COMMISSION OF THE EUROPEAN COMMUNITIES

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REPORT FROM THE COMMISSION ON THE STATE OF IMPLEMENTATION OF AMBIENT AIR QUALITY DIRECTIVES

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1. INTRODUCTION

The purpose of this Report is to provide an update of the situation regarding air quality in the European Union with respect to the existing Directives on ambient air quality. Under the Directives the Commission is required to publish a report[1] on the state of implementation of the Directives, these have been prepared each year and presented to Member States although few have been made publicly available[2]. 5 Directives currently exist concerning ambient air quality, these are:

80/779/EEC Directive on air quality limit values and guide values for sulphur dioxide and suspended particulates (O J 1980; L229:30-80)
amended by 89/427/EEC (O J 1989; L201:53-55)

82/884/EEC Directive on a limit value for lead in the air (O J 1982; L378:15-18)

85/203/EEC Directive on air quality standards for nitrogen dioxide (O J 1985; L87:1-7)

92/72/EEC Directive on air pollution by ozone (O J 1992; L297:1-7)

Two proposals for new legislation on ambient air quality have recently been adopted by the Commission. These are: a proposal for a Council Directive on Ambient Air Quality Assessment and Management adopted on 4 July 1994 (COM (94) 109 final 94/0106 SYN) and a proposal for a Council Decision establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within Member States adopted on 7 September 1994 (COM (94) 345 def. 94/0194).

Directive 92/72/EEC on air pollution by ozone is not covered in this report as it only came into force on 21 March 1994.

For the other Directives, information is required to be supplied for the reference year (1 April - 31 March) for Directive 80/779/EEC and the amending Directive 89/427/EEC and for the calendar year (1 January - 31 December) for Directives 82/884/EEC and 85/203/EEC. The

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[1]Annually under 80/779/EEC and 82/884/EEC and periodically for 85/203/EEC

[2]First annual report from the Commission to the Council on the implementation of the Council Directive on air quality limit values and guide values for sulphur dioxide and suspended particulates (80/779/EEC). Commission of the European Communities, Environment and Quality of Life, 1986 EUR 10393.

Second annual report from the Commission on the implementation of the Council Directive on air quality limit values and guide values for sulphur dioxide and suspended particulates (80/779/EEC). 24 March 1988, COM(88) 142 final

Communication from the Commission. First annual report on the implementation of the Council Directive on a limit value for lead in the air (82/884/EEC). 10 January 1990, SEC(90)1842

following periods are covered by this report

80/779/EEC and 89/427/EEC	1983/4 - 1992/3
82/884/EEC	1984 - 1992
85/203/EEC	1987 - 1992

The report is in the form of an overall summary report with 6 annexes, these are as follows:

Annex 1: Summary report for implementation of 80/779/EEC amended by 89/427/EEC
Annex A: Technical annex for 80/779/EEC amended by 89/427/EEC

Annex 2: Summary report for implementation of 82/884/EEC
Annex B: Technical annex for 82/884/EEC

Annex 3: Summary report for implementation of 85/203/EEC
Annex C: Technical annex for 85/203/EEC

Annexes 1, 2 and 3 are provided with this Report, the technical annexes (Annexes A, B and C) can be obtained on request from DGXI.B3, rue de la Loi 200, 1049 Brussels, Belgium.

1.1 General introduction to the requirements of the Directives

As Council Directives all of these must be transposed into national legislation containing the appropriate administrative and legal instruments necessary for conformity. Dates are fixed for the transposition of the Directives as follows:

80/779/EEC	Article 15	17 July 1982
82/884/EEC	Article 12	9 December 1984
85/203/EEC	Article 15	1 January 1987

These Directives have several common features. All set limit values which were not to be exceeded, these were primarily intended to protect human health and to contribute to the protection of the environment. Directives 80/779/EEC and 85/203/EEC also set guide values to aid Member States in policy making issues. These were intended to improve the protection of human health and the long term protection of the environment and to act as reference points for the establishment of specific schemes within zones determined by the Member States. Details of these values are provided below in the sections on the individual Directives.

All of the Directives also enabled Member States to designate certain areas where they believed that pollution levels may be sufficiently high to result in frequent breach of the limit values. The geographical area and population to be covered by these zones were not specified in the Directive, Member States were left to decide these issues themselves. These zones could be designated under Article 3 of each of the Directives and are commonly known as "Article 3 zones". In designating these zones Member States were required to develop and implement improvement plans in order to bring concentrations to below or at the limit value as soon as possible and at the latest by a fixed date as follows:

80/779/EEC	1 April 1993[3]
82/884/EEC	9 December 1989[4]
85/203/EEC	1 January 1994[5]

Concentrations in excess of limit values in zones designated under Article 3 are not considered breaches of the Directive until after the time allowed for compliance in these areas has lapsed. It can be seen from the above, that, with the exception of the new Länder of Germany, for the time period covered by this Report, only the designation under Directive 85/203/EEC remains in operation. For the other Directives recording of concentrations in excess of the limit values occurring now is considered as an infringement of the Directive.

Member States are required to inform the Commission about values in excess of the limit value whether they occur inside or outside areas designated under Article 3. Fixed procedures are listed in the Directives (80/779/EEC Article 7, 82/884/EEC Article 5 and 85/203/EEC Article 7) for reporting this information to the Commission. A delay is allowed to enable Member States to validate and evaluate the data collected before it is officially transmitted to the Commission. For values in excess of limit values in zones not designated under Article 3 of each of the Directives, Member States are also required to provide reasons for these (not required under 82/884/EEC) and the measures being taken to avoid recurrence.

It is important to note that in none of these Directives is it required for Member States to transmit data when limit values are not exceeded. In the absence of comments from Member States, the Commission assumes that limit values have been complied with although this may not be the case. This absence also makes it difficult to assess changes in pollution levels not only in zones where values in excess of limit values have been reported but also in relation to efforts being made to reduce pollution levels towards guide values where these have been set.

Under Directives 80/779/EEC and 85/203/EEC, Member States also had the opportunity to designate zones within their territory where they considered it necessary to limit a foreseeable increase in pollution or which they considered should be afforded special environmental protection. In the first of these areas, the Member States are required to set values which were lower than the limit value, in the latter, they are required to set values which are generally lower than the guide values. Information has to be supplied to the Commission about measures taken in these zones.

Also under Directives 80/779/EEC and 85/203/EEC, Member States were required to consult with one another regarding concentrations in excess of limit values and designation of the

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[3]This date is extended to 31 December 1995 for the new Länder of Germany in accordance with Directive 90/656/EEC

[4]This date is extended to 31 December 1994 for the new Länder of Germany in accordance with Directive 90/656/EEC

[5]This is extended to 31 December 1995 for the new Länder of Germany in accordance with Directive 90/656/EEC

zones referred to in the paragraph above in border regions. The Commission could attend these consultations.

A further common feature in the Directives is the establishment of reference measurement methods for the pollutants and guidance on monitoring. These are discussed in further detail below in the sections on each of the Directives.

1.2 Reporting from Member States

Table 1 below summarises the experiences of the Commission regarding the information which should have been sent on a regular basis by Member States for each of the Directives considered in this report. It does not include information received as a result of legal procedures. It can be seen that the there is a large variation in the amount of information provided by Member States to the Commission. Some Member States, for example Germany and The Netherlands provide a complete set of data from their monitoring stations while others, for example Greece, Portugal and Spain, only provide information on concentrations in excess of limit values. It should be noted that Member States are only required to provide information on concentrations in excess of limit values and that those providing only this are not in breach of the Directives. Problems experienced with the information received on this basis are discussed further in sections 2 and 4.

1.3 Legal Aspects

All of the Directives being considered in this Report were adopted before the existence of an explicit legal base for the protection of the environment and human health. These powers were introduced in the Single European Act which came into force in 1987 and strengthened by the Treaty on the European Union which came into force in 1993. Directives 80/779/EEC (on sulphur dioxide and suspended particulates) and 85/203/EEC (on nitrogen dioxide) were based on Articles 100 and 235 while Directive 82/884/EEC (on lead) was based only on Article 235. Article 100 was used because provisions already applicable or being prepared in the Member States with regard to the pollutants of concern could give rise to unequal conditions of competition and could consequently directly affect the functioning of the common market. It was recognised that the harmonious development of economic activities and a continued and balanced expansion were inconceivable without measures to combat pollution, improve the quality of life and protect the environment. The Treaty of Rome did not specifically provide the necessary powers for these activities but in Article 235, allowed for action to be taken on one of the objectives of the Community for which insufficient powers had been provided on the basis of unanimous agreement in the Council after consultation with the European Parliament. Only Article 235 was used for Directive 82/884/EEC because lead had been identified as a pollutant requiring priority consideration under the first (O J 1973; C 112:1) and second (O J 1977; C 139:1) programmes of action of the European Communities. These programmes provided for the consideration of national programmes in this area and for the harmonisation of national policies within the Community on the basis of a common long term plan aiming at improving the quality of life.

The most recent Directive on air quality, Directive 92/72/EEC on ozone was adopted on the basis of Article 130s which was introduced under the Single European Act of 1987.

Two legal aspects are considered here, the transposition of the Directives and their implementation. Member States were required to transpose each of the Directives into their national legislation and to provide copies of this legislation to the Commission. The conformity of this legislation with the requirements of the Directives is then examined by the Commission. In cases of non-conformity Member States are required to change their legislation.

Having transposed the legislation adequately, Member States are also required to implement it. Section 3 below discusses some of the general problems with the Directives being considered here which have meant that cases of inadequate implementation of the Directives have generally arisen because of complaints made by individuals or groups within Member States.

Further details of the transposition and implementation of each of the Directives and problems arising with these are provided in the relevant sections.

