of each establishment;

Whereas all waste from the titanium dioxide industry should be avoided or re-used where technically and economically feasible and whereas such waste should be re-used or disposed of without endangering human health or the environment,

HAS ADOPTED THIS DIRECTIVE:

*Article 1*

This Directive lays down, as required by Article 9 (3) of Directive 78/176/EEC, procedures for harmonizing the programmes for the reduction and eventual elimination of pollution from existing industrial establishments and is intended to improve the conditions of competition in the titanium dioxide industry.

<sup>(1)</sup> OJ No C 138, 26. 5. 1983, p. 5,  
and OJ No C 167, 27. 6. 1984, p. 9.

<sup>(2)</sup> OJ No C 127, 14. 5. 1984, p. 29, and  
OJ No C 158, 26. 6. 1989.

<sup>(3)</sup> OJ No C 358, 31. 12. 1983, p. 40.

<sup>(4)</sup> OJ No L 54, 25. 2. 1978, p. 19.

<sup>(5)</sup> OJ No L 32, 3. 2. 1983, p. 28.

<sup>(6)</sup> OJ No L 229, 30. 8. 1980, p. 30.

<sup>(7)</sup> See page 53 of this Official Journal.

<sup>(8)</sup> OJ No L 188, 16. 7. 1984, p. 20.

## Article 2

## 1. For the purpose of this Directive :

## (a) where the sulphate process is used :

## — 'solid waste' shall mean :

- insoluble ore residues not broken down by sulphuric acid during the manufacturing process,
- copperas, i.e. crystalline ferrous sulphate ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ ),

## — 'strong acid waste' shall mean :

the mother liquors arising from the filtration phase following hydrolysis of the titanyl sulphate solution. If these mother liquors are associated with weak acid wastes which overall contain more than 0,5 % free sulphuric acid and various heavy metals<sup>(1)</sup>, the liquors and waste taken together shall be considered strong acid waste,

## — 'treatment waste' shall mean :

filtration salts, sludges and liquid waste arising from the treatment (concentration or neutralization) of strong acid waste and containing various heavy metals, but not including neutralized and filtered or decanted waste containing only traces of heavy metals and which, before any dilution, has a pH value above 5,5,

## — 'weak acid waste' shall mean :

wash waters, cooling waters, condensates and other sludges and liquid wastes, other than those included in the above definitions, containing 0,5 % or less free sulphuric acid,

## — 'neutralized waste' shall mean :

any liquid which has a pH value over 5,5, contains only traces of heavy metals, and is obtained directly by filtration or decantation from strong or weak acid waste after its treatment to reduce its acidity and its heavy metals' content,

## — 'dust' shall mean :

all kinds of dust from production plants and in particular ore and pigment dust ;

— 'SO<sub>2</sub>' shall mean :

gaseous sulphur dioxide trioxide released in the various stages of the manufacturing and internal waste treatment processes, including acid droplets ;

## (b) where the chloride process is used :

## — 'solid waste' shall mean :

- insoluble ore residues not broken down by the chlorine during the manufacturing process,

— metal chlorides and metal hydroxides (filtration substances) arising in solid form from the manufacture of titanium tetrachloride,

— coke residues arising from the manufacture of titanium tetrachloride,

## — 'strong acid waste' shall mean :

waste containing more than 0,5 % free hydrochloric acid and various heavy metals<sup>(1)</sup>,

## — 'treatment waste' shall mean :

filtration salts, sludges and liquid waste arising from the treatment (concentration or neutralization) of strong acid waste and containing various heavy metals, but not including neutralized and filtered or decanted waste containing only traces of heavy metals and which, before any dilution, has a pH value over 5,5,

## — 'weak acid waste' shall mean :

wash waters, cooling waters, condensates and other sludges and liquid wastes, other than those included in the above definitions, containing 0,5 % or less free hydrochloric acid,

## — 'neutralized waste' shall mean :

any liquid which a pH value over 5,5, contains only traces of heavy metals, and is obtained directly by filtration or decantation from strong or weak acid waste after its treatment to reduce its acidity and its heavy metals content ;

## — 'dust' shall mean :

all kinds of dust from production plants and in particular ore, pigment and coke dust,

## — 'chlorine' shall mean :

gaseous chlorine released in the various stages of the manufacturing process ;

## (c) where the sulphate process or the chlorine process is used :

## — 'dumping' shall mean :

any deliberate disposal into inland surface waters, internal coastal waters, territorial waters or the high seas of substances and materials by or from ships or aircraft<sup>(2)</sup>, of any type whatsoever, and from fixed and floating platforms.