Table 1. Information supplied by Member States

	80/779/EEC		82/884/EEC		85/203/EEC	
	Measurement results	**Explanations, measures taken etc.**	**Measurement results**	**Explanations, measures taken etc.**	**Measurement results**	**Explanations, measures taken etc.**
Belgium	Data on concentrations in excess of limit values. Confirmation of compliance when no values in excess of limit values measured	Compliance since 1984/85	Complete set of data until 1991	Information on zone designated under Article 3, compliance since 1985	Confirmation of compliance. No data provided.	-
Denmark	Confirmation that limit values not exceeded for some years, some data received	-	Confirmation that limit values not exceeded for some years, some data received	-	Confirmation that limit values not exceeded for some years, some data received	-
France	Data for stations where limit values exceeded and some data for zones designated under article 3	Explanations of concentrations in excess of limit values and details of measures being/to be taken	Complete set of data	Explanations of values in excess of limit values and details of measures being/ to be taken	Data for stations exceeding limit values and some data for zones designated under Article 3	Information on zones designated under Article 3; explanations of values in excess of limit values and details of measures being/to be taken

Germany	Complete set of data -	Explanations of values in excess of limit values and details of measures being/to be taken	Complete set of data	Information on zone designated under Article 3, explanations of values in excess of limit values and details of measures being/ to be taken	Complete set of data	Explanations of values in excess of limit values and details of measures being/ to be taken
Greece	Data for stations exceeding limit values	Explanations of values in excess for some years. Brief details of measures being/to be taken	Data for stations exceeding limit values until 1989	Explanations of values in excess of limit values for some years. Brief details of measures being/to be taken	Data for stations exceeding limit values	Explanations of values in excess of limit values for some years. Brief details of measures being/to be taken
Ireland	Data for stations exceeding limit values	Explanations of values in excess of limit values and details of measures being/to be taken	Confirmation of compliance. No data received	-	Confirmation of compliance. No data received	-
Italy	Data until 1990/91	No information	Data until 1990	No information	Data until 1990	No information
Luxembourg	Complete set of data from 1987/88-1992/93	Compliance since 1986/87, all zones designated under Article 3 withdrawn	Data for 1988-90 and 1992. No values in excess of limit values, not confirmed annually	-	Data for 1988-92. No values in excess of limit values, not confirmed annually	-
Portugal	Data for stations exceeding limit values	Explanation of values in excess of limit values and details of measures being/to be taken in 1992/93. No information prior to this	No data received. Confirmation of compliance from 1991 onwards	-	No data received. Confirmation of compliance from 1991 onwards	No information received regarding zones designated under Article 3

Spain	Data for stations exceeding limit values	No explanations however plans for reduction of pollution levels supplied for most of zones designated under Article 3	No data received. Confirmation of compliance for some years	-	Data for stations exceeding limit values and confirmation of compliance for relevant years	No explanations or details of measures being/to be taken provided
The Netherlands	complete set of data	Compliance since 1986/87, all zones designated under Article 3 withdrawn	complete set of data (compliance)		complete set of data	explanations of values in excess of limit values and details of measures being/ to be taken
United Kingdom	data for stations exceeding limit values	explanations of values in excess of limit values and details of measures being/to be taken, plans for reduction of pollution levels in zones designated under Article 3 supplied	complete set of data for the zone designated under Article 3	information on zone designated under Article 3, explanations of values in excess of limit values and details of measures being/to be taken	complete set of data	explanations of values in excess of limit values and details of measures being/ to be taken

2. INDIVIDUAL DIRECTIVES

2.1 Sulphur dioxide and suspended particulates, 80/779/EEC amended by 89/427/EEC

2.1.1 Introduction

This Directive was the first on ambient air quality and set limit and guide values for sulphur dioxide and particulate matter measured as black smoke or gravimetrically. It was recognised at the time of adopting the Directive that these methods were not equivalent and the Directive was amended in 1989 to take account of these differences by setting revised values for particulate matter measured gravimetrically associated with the sulphur dioxide limit values. Only Member States choosing to measure suspended particulates gravimetrically for the purposes of compliance were required to transpose the amending legislation (89/427/EEC). The methods of measurement are discussed further below. It should be noted that the values for particulates measured as black smoke or gravimetrically are not comparable. The limit and guide values set in these Directives are shown in Tables 2-6. The purpose of these values was explained in section 1.1 and an explanation of the averaging times is provided in Annex 1.

Table 2. Limit values for sulphur dioxide (all values in µg/m³) from Directive 80/779/EEC and 89/427/EEC

Reference period	Limit value for sulphur dioxide	Associated value for suspended particles(1)	
		As black smoke(2) (OECD method of measurement)	By gravimetric method(3)
Year	80 (median of daily mean values taken throughout the year)	> 40 (median of daily mean values taken throughout the year)	> 150 (median of daily mean values taken throughout the year)
	120 (median of daily mean values taken throughout the year)	≤ 40 (median of daily mean values taken throughout the year)	≤ 150 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)	> 60 (median of daily mean values taken throughout the winter)	> 200 (median of daily mean values taken throughout the winter)
	180 (median of daily mean values taken throughout the winter)	≤ 60 (median of daily mean values taken throughout the winter)	≤ 200 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250 (4) (98th percentile of all daily mean values taken throughout the year)	> 150 (98th percentile of all daily mean values taken throughout the year)	> 350 (98th percentile of all daily mean values taken throughout the year)
	350 (4) (98th percentile of all daily mean values taken throughout the year)	≤ 150 (98th percentile of all daily mean values taken throughout the year)	≤ 350 (98th percentile of all daily mean values taken throughout the year)

(1) The values given for suspended particulates measured as black smoke or gravimetrically are not comparable

(2) The results of the measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD.

(3) These values are from the amending Directive 89/427/EEC and cannot be compared with the values for suspended particulates measured as black smoke

(4) Member States must take all appropriate steps to ensure that this value is not exceeded for more than three consecutive days. Moreover, Member States must endeavour to prevent and to reduce any such instances in which this value has been exceeded.

Table 3. Limit values for suspended particulates (as measured by the black-smoke method described in Annex III of Directive 80/779/EEC) expressed in µg/m³

Reference period	Limit value for suspended particulates
Year	80 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250 (1) (98th percentile of all daily mean values taken throughout the year)

The results of the measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD.

(1) Member States must take all appropriate steps to ensure that this value is not exceeded for more than three consecutive days. Moreover, Member States must endeavour to prevent and to reduce any such instances in which this value has been exceeded.

Table 4. Limit values for suspended particulates (as measured by the gravimetric method described in Annex IV of Directive 80/779/EEC) expressed in µg/m³

Reference Period	Limit value for suspended particulates
Year	150 (arithmetic mean of daily mean values taken throughout the year)
Year (made up of units of measuring periods of 24 hours)	300 (95th percentile of all daily mean values taken throughout the year)

Table 5. Guide values for sulphur dioxide

Reference period	Guide value for sulphur dioxide
Year	40-60 (arithmetic mean of daily mean values taken throughout the year)
24 hours	100-150 (daily mean value)

Table 6. Guide values for suspended particulates (as measured by the black smoke method) expressed in µg/m³ (1)

Reference period	Guide value for suspended particulates
Year	40-60 (arithmetic mean of daily mean values taken throughout the year)
24 hours	100-150 (daily mean value)

(1) The results of measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD

There are no guide values for suspended particulates measured gravimetrically.

Member States can choose to report either by the black smoke method, gravimetric methods or a combination, reporting is as follows:

Table 7. Suspended particulate parameter(s) reported by Member States

Member State	Black smoke	Gravimetric
Belgium	√	
Denmark		√
France	√	
Germany		√
Greece	√	
Ireland	√	
Italy		√
Luxembourg	√	
Portugal	√	√
Spain	√	√
The Netherlands	√	
United Kingdom	√	

Where systematically linked monitoring has not been available, and prior to the coming into force of Directive 89/427/EEC several Member States (Denmark, France, Italy) have chosen to apply the lower of the two sulphur dioxide limit values

2.1.2 Transposition

All Member States have communicated to the Commission the legislation transposing Directive 80/779/EEC into national law. Conformity of this legislation has been confirmed in all cases. All Member States except Italy have communicated to the Commission either the legislation transposing Directive 89/427/EEC or their plans not to transpose this and to continue reporting related to suspended particulates measured by the black smoke method. Conformity has been confirmed for the eleven Member States who have reported to the Commission.

2.1.3 Reporting by Member States

Member States wishing to designate zones where concentrations were likely to exceed limit values under Article 3 were required to notify the Commission by 1 October 1982[6]. At the same time, improvement plans for these zones were also required to be sent to the Commission, these were to describe the measures and procedures taken or to be taken by the Member State in order to reduce concentrations of sulphur dioxide and suspended particulates to values below or equal to the limit values as soon as possible and by 1 April 1993[7].

3 Member States (Belgium, Denmark and Portugal) have not designated zones under Article 3. The numbers of zones designated by other Member States for the first reference period (1983/84) after the Directive came into force and the last reference period before the designation under Article 3 expired (1992/93) are shown in Table 8. All except two Member States (Italy and The Netherlands (where limit values were not exceeded)) have communicated plans of measures and/or procedures being or to be taken to improve air quality. These were variable in their content. Problems experienced with these plans are discussed further in Section 3.

Table 8. Zones designated under Article 3 in 1983/84 and 1992/93

	Reference period 1983/84	Reference period 1992/93
Belgium	0	0
Denmark	0	0
France	17	10
Germany	1	21*
Greece	1	1
Ireland	1	1
Italy	77	77
Luxembourg	2	0
Portugal	-	0**
Spain	-	20**
The Netherlands	6	0
United Kingdom	29	22
TOTAL	134	152

* Includes the new Länder

** Spain and Portugal joined the European Community in 1986. Portugal has never designated any zones under Article 3. For Spain, the number of designated zones has not changed from 1990/91 when the zones designated became operational

[6]This is extended to 31 December 1991 for the new Länder of Germany according to Directive 90/656/EEC

[7]This date is extended to 31 December 1995 for the new Länder of Germany in accordance with Directive 90/656/EEC

Table 9 Reported instances of exceedance of limit values for sulphur dioxide

SO2

Year / Zones	1983/84		1984/85		1985/86		1986/87		1987/88		1988/89		1989/90		1990/91		1991/92		1992/93	
	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3
Belgium	-	1	-	3	-	0	-	1	-	0	-	0	-	0	-	0	-	0	-	0
Denmark	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
France	6	0	9	3	5	1	6	0	5	0	3	0	5	0	2	1	3	2	1	0
Germany	1	0	1	0	0	0	1	0	0	0	1	0	1	0	0	0	18	0	21	0
Greece	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0
Ireland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Italy	20	10	17	7	6	5	13	4	3	0	3	0	1	0	?	?	?	?	?	?
Luxemburg	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	-	0	-	0
Portugal							-	0	-	1	-	2	-	2	-	1	-	0	-	
Spain							-	1	-	1	-	0	-	1	0	0	2	0	2	0
The Netherlands	0	0	0	0	-	0	-	1	-	0	-	0	-	0	-	0	-	0	-	0
United Kingdom	3	0	1	0	1	0	2	0	0	0	2	0	1	0	1	0	1	0	1	1
Total	31	11	29	13	13	6	23	7	8	2	9	3	8	4	3	3	25	2	25	1
	42		42		19		30		10		12		12		6		27		26	
Total excl new Länder																	7	2	4	1
																	9		5	
							-> + Spain + Portugal										-> + New German Länder			

: incomplete data

Table 10 Reported instances of exceedance of limit values for suspended particulates

SPM

Year / Zones	1983/84		1984/85		1985/86		1986/87		1987/88		1988/89		1989/90		1990/91		1991/92		1992/93	
	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3
Belgium	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Denmark	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
France	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0
Germany	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	1	0	1	0	1	0	1	0	1	0	1	1	1	0	0	0	1	0	0	0
Ireland	1	0	1	0	1	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0
Italy	2	4	7	4	3	5	8	7	4	3	1	6	0	4	?	?	?	?	?	?
Luxemburg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	-	0
Portugal							-	0	-	2	-	1	-	1	-	0	-	0	-	4
Spain							-	7	-	5	-	6	-	6	7	1	6	0	7	0
The Netherlands	0	0	0	0	-	0	-	1	-	0	-	0	-	0	-	0	-	0	-	0
United Kingdom	7	0	3	0	5	0	4	1	6	1	3	0	3	0	1	0	0	1	0	0
Total	11	4	13	4	11	5	14	16	12	11	6	15	5	12	8	2	7	1	7	4
	15		17		16		30		23		21		17		10		8		11	
							-> + Spain + Portugal										-> + New German Länder			

: incomplete data

The large variation in the numbers of zones designated under Article 3 is believed to reflect the differing philosophies in Member States in terms of both willingness to make the designation and the geographical size and population covered by the zone. For example the large number of zones in Italy reflects a policy of designating many individual towns rather than larger regions. This is also discussed further in Section 3.

Tables 9 and 10 show the number of instances of concentrations above the limit values by year for zones designated under Article 3 and other zones for each of the Member States, it can be seen that the frequency of these was decreasing up until 1990/91 compared with the early period of operation of the Directive however instances of concentrations above the limit values in the new German Lander in 1991/92 increased the total number of these particularly for zones designated under Article 3.

No Member States have designated zones under Article 4 of the Directive and there has been little feedback from Member States regarding the use of guide values as long term objectives or as tools for policy development.

The information which has been be reported to the Commission, including details of actual values measured, is provided in Annexes I and A. The majority of countries have fulfilled their reporting requirements however problems regarding implementation leading to the commencement of legal procedures have been encountered in many Member States.

2.1.4 Measurement methods

Measurement methods for sulphur dioxide and suspended particulates measured either by the black smoke method or gravimetrically were specified in the Directive. Member States could use these methods or other which produced results which were either demonstrated to correlate satisfactorily or to show a reasonably stable relationship when measurements were made in parallel with those obtained using the reference methods.

As stated above Member States had the option to choose to measure suspended particulates or black smoke. It was recognised when Directive 80/779/EEC was adopted that the two methods of measurement allowed for suspended particulates were not completely equivalent. Directive 89/429/EEC revised the values of particulates associated with the limit values of sulphur dioxide although the limit values for suspended particulates measured gravimetrically remained unchanged.

In the early stages of operation of the Directive several Member States (France, Luxembourg, Ireland and the UK) measured sulphur dioxide levels by the 'total acid method' while Denmark used an impregnated filter method and Belgium a flame photometric detection system rather than the method laid down in the Directive. If Member States chose a method other than that laid down they were required to demonstrate that these methods correlated satisfactorily with the reference method or that a stable relationship existed between them. An intercomparison study demonstrated that the Belgian method was acceptable but resulted in the conclusion that the other methods were insufficiently accurate and could only be used in certain circumstances, the 'total acid method" when the concentrations are below 80% of the limit value (98th percentile of daily mean values measured over one year) and the impregnated filter method when concentrations are less than 70% of the 50th percentile limit

value and 80% percent of the 98th percentile limit value. Denmark continued to use the impregnated filter method as the levels of sulphur dioxide recorded had always been less than half of the limit values. The levels of sulphur dioxide experienced in Ireland and Luxembourg (except for the zone designated under Article 3) were sufficiently low for them to continue to use the strong acidity method. Luxembourg set up an automatic network in 1988 which measured sulphur dioxide using a fluorescence method satisfactorily comparable with the reference method. In the UK, monitors using an ultra-violet fluorescence method were deployed at the three most polluted sites. For other monitoring sites not using this method, measurement of levels of 80% or more of the limit value resulted in these areas being considered 'at risk' of breaching the Directive. Discussions have taken place with the French authorities but the issue has yet to be resolved.

2.1.5 Siting of Monitoring Stations

Tables 11 - 14 give some information about the siting of monitoring stations in the different Member States. The information presented was obtained from the Member States in 1990 as the result of a Commission study and collected into a database which could be easily updated. Information was collected for each monitoring station on the basis of a series of harmonised reporting criteria but it was left to Member States to decide which criteria applied to each station. The amount and quality of the information received was very variable and thus the accuracy and completeness of the data is questionable. This database (GIRAFE) was sent to Member States to update and check the accuracy of the information for the first time in spring 1994.

Member States supplied information on both the local (radius of 100m to several km from station) and immediate environment (radius of 0 - 100m from station) surrounding the monitoring station. The categories in the tables are taken from the first category supplied for the local environment, however it should be noted that many sites in most Member States were immediately located in busy streets even though 'Traffic' was not the local category provided for the site.

Even with the limitations expressed above, the data presented give some indication of the variability between Member States both in numbers of monitoring stations and their siting. Differences in numbers of stations used for the purposes of reporting for the Directive can be seen. Alternative ways of expressing this information could be per square kilometre of territory or per head of population, both of these are rather crude measures and would fail to show up any national policy regarding the siting of monitoring stations, for example mainly in residential areas specifically to measure population exposure or in industrial areas to measure industrial pollution.

For many Member States there is apparently no clear pattern in the siting of monitoring stations however some differences can be seen. For example, in Denmark, all monitoring stations are in local environments made up of a mixture of commercial, industrial and residential components. In Spain, many monitoring stations are located in residential or industrial areas whereas in Italy, few stations are located in residential areas. For all Member States, only a small number of number of sites were reported to have 'traffic' as their local environment.

Table 11. Siting of monitoring stations for suspended particulates measured as black smoke (1990)

Member State	No of Stations	No used for reporting for Directive						
		Total	Mix	Res	Ind	Com	Traf	Other
Belgium	92	92	17	22	16	18	5	14
Denmark(1)	-							
France	173	149	26	34	12	25	1	51
Germany(1)	-							
Greece††	26	24	2	2	2	11	1	6
Ireland*	53	?						
Italy(1)	17	-						
Luxembourg	11	11	-	-	-	-	-	11
Portugal	8	8	-	4	1	1	2	-
Spain	362	322	6	124	71	32	4	85
The Netherlands	36	16	2	3	-	1	-	10
UK†	299	299	-	164	7	86	-	42

(1) Report suspended particulates measured gravimetrically, see Table 12

Table 12. Siting of monitoring stations for suspended particulate matter measured gravimetrically (1990)

Member State	No of Stations	No used for reporting for Directive						
		Total	Mix	Res	Ind	Com	Traf	Other
Belgium	17	-						
Denmark	18	12	12	-	-	-	-	-
France	89	-						
Germany†	387	387						
Greece††	14	-						
Ireland	-							
Italy	234	192	50	8	19	28	4	17
Luxembourg	2	-						
Portugal	46	45	6	14	9	5	-	11
Spain	172	152	7	51	46	27	4	17
The Netherlands	26	-						
UK†	0	-						

Table 13. Siting of monitoring stations for sulphur dioxide (1990)

Member State	No of Stations	No used for reporting for Directive						
		Total	Mix	Res	Ind	Com	Traf	Other
Belgium	66	66	3	22	16	5	2	18
Denmark	29	18	18	-	-	-	-	-
France	232	229	78	58	40	35	1	17
Germany†	424	424						
Greece††	30	29	2	3	2	12	1	9
Ireland*	52	?						
Italy	382	253	54	9	35	40	27	88
Luxembourg	5	5	-	1	1	-	1	2
Portugal	51	47	8	16	9	9	2	3
Spain	556	501	16	182	123	58	7	115
The Netherlands	123	104	17	18	7	1	4	57
UK†	299	299	-	164	7	86	-	42

Table 14. Siting of monitoring stations for strong acidity (1990)

Member State	No of Stations	No used for reporting for Directive Total	Mix	Res	Ind	Com	Traf	Other
Belgium	92	92	17	22	16	18	5	14
Denmark	-							
France	285	265	54	71	43	36	2	59
Germany	-							
Greece	-							
Ireland	-							
Italy	-							
Luxembourg	11	11	-	-	-	-	-	11
Portugal	20	4	-	1	2	-	-	1
Spain	-							
The Netherlands	-							
UK	-							

Legend for Tables

Mix	Mixture of commercial, industrial, residential
Res	Residential
Ind	Industrial
Com	Commercial
Traf	Traffic
Other	Includes non-classified, agricultural, parks, harbours, airport, sea side or lake side

*	No information was given about how many stations were used for the purposes of reporting for the Directive
†	Information from GIRAFE database amended by comments from Member State
††	Data provided 1995

2.2 Lead 82/884/EEC

2.2.1 Introduction

The second Directive on ambient air quality is that on lead. This sets a limit value of 2 $\mu g/m^3$ as an annual average (an explanation of the averaging time is provided in Annex 2) which must be complied with within 5 years of notification of the Directive (by 9 December 1987[8]). The requirements of the Directive are similar in principle to those of the Directive on sulphur dioxide and particulate matter in that Member States can designate areas which are likely to exceed the limit value under Article 3, inform the Commission of these and of the plans being or to be made to improve the situation in these areas. Again, as with Directive 80/779/EEC, concentrations above limit values in such designated areas are not considered breaches until after the time allowed for compliance in these areas has been reached (by 9 December 1989[9]). Member States must inform the Commission according to the requirements of Article 5

[8]This data is extended to 31 December 1991 for the new Länder of Germany in accordance with Directive 90/656/EEC

[9]This date is extended to 31 December 1994 for the new Länder of Germany in accordance with Directive 90/656/EEC

irrespective of whether the value above the limit value occurs inside or outside an area designated under Article 3. A reference measurement method and requirements for siting criteria for measurement stations are also provided.