## 2. The terms defined in Directive 78/176/EEC shall have the same meaning in this Directive.

<sup>(1)</sup> Strong acid waste which has been diluted until it contains 0,5 % or less free sulphuric acid shall also be covered by this definition.

<sup>(2)</sup> 'Ships and aircraft' shall mean sea-going vessels and airborne craft of any type whatsoever. This expression shall include air-cushion craft, floating craft, whether self-propelled or not and fixed or floating platforms.

*Article 3*

The dumping of any solid waste, strong acid waste, treatment waste, weak acid waste, or neutralized waste, as referred to in Article 2 shall be prohibited with effect from 31 December 1989.

*Article 4*

Member States shall take the necessary measures to ensure that discharges of waste into inland surface waters, internal coastal waters, territorial waters and the high sea are prohibited:

- (a) as regards solid waste, strong acid waste and treatment waste from existing industrial establishments using the sulphate process:
  - by 31 December 1989 in all the abovementioned waters;
- (b) as regards solid waste and strong acid waste from existing industrial establishments using the chloride process:
  - by 31 December 1989 in all the abovementioned waters.

*Article 5*

1. Member States may defer the date of application referred to in Articles 3 and 4 until 31 December 1992 at the latest, if serious techno-economic difficulties so require and provided that a programme of effective reduction of dumping and discharge of wastes referred to in Articles 3 and 4 resulting in their final prohibition by 1992 at the latest is submitted to the Commission by 31 December 1989. Three months at the latest following adoption of this Directive, the Commission shall be informed<sup>(1)</sup> of such cases, which shall be the subject of consultation with the Commission. The Commission shall inform the other Member States.

2. In the case of Member States which avail themselves of the option provided for in paragraph 1 but which are unable to fulfil the requirements laid down in Article 4 by 31 December 1992 the Commission may grant an extension of six months. The Commission may also grant an extension of six months for the submission of programmes referred to in paragraph 1, at the request of any Member State which experiences difficulties in connection with its own authorization procedures.

<sup>(1)</sup> Such information shall be provided under Article 14 of Directive 78/176/EEC or separately should circumstances so require.

*Article 6*

Member States shall take the necessary measures to ensure that discharges of waste are reduced in accordance with the following provisions:

- (a) from existing industrial establishments using the sulphate process:
  - weak acid waste and neutralized waste shall be reduced by 31 December 1992 in all waters to a value of not more than 800 kg of total sulphate per tonne of titanium dioxide produced (i.e. corresponding to the  $\text{SO}_4$  ions contained in the free sulphuric acid and in the metallic sulphates);
- (b) from existing industrial establishments using the chloride process:
  - weak acid waste, treatment waste, and neutralized waste shall be reduced by 31 December 1989 in all waters to the following values of total chloride per tonne of titanium dioxide produced (i.e. corresponding to the Cl ions contained in the free hydrochloric acid and in the metallic chlorides):
    - 130 kg using natural rutile,
    - 228 kg using synthetic rutile,
    - 450 kg using slag.

In the case of an establishment using more than one type of ore, the values shall apply in proportion to the quantity of these ores used.

*Article 7*

1. Except where inland surface waters are concerned, Member States may defer the date of application referred to in point (a) of Article 6 until 31 December 1994 at the latest if serious technico-economic difficulties so require and provided that a programme of effective reduction of discharges of such waste is submitted to the Commission by 31 December 1989. Such a programme shall enable the following limit values per tonne of titanium dioxide produced to be reached by the dates shown:

- weak acid waste and neutralized waste : 1 200 kg — 31 December 1992,
- weak acid waste and neutralized waste : 800 kg — 31 December 1994.

Three months at the latest following adoption of this Directive the Commission shall be informed<sup>(1)</sup> of such cases, which shall be the subject of consultation with the Commission. The Commission shall inform the other Member States.

2. Member States may defer the date of application referred to in point (b) of Article 6 until 31 December 1992 at the latest if major technico-economic difficulties so require and provided that a programme of effective reduction of discharge of such waste enabling the limit value set in point (b) of Article 6 to be reached by 1992 at

the latest is submitted to the Commission by 31 December 1989. Three months at the latest following adoption of this Directive the Commission shall be informed<sup>(1)</sup> of such cases, which shall be the subject of consultation with the Commission. The Commission shall inform the other Member States.

### Article 8

1. As regards the requirements of Article 6, Member States may choose to make use of quality objectives applied in such a way that the effects in terms of protecting the environment and avoiding distortions of competition are equivalent to that of the limit values.