2.2.2 Transposition

All Member States have communicated to the Commission the legislation transposing Directive 82/884/EEC into national law. Conformity of this legislation has now been confirmed in all cases. Details are provided in Annex 2.

2.2.3 Reporting by Member States

Member States wishing to designate zones under Article 3 were required to notify the Commission by December 1986[10]. Improvement plans for these zones were also required to be sent to the Commission within 2 years of implementation of the Directive and as soon as possible after the notification.

Only 3 Member States (Belgium, Germany and United Kingdom) made use of the provision of Article 3(2) and notified zones likely to experience concentrations above the limit value, details are provided in Table 15. These were mostly areas subject to industrial pollution. Plans of measures and procedures to improve air quality were communicated to the Commission in all cases.

Table 15. Zones declared under Article 3 of Directive 82/884/EEC

Belgium	2 (Beerse, Hoboken)
Germany	1 (Braubach)
United Kingdom	1 (Walsall)

For these zones and others not designated under Article 3 concentrations above the limit value have been reported as shown in Table 16

It can be seen from these tables that values above the limit value have been reported in areas designated under Article 3 between 1985 and 1989 and in other areas in 1987-1990. For Belgium reported values above the limit value have occurred in one of the two zones identified under Article 3, the second of these in 1990 occurring after the Article 3 designation ceased to exist. France did not designate any areas under Article 3 but has experienced concentrations above the limit value in Grenoble in 1987-89, reported to be due to traffic pollution, in Lyon (1987) and Lille (1990), both reported to be due to industrial pollution and in Nord-Pas Calais (1992), no explanation provided. Italy experienced concentrations above the limit value in Rome in 1989 and 1990, no explanation has been provided.

[10]This was extended to 31 December 1992 for the new Länder of Germany in accordance with Directive 90/656/EEC

Table 16. Reported instances of exceedance of limit value for lead

Pb

Year / Zones	1985		1986		1987		1988		1989		1990		1991		1992	
	Art.3	Non Art.3	Art.3	Non Art.3	Art.3	Non Art.3	Art.3	Non Art.3	Art.3	Non Art.3	Art.3	Non Art.3	Art.3	Non Art.3	Art.3	Non Art.3
Belgium	1	0	0	0	0	0	0	0	0	0	-	1	-	0	-	0
Denmark	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
France	-	0	-	0	-	2	-	1	-	1	-	1	-	0	-	1
Germany	1	0	1	0	1	0	1	0	1	0	-	0	-	0	-	0
Greece	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Ireland	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Italy	-	-	-	-	-	-	-	0	-	1	-	1	-	?	-	?
Luxembourg	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Portugal	-	-	-	0	-	0	-	0	-	0	-	0	-	0	-	0
Spain	-	-	-	0	-	0	-	0	-	0	-	0	-	0	-	0
The Netherlands	-	0	-	0	-	0	-	0	-	0	-	0	-	0	-	0
United Kingdom	1	0	1	0	1	0	1	0	1	0	-	0	-	0	-	0
Total	3	0	2	0	2	2	2	1	2	2	0	3	0	0	0	1
	3		2		4		3		4		3		0		1	

Spain and Portugal

:incomplete data

The information which has been reported to the Commission, including details of actual values measured, is provided in Annexes 2 and B. The majority of countries have fulfilled their reporting requirements however problems regarding implementation leading to the commencement of legal procedures have been encountered in a few Member States.

2.2.4 Measurement Method

Requirements for sampling and a reference measurement method are laid down in the Directive. Member States use different sampling methods, those used by Denmark, Germany, Greece, the Netherlands, Portugal and Spain have not been proved to give results equivalent to the requirements of the Directive.

The reference analytical method laid down in the Directive is atomic absorption spectroscopy. This is used by 9 Member States, Denmark uses particle induced X-ray spectroscopy while Belgium and Luxembourg use X-ray fluorescence. These alternative methods have been shown to perform as well as the reference method in comparison exercises. Germany and The Netherlands use a combination of the reference method and X-ray fluorescence.

2.2.5 Siting of monitoring stations

Section 2.1.5 above explains how Table 17 has been created and the limitations to this approach.

Even with the limitations expressed above, the data presented give some indication of the variability between Member States both in numbers of monitoring stations and their siting. Differences in numbers of stations used for the purposes of reporting for the Directive can be seen with some countries having only few stations and others, for example, Belgium and France having many more. Alternative ways of expressing this information could be per square kilometre of territory or per head of population, both of these are rather crude measures and would fail to show up any national policy regarding the siting of monitoring stations, for example mainly in residential areas specifically to measure population exposure or in industrial areas to measure industrial pollution.

For many Member States there is apparently no clear pattern in the siting of monitoring stations. Some differences can be seen, for example, in Denmark, all monitoring stations are in local environments made up of a mixture of commercial, industrial and residential components. In Belgium, many monitoring stations are located in residential areas whereas in France, few stations are located in residential but many are in 'other' areas. As with the pollutants covered by Directive 80/779/EEC, for all Member States, only a small number of number of sites were reported to have 'traffic' as their local environment.

Table 17. Siting of monitoring stations for lead (1990)

Member State	No of Stations	No used for reporting for Directive						
		Total	Mix	Res	Ind	Com	Traf	Other
Belgium	60	60	3	26	11	9	5	6
Denmark	23	12	12	-	-	-	-	-
France	72	70	11	8	5	16	-	30
Germany†	142	142						
Greece††	1	1	-	-	-	1	-	-
Ireland**								
Italy	24	7·	1	-	3	2	1	-
Luxembourg	3	3	-	1	-	1	-	1
Portugal**								
Spain	37	36	1	16	6	10	2	1
The Netherlands	21	4	-	1	1	-	-	2
UK†	26	9	-	-	9	-	-	-

Legend for Table

Mix	Mixture of commercial, industrial, residential
Res	Residential
Ind	Industrial
Com	Commercial
Traf	Traffic
Other	Includes non-classified, agricultural, parks, harbours, airport, sea side or lake side

*	No information was given about how many stations were used for the purposes of reporting for the Directive
**	No information was given about the number of monitoring stations for lead
†	Information from GIRAFE database amended by comments from Member State
††	Data provided 1995

2.3 Nitrogen Dioxide 85/203/EEC

2.3.1 Introduction

This is the third Directive on ambient air quality. It sets both a limit value and guide values for nitrogen dioxide as follows:

Limit value	200μg/m³	98th percentile calculated from the mean values per hour or period of less than an hour recorded throughout the year
Guide values	135μg/m³	98th percentile calculated from the mean values per hour or period of less than an hour recorded throughout the year
	50μg/m³	98th percentile calculated from the mean values per hour or period of less than an hour recorded throughout the year

An explanation of the averaging times is provided in Annex 3.

2.3.2 Transposition

All Member States have communicated to the Commission the legislation transposing Directive 85/203/EEC into national law. Conformity of this legislation has been accepted by the Commission in all cases except Belgium and the United Kingdom. Legal discussions are currently taking place with these Member States to resolve the difficulties. Details of the legislation are provided in Annex 3.

2.3.3 Reporting from Member States

Member States wishing to designate zones under Article 3 were required to notify the Commission by 1 July 1987[11]. Improvement plans for these zones were also required to be sent to the Commission as soon as possible after the notification. Compliance with the limit value should be achieved within these zones by 1 January 1994[12].

Three Member States (France, Portugal and Greece) made use of the opportunity to designate zones under Article 3. These are shown in Table 18 below. The reference periods shown are the first after the Directive came into force and the last reference period covered by this Report. France and Greece have both sent details of the measures and procedures being or to be taken to the Commission.

Table 18. Numbers of zones designated under Article 3 of Directive 85/203/EEC

	Reference period 1987	Reference period 1992
France	34	34
Greece	1	1
Portugal	3	3
TOTAL	38	38

The variation in the numbers of zones designated under Article 3 is believed to reflect the differing philosophies in Member States in terms of both willingness to make the designation and the geographical size and population covered by the zone. This is discussed further in Section 3.

The numbers of instance of concetnrations above the limit value reported for zones designated under Article 3 and other zones are shown in Table 19 below.

When designating the 34 zones under Article 3, the French authorities reported that 21 were

[11]This is extended to 31 December 1991 for the new Länder of Germany according to Directive 90/656/EEC

[12]This is extended to 31 December 1995 for the new Länder of Germany in accordance with Directive 90/656/EEC

Table 19 Reported instances of exceedance of the limit value for nitrogen dioxide

NO2

	1987		1988		1989		1990		1991		1992	
	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3	Art. 3	Non-art. 3
Belgium	-	0	-	0	-	0	-	0	-	0	-	0
Denmark	-	0	-	0	-	0	-	0	-	0	-	0
France	4	0	1	0	2	0	1	0	3	0	1	0
Germany	-	2	-	2	-	2	-	1	-	0	-	0
Greece	1	0	1	0	1	0	1	0	1	0	1	0
Ireland	-	0	-	0	-	0	-	0	-	0	-	0
Italy	-	6	-	2	-	17	-	22	-	?	-	?
Luxemburg	-	0	-	0	-	0	-	0	-	0	-	0
Portugal	?	0	0	0	0	0	0	0	0	0	-	0
Spain	-	0	-	0	-	0	-	3	-	3	-	3
The Netherlands	-	0	-	1	-	0	-	0	-	0	-	0
United Kingdom	-	0	-	0	-	1	-	0	-	0	-	0
Total	5	8	2	5	3	20	2	26	4	3	2	3
	13		7		23		28		7		5	

: incomplete data

affected by industrial pollution while 13 were affected by traffic pollution. None of these industrially polluted zones experienced repeated concentrations over limit value however 2 of the zones affected by traffic pollution (Marseilles and Nantes) experienced repeated instances of concentrations above the limit value.

From the data available, it appears that the number of instances of concentrations above the limit value has increased in southern European countries in the later years of operation of the Directive.

No Member States have designated zones under Article 4 of the Directive and there has been little feedback from Member States regarding the use of guide values as long term objectives or as tools for policy development.

The information which has been reported to the Commission, including details of actual values reported, is provided in Annexes 3 and C. The majority of countries have fulfilled their reporting requirements however problems regarding implementation leading to the commencement of legal procedures have been encountered in several Member States.

2.3.4 Measurement methods

As with the earlier Directives a reference method for measurement was laid down and Member States were required to use this or another method considered equivalent. The reference method specified is the chemiluminescence method described in ISO standard DIS 7996. All of the Member States used a chemiluminescence method although not all, the same equipment. A Quality Assurance Programme for nitrogen dioxide was launched by the Commission in 1990. The report of the first phase, a comparison of reference laboratories, is being finalised and should be available by the end of 1994. The second phase, a comparison of selected stations in selected monitoring networks is currently underway.

2.3.5 Siting of monitoring stations

Section 2.1.5 above explains how Table 20 has been created and the limitations to this approach.

Even with the limitations expressed above, the data presented give some indication of the variability between Member States both in numbers of monitoring stations and their siting. Differences in numbers of stations used for the purposes of reporting for the Directive can be seen with some countries having relatively few stations. Alternative ways of expressing this information could be per square kilometre of territory or per head of population, both of these are rather crude measures and would fail to show up any national policy regarding the siting of monitoring stations, for example mainly in residential areas specifically to measure population exposure or in industrial areas to measure industrial pollution.

Some differences in siting can also be seen, for example, in France, Italy and the UK many monitoring stations are in local environments made up of a mixture of commercial, industrial and residential components, in Denmark all monitoring stations are in this type of local environment. In The Netherlands and Spain, many monitoring stations are located in residential areas. Spain also has many monitoring stations in industrial areas. As with the pollutants covered by Directive 80/779/EEC and 82/884/EEC, all Member States with the

exception of Italy, have only a small number of sites reported to have 'traffic' as their local environment.

Table 20. Siting of monitoring stations for nitrogen dioxide (1990)

Member State	No of Stations	No used for reporting for Directive Total	Mix	Res	Ind	Com	Traf	Other
Belgium	18	17	2	5	2	3	-	5
Denmark	15	7	7	-	-	-	-	-
France	112	109	46	16	13	26	-	8
Germany†	372	372						
Greece††	31	29	2	3	2	12	1	9
Ireland*	4	?						
Italy	137	113	30	4	14	24	15	26
Luxembourg	5	4	-	-	1	-	1	2
Portugal	19	17	4	4	2	6	-	1
Spain	151	129	8	51	31	17	3	19
Netherlands	60	45	7	12	2	2	1	21
UK†	12	7	-	-	2	-	5	-

Legend for Table

Mix	Mixture of commercial, industrial, residential
Res	Residential
Ind	Industrial
Com	Commercial
Traf	Traffic
Other	Includes non-classified, agricultural, parks, harbours, airport, sea side or lake side

* No indication was given of how many stations were used for the purposes of reporting for the Directive
† Information from the GIRAFE database was amended by comments from Member State
†† Data provided 1995

3. PROBLEMS EXPERIENCED WITH THE EARLIER AMBIENT AIR QUALITY DIRECTIVES

Several difficulties have been experienced by the Commission regarding the earlier air quality Directives arising both from different philosophies within the Member States on their implementation and from different interpretations placed on certain parts of the Directives.

3.1 Reporting by Member States

The differences in reporting the information required to be supplied to the Commission on a regular basis by Member States are summarised in Section 1.2 above. It can be seen that some provide an exhaustive set of monitoring data for all the stations in the country while others supply only the minimum required. This makes it difficult to compare the situation in different Member States and often difficult to follow the progress of the measures and procedures being implemented to improve air quality

3.2 Designation of zones under Article 3

Differences, sometimes large, have been seen in the numbers of zones designated under Article 3 of each of the Directives. This is believed to reflect differing philosophies within the Member States in terms of both willingness to make the designation and the geographical size and population covered by the zone. When a zone was designated under Article 3, the Member State was required to provide a plan of the action to be taken to reduce pollution levels in the zone, this requirement may have discouraged some Member States from designating a large number of zones particularly if the air pollution problems experienced were considered to occur occasionally and not on a regular basis.

The second aspect of this issue relates to the geographical area and population covered when a zone is designated. No guidance on this designation was provided in the Directive so Member States were able to select their own basis. Some Member States (for example Italy under Directive 80/779/EEC) designated many individual towns covering a small geographical area and a variable population. Others (for example France) initially designated large geographical areas which were progressively reduced in size as pollution levels fell although the total number of zones remained generally unchanged.

3.3 Provisions of plans under Article 3

For the zones designated under Article 3 of the Directives, Member States were required to provide plans for the progressive improvement of air quality in these zones. These plans were to be drawn up on the basis of relevant information on the nature, origin and development of the pollution and were to contain a description of the measures and procedures being taken or to be taken or implemented. The aim of these measures and procedures was to reduce pollution levels in these zones to values not exceeding the limit values as soon as possible or at the latest by the dates specified in Section 1.1.

The majority of Member States provided plans of the measures and procedures being or to be taken or implemented in zones designated under Article 3. These plans varied from simply lists of proposed activities to a detailed analysis of the situation, measures to be taken and a timetable for implementation. The Directives covered by this Report did not specifically define what information was to be included in the plans and this omission is partly responsible for some of the difficulties experienced in the evaluation of these plans. This evaluation was to have been carried out on two aspects, a technical examination of the proposed measures and procedures and secondly, a follow up of their implementation and effectiveness. The first part has been relatively easy for the Commission to carry out however the second has proved more difficult in several cases partly because of the varied nature of the plans from different Member States and partly because of the limitations of the reporting under the Directives, i.e., only concentrations in excess of the limit values have to be reported. This has made it difficult to evaluate if the reductions in pollutant levels reflected by changes in numbers of instances of concentrations above the limit value represent continuing reductions or if levels remain just below the limit value.

3.4 Provision of information under Article 7 of 80/779/EEC, Article 5 of 82/884/EEC and Article 7 of 85/203/EEC.

Under these Articles, Member States are required to inform the Commission, within 6 months of the end of the reference period, of instances when the limit values set in the various Directives have been exceeded and the concentrations recorded. Member States are also

required to inform the Commission, within 1 year of the reference period, of the reasons for the non-compliance and the measures being taken to avoid recurrence.
Similar problems to those mentioned above have been encountered with this Article. Generally Member States have provided information on instances of concentrations in excess of limit values and have indicated whether these occur in areas designated under Article 3. However for concentrations above the limit values occurring outside these areas the information received has been less complete.

3.5 Monitoring

A third problem experienced with the Directives related to the different approaches regarding monitoring within the Member States. There are two aspects to this problem, the first relates to the number of monitoring stations considered necessary to provide representative information about air quality and the second to the siting of these. This has been noted particularly with regard to the Directive on nitrogen dioxide. As of 1992 the UK used data from 7 monitoring stations[13] to provide information on compliance with the limit value while France, Italy and Spain used data from more than 100 stations reflecting diverse strategies in the Member States.

Member States have different approaches regarding the siting of monitoring stations, some consider that measurements should be made where levels are highest while others consider that exposure of the population or sensitive ecosystems is more important and measurements should be made where these exposures are most likely to occur. The Directives give some guidance but this is often open to interpretation resulting in different situations in Member States. An example can again be provided regarding the Directive on nitrogen dioxide which states that

"The purpose of measuring NO_2 concentrations in the environment is to assess the individual risk of exposure in excess of the limit values as closely as possible, measurement points should accordingly be chosen by the Member States wherever possible from among sites where this risk is likely to be greatest.

Two separate cases need to be considered:

1 zones predominantly affected by pollution from motor vehicles and therefore limited to the vicinity of roads carrying heavy traffic;

2 more extensive zones in which discharges from fixed sources also make a significant contribution to pollution."

In the first case measurement points should be selected to cover the main types of zone affected by this type of pollution e.g. 'canyon streets' and major intersections and to be as far as possible those where concentrations of nitrogen dioxide are among the highest.

The requirements laid down in the Directive have been interpreted differently in each of the Member States with some e.g. Denmark and Germany locating some of their monitoring

[13]This was increased to 19 at the end of 1993

stations literally at the kerbside where levels would be highest and others e.g. Milan, Italy locating monitoring stations 2 metres from the kerbside where the pedestrians using the streets might be likely to be exposed. These different approaches to site location make it difficult to compare data from different countries.

Two studies on network design, for sulphur dioxide and suspended particulates (Environment and quality of life report no EUR 10647, 1986) and nitrogen dioxide (Commission Study, Ref XI/702/87[14]) have been carried out for the Commission. It appears that the results of these studies, participated in by, and made available to Member States have had little impact on network design in these countries.
Tables 11-14, 17 and 20 summarised information sent by the Member States, independently of reporting requirements under the Directive being considered here, about the numbers and location of their monitoring stations. The information presented was obtained from the Member States in 1990 as the result of a Commission study and collected into a database which could be easily updated. Information was collected for each monitoring station on the basis of a series of harmonised reporting criteria but it was left to Member States to decide which criteria applied to each station. The amount and quality of the information received was very variable and thus the accuracy and completeness of the data is questionable. This database was sent to Member States to update and check the accuracy of the information for the first time in spring 1994. Despite the limitations of the information collected, differences between Member States in numbers and location of stations can be seen, these are discussed further in Sections 2.1.5., 2.2.5 and 2.3.5..

3.6 Guide values

The guide values established in Directives 80/779/EEC and 85/203/EEC were intended to improve the protection of human health and the long term protection of the environment and as reference points for the establishment of specific schemes within zones determined by the Member States. Under Article 4 of these Directives, Member States could designate zones within their territory where they considered it necessary to limit a foreseeable increase in pollution or which they considered should be afforded special environmental protection. In the first of these areas, the Member States are required to set values which were lower than the limit value, in the latter, they are required to set values which are generally lower than the guide values. Information has to be supplied to the Commission about measures taken in these zones. No Member States designated areas under Article 4 of either Directive and only The Netherlands and Germany have formally recognised the guide values in its national legislation.

The lack of use of the provisions of Article 4, the very limited use of guide values in the Member States and the problems noted in paragraph 3.3 indicate that the requirements of the Directives are perceived as the minimum required rather than as an upper limit of what should be attempted to be achieved within the Member States.