2. If a Member State chooses to make use of quality objectives, it shall present to the Commission a programme<sup>(1)</sup>, demonstrating that the measures achieve an effect which, in terms of protecting the environment and avoiding distortion of competition, is equivalent to that of the limit values by the dates when these limit values are applied in accordance with Article 6.

This programme shall be submitted to the Commission at least six months before the Member State proposes to apply the quality objectives.

This programme shall be assessed by the Commission in accordance with the procedures laid down in Article 10 of Directive 78/176/EEC.

The Commission shall inform the other Member States.

### Article 9

1. Member States shall take the necessary measures to ensure that discharges into the atmosphere are reduced in accordance with the following provisions:

(a) in the case of existing industrial establishments using the sulphate process:

(i) as regards dust, discharges shall be reduced by 31 December 1990 to a value of not more than 50 mg/nm<sup>3</sup><sup>(2)</sup> from major sources and not more than 150 mg/nm<sup>3</sup><sup>(2)</sup> from any other source<sup>(3)</sup>;

(ii) as regards SO<sub>x</sub>, discharges arising from digestion and calcination steps in the manufacture of titanium dioxide shall be reduced by 1 January 1995 to a value of not more than 10 kg of SO<sub>2</sub> equivalent per tonne of titanium dioxide produced;

<sup>(1)</sup> Such information shall be provided under Article 14 of Directive 78/176/EEC or separately should circumstances so require.

<sup>(2)</sup> Cubic metre at a temperature of 273 K and pressure of 101,3 kPa.

<sup>(3)</sup> Member States shall inform the Commission of those minor sources not included in their measurement.

(iii) Member States shall require means to be installed for preventing the emission of acid droplets;

(iv) plants for the concentration of waste acid shall not discharge more than 500 mg/nm<sup>3</sup> SO<sub>x</sub> calculated as SO<sub>2</sub> equivalent<sup>(4)</sup>;

(v) plants for the roasting of salts generated by the treatment of waste shall be equipped with the best available technology not entailing excessive costs in order to reduce SO<sub>x</sub> emissions;

(b) in the case of existing industrial establishments using the chloride process:

(i) as regards dust, discharges shall be reduced by 31 December 1989 to a value of not more than 50 mg/nm<sup>3</sup><sup>(2)</sup> from major sources and not more than 150 mg/nm<sup>3</sup><sup>(2)</sup> from any other source<sup>(3)</sup>;

(ii) as regards chlorine, discharges shall be reduced by 31 December 1989 to a daily average concentration of not more than 5 mg/nm<sup>3</sup><sup>(2)</sup> and not more than 40 mg/nm<sup>3</sup> at any time.

2. This Directive shall not prejudice Directive 80/779/EEC.

3. The procedure for monitoring the reference measurements for discharges of SO<sub>x</sub> into the atmosphere is set out in the Annex.

### Article 10

Member States shall monitor the values and reductions specified in Articles 6, 8 and 9 in relation to the actual production of each establishment.

### Article 11

Member States shall take the measures necessary to ensure that all waste from the titanium dioxide industry, and in particular waste subject to prohibition on discharge or dumping into water or on discharge into the atmosphere is:

- avoided or re-used where technically and economically feasible,
- re-used or disposed of without endangering human health or harming the environment.

The same shall apply to waste arising from the re-use or treatment of the abovementioned waste.

<sup>(4)</sup> For new concentration processes the Commission can agree to a different value if the Member States can demonstrate the non-availability of techniques to achieve this standard.

<sup>(2)</sup> It is considered that these values correspond to a maximum of 6 grams per tonne of titanium dioxide produced.

*Article 12*

1. Member States shall take the measures necessary to comply with this Directive not later than 31 December 1989. They shall forthwith inform the Commission thereof.

2. Member States shall communicate to the Commission the provisions of national law which they adopt in the field governed by this Directive.

*Article 13*

This Directive is addressed to the Member States.

Done at Luxembourg, 21 June 1989.

*For the Council*

*The President*

C. ARANZADI

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*ANNEX***Procedure for monitoring the reference measurements for gaseous SO<sub>x</sub> emissions**

For the purposes of calculating the quantities of SO<sub>2</sub> and SO<sub>3</sub> and acid droplets expressed as SO<sub>2</sub> equivalent, discharged by specific installations, account must be taken of the volume of gas discharged over the duration of the specific operations in question and of the average SO<sub>2</sub>/SO<sub>3</sub> content measured over the same period. The SO<sub>2</sub>/SO<sub>3</sub> flow rate and content must be determined under the same temperature and humidity conditions.

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