3.7 Measurement methods

Brief discussion of the measurement methods used are included in the sections on the

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[14]Beier et al. A study of network design and measurement methods in Member States for the EC air quality Directive for nitrogen dioxide (85/203/EEC). Contract no 85-B6642-11-004-11-N

individual Directives above. It can be seen that not all Member States use the reference method and in some cases not even a method that is comparable to a satisfactory degree. Again this makes evaluation of compliance of limit values and intercomparison between Member States difficult.

3.8 Compliance

Compliance with the limit values has generally taken a long time to achieve particularly in areas where repeated instances of concentarions above the limit values have occurred. Despite 6 - 10 years of operation of these Directives concentrations in excess of limit values still occur as illustrated in Tables 9,10,16 and 19.

In conclusion, these problems indicate that there has been a lack of consistency in the effectiveness of the implementation of these earlier Directives. For this to improve there is a need for commitment from all concerned (Member States at all administrative levels and Commission) in terms of physical and financial resources to pursue an effective and harmonised implementation of future legislation on ambient air quality.

4. CHANGES IN THE STATE OF AIR QUALITY IN EUROPE OVER THE PERIOD SINCE THE EARLY 1970's

Section 2 above summarised the changes that have occurred in ambient air quality in terms of changes in the numbers of instances of concentrations in excess of the limit values laid down in the Directives being examined. This information is of limited use if information on changes in ambient air quality is to serve as a useful tool for the development of appropriate and targeted policy on improving the quality of the environment.

In addition to the information received from Member States required under the above Directives, the Commission also receives air quality data through the Council Decision 82/459/EEC establishing a reciprocal exchange of information and data from networks and individual stations measuring air pollution within Member States. This Decision concerned sulphur compounds, suspended particulates, suspended particulates of heavy metals, nitrogen oxides, carbon monoxide and ozone and replaced an earlier Council Decision (75/441/EEC) which related only to sulphur compounds and suspended particulates. Decision 82/459 ceased to apply after 1 October 1989 however Member States have continued to supply information on a voluntary basis.

Under the Decision, Member States select the measuring stations for which data is supplied, these *"should reflect, where possible, the different types of urbanisation, topography and climatology, as well as the different pollution levels prevailing upon the territory of the member states concerned"*. The information to be supplied for each measuring station is specified in the Decision. It should be noted that the data supplied is not necessarily representative for all of the different conditions prevailing in a Member State.

Some of the problems identified in Section 3 above also apply to the data provided under the Decision making comparison of the data received from different countries difficult to carry out and highlighting the need for a network for the harmonised measurement and detection

of changes in environmental quality in the European Union.

The data collected has been stored in a database which now contains 18 million data points. The Commission is working with the European Environment Agency in order to exploit this data more effectively and to improve techniques for its visual presentation. This work is still ongoing and at present only data on sulphur dioxide (measured directly or by the strong acidity method (see above)) and nitrogen dioxide, have been processed in a manner which lends itself to presentation in this Report. It can be seen that the data is not complete for all of the Member States and can only give a general impression of trends rather than an absolute representation of the situation.

The graphs presented here show changes in concentrations of sulphur dioxide and strong acidity from 1969 onward for 3 categories of cities: cities with more than 2 million inhabitants, cities with 1-2 million inhabitants and cities with less than 1000 inhabitants. Changes in concentrations of nitrogen dioxide are presented for the first two of these categories only, insufficient data was available to present information on cities with less than 1000 inhabitants. The same reference and averaging periods as the limit values in Directives 80/779/EEC and 85/203/EEC have been chosen (see Table 2, note different limit values for sulphur dioxide dependant on associated values of suspended particulates and Section 2.3.1). Concentrations measured in cities of each category have been averaged for each Member State, for some Member States the values shown are the average of several cities, while for others they are values recorded in only one city.

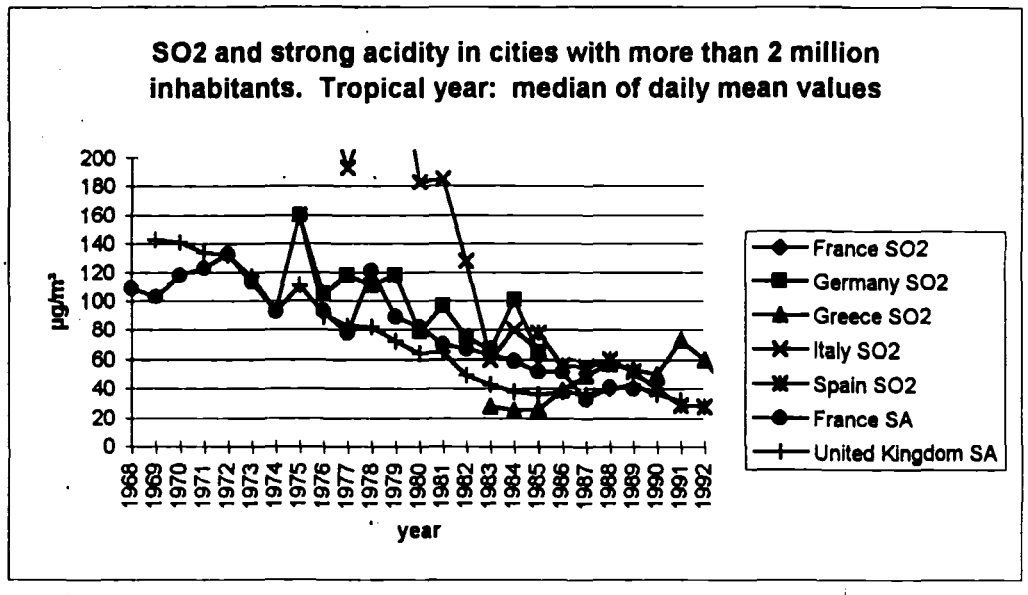
4.1 Sulphur Dioxide

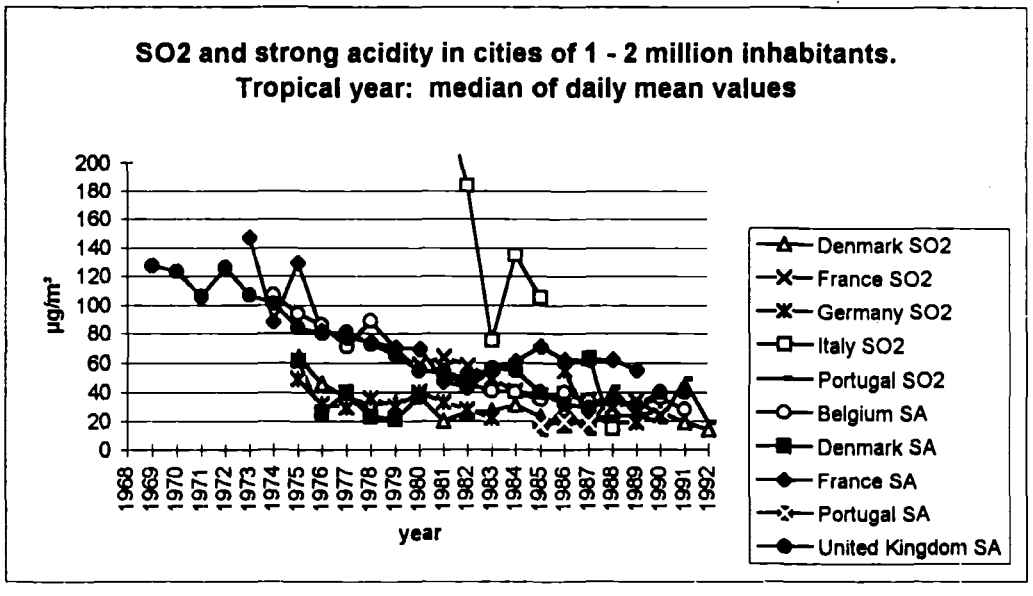
Unfortunately complete sets of data are lacking for most Member States however it can be seen for each of the series of graphs (Figures 1 - 3) that levels of sulphur dioxide and strong acidity have fallen and from approximately 1986 onwards, from the information supplied, the limit values have been complied with. This trend is not seen in Greece, where, although the limit values are complied with, levels appear to be increasing in each of the series of graphs. Levels of sulphur dioxide and strong acidity have tended to be lowest in small cities and have fallen slightly although not as markedly as for large cities. Directive 80/779/EEC came into force in 1982 and although reductions in levels are seen after this period, they are part of a continuing trend starting earlier. The most dramatic reductions are seen for cities with the 98th percentiles of daily mean values (an explanation of this term is given in Annex 1). This parameter gives an indication of the frequency and severity of peak levels of pollution and means that for 2% of the time (i.e., 7 days per year) levels are higher than the given value. For cities with more than 2 million inhabitants and cities with 1-2 million inhabitants 98th percentile values have fallen considerably since the early 1970's. This may reflect actions taken at a local level, for example the use of low sulphur fuels both domestically and by industry etc in order to reduce peak concentrations. Of the Member States, the most striking reduction in levels have occurred in Italy for all of the averaging times shown.

4.2 Nitrogen Dioxide

As with the graphs for sulphur dioxide complete sets of data are lacking for most Member States. From Figure 4, it appears that levels have fallen for cities with 1-2 million inhabitants but have remained constant or increased to levels around the limit value in Directive 85/203/EEC in cities with more than 2 million inhabitants. Directive 85/203/EEC came into force in 1987, little change can be seen in the levels reported here after that date

Figure 1. SO2 and strong acidity. Tropical year: median of daily mean values





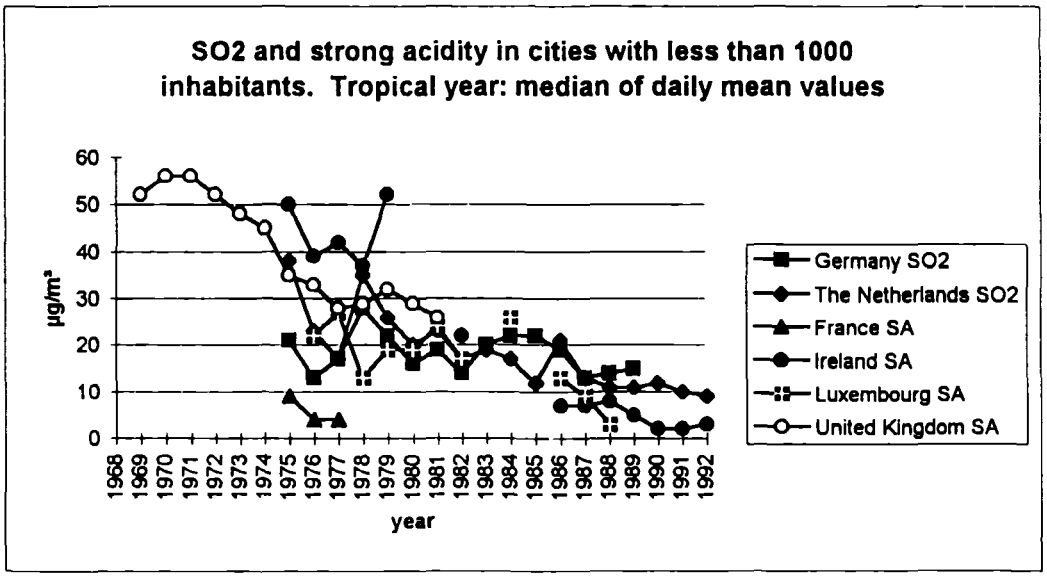
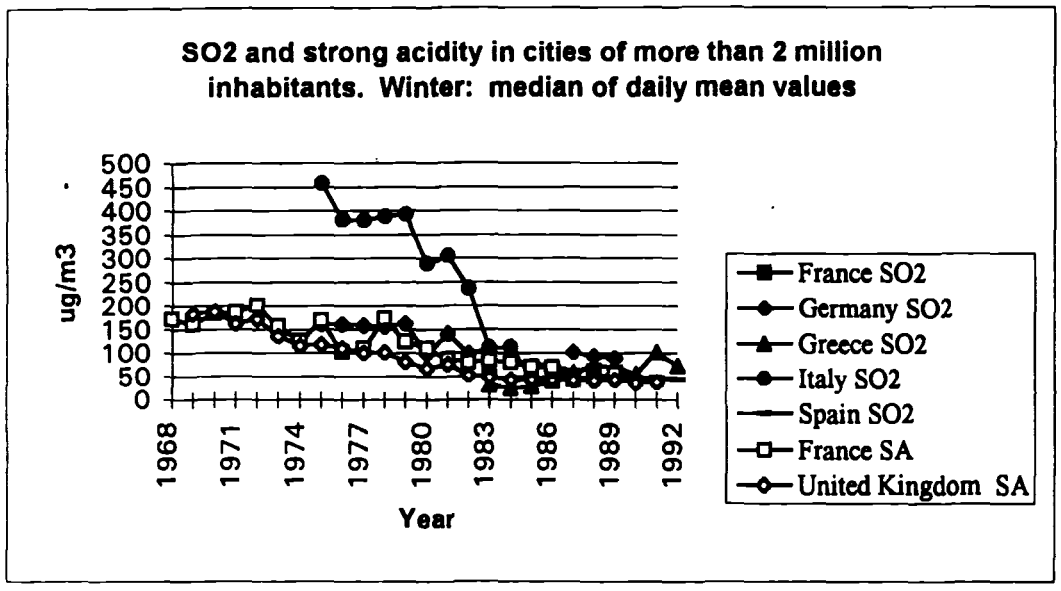
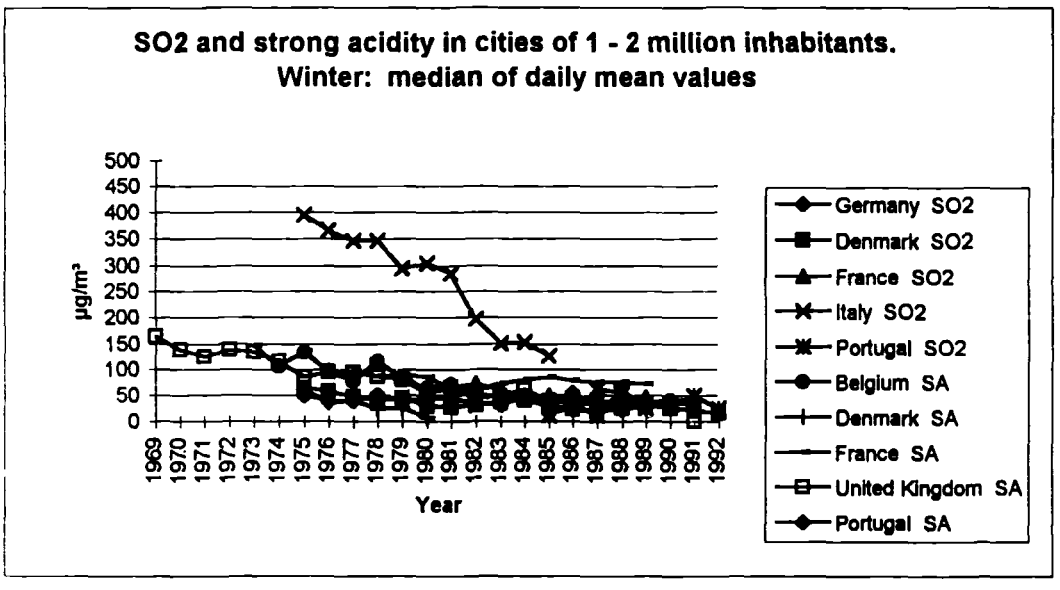


Figure 2. SO2 and strong acidity. Winter: median of daily mean values





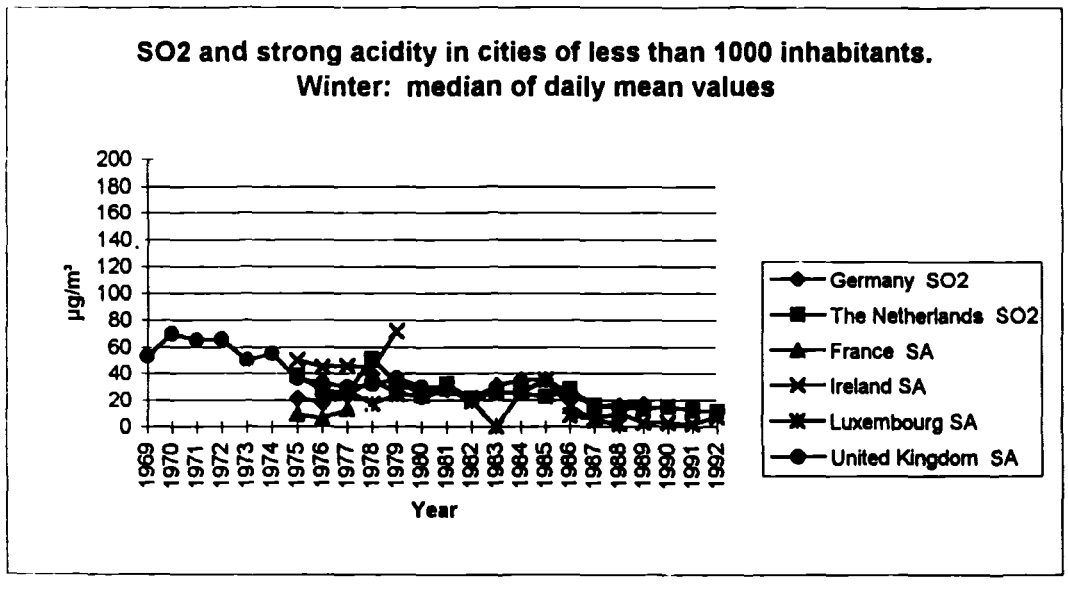
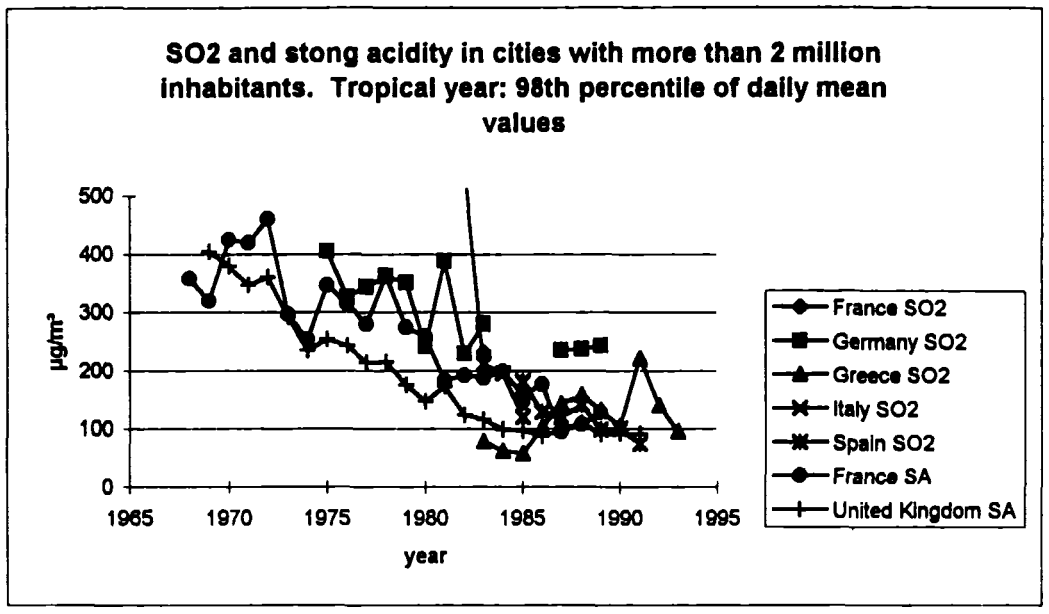
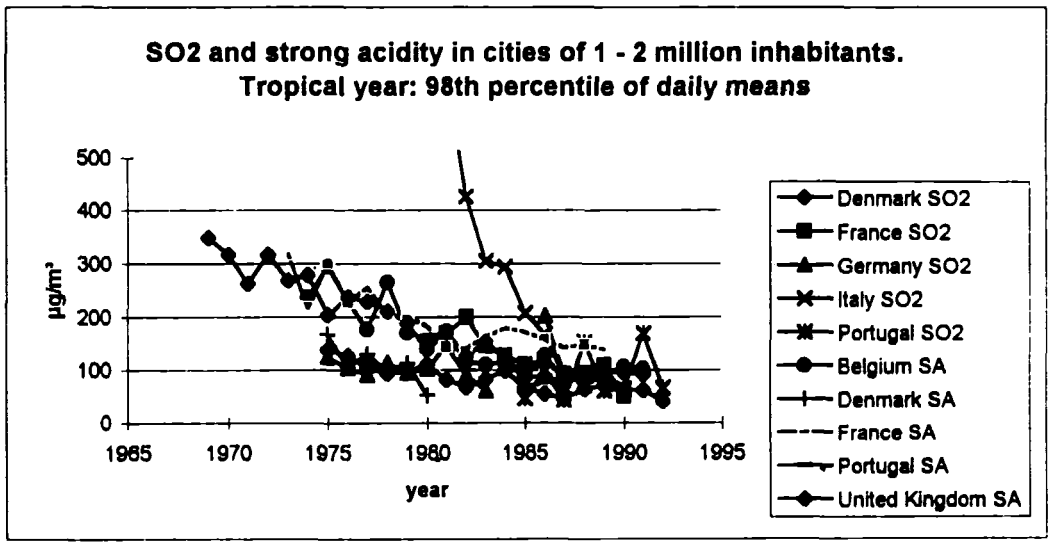


Figure 3. SO2 and strong acidity. Tropical year: 98th percentile of daily mean values





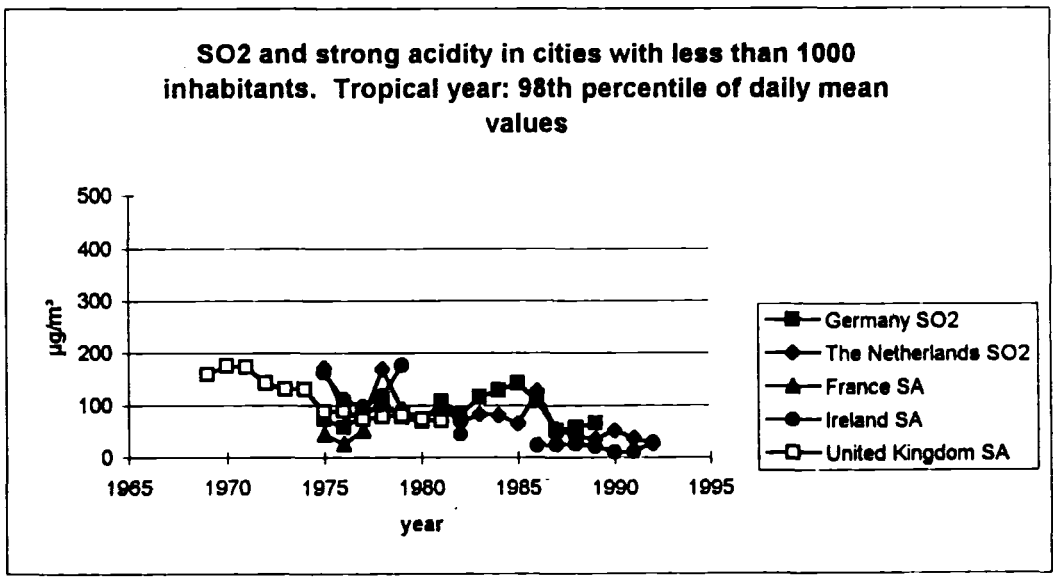
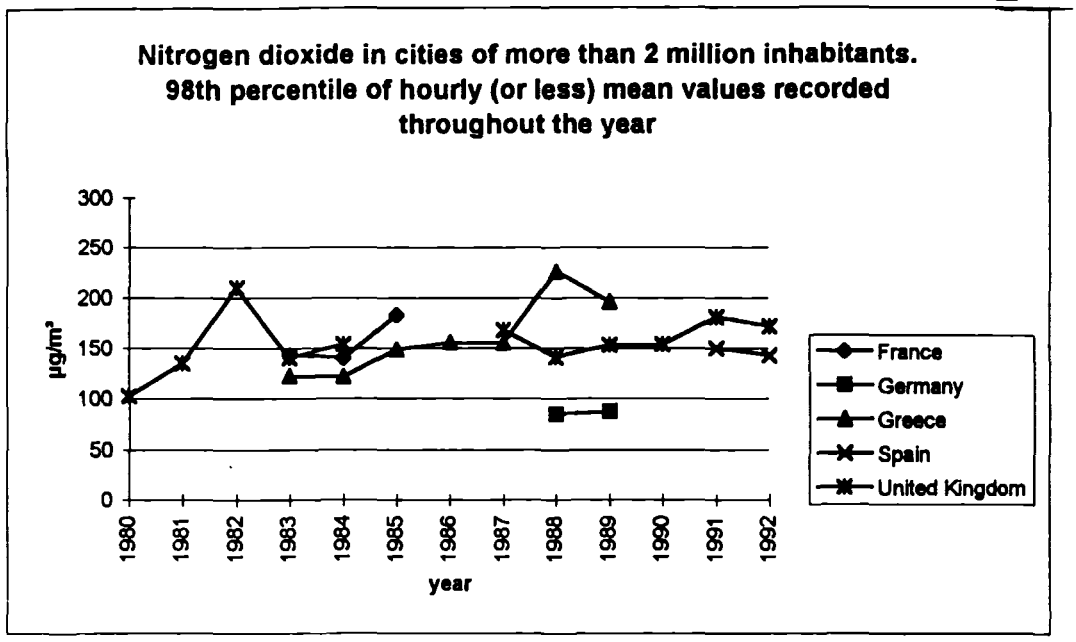
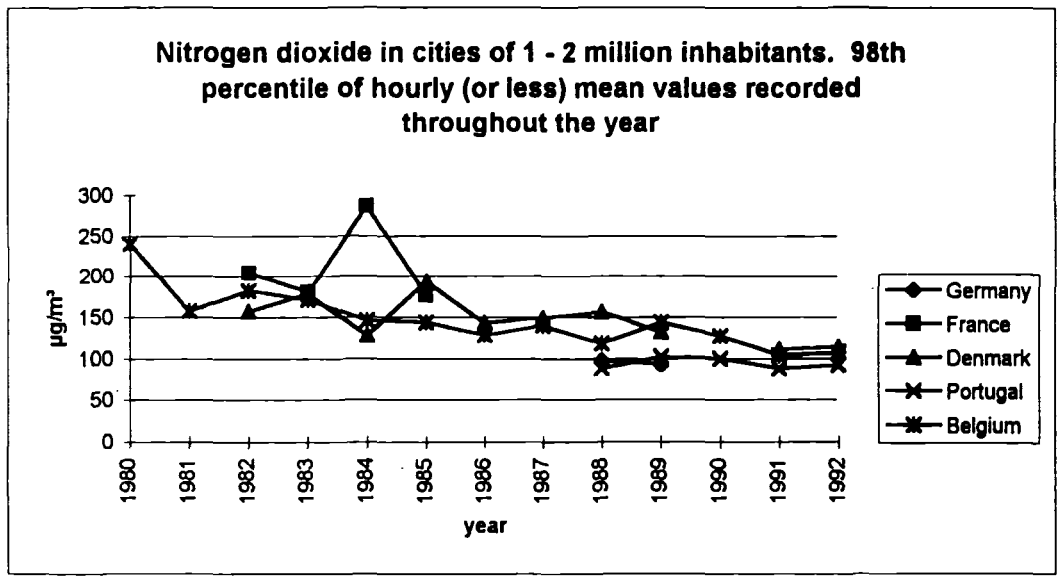


Figure 4. NO2. 98th percentile of hourly (or less) mean values recorded throughout the year





5. CONCLUSIONS AND FUTURE STRATEGIES

This Report has highlighted experiences with the implementation of the existing ambient air quality Directives (80/779/EEC amended by 89/427/EEC, 82/884/EEC and 85/203/EEC. 92/72/EEC is not included as it only came into force in March 1994). The problems experienced indicate that there has been a lack of consistency in the effectiveness of the implementation of these earlier Directives. For this situation to improve there is a need for commitment from all concerned (Member States at all administrative levels and Commission) in terms of physical and financial resources to an effective and harmonised implementation of future legislation on ambient air quality.

More information on air quality in Europe has been obtained through the Council Decision 82/459/EEC establishing a reciprocal exchange of information and data from networks and individual stations measuring air pollution within Member States and the goodwill of Member States to continue supplying this information after the Decision expired. Information on sulphur dioxide and nitrogen dioxide obtained through this Decision had been presented in Section 4. Although this provides further information about air quality it still does not provide a clear picture of the state of air quality in Europe. A proposal for a new Council Decision to continue and improve the exchange of information and data on air quality was adopted by the Commission on 7 September 1994.

The future policy on ambient air quality will lie with the proposal for a Council Directive on Ambient Air Quality Assessment and Management adopted by the Commission on 4 July 1994 (COM(94) 109) supported by the proposal for a new Council Decision referred to above. This will attempt to overcome the difficulties experienced with earlier legislation both by the Commission and Member States.

There is a clear need for harmonisation is a variety of areas ranging from the implementation of the legislation to the siting of monitoring stations. A harmonised approach will allow the identification of areas in Member States where there are particular problems and where specific actions are required. The development of a systematic and harmonised monitoring network will provide a firm basis for development of Union-wide actions in other areas and also provide a direct way in which the success of legislative and other actions to improve air quality can be assessed

The experience with limit and guide values has been described above. A new approach was taken in Directive 92/72/EEC on ozone where no limit values were set, however a series of protection thresholds were defined. For two of these, the Population Information and Population Warning thresholds, Member States are required to provide information to the public when concentrations above these thresholds occur. The provision of information on air quality to the public is considered to be important and coherent with the aims of the Fifth Environmental Action Programme to increase public knowledge about environmental issues.

Experience with the earlier Directives has shown that limit values provide a firm goal towards which Member States can direct their policies for improving air quality. In contrast however, guide values have been of limited use and there has been little feedback from Member States regarding their use as long term objectives or as tools for policy development. Future legislation is expected to continue the approach taken in the Directive on ozone combined

with the establishment of stringent limit values with a fixed time limit for compliance. If necessary, a 'permitted margin of exceedance' which decreases with time will also be defined at the time of setting the limit value to enable Member States to move towards achievement of the limit value in a consistent way. Limit values proposed will provide a high degree of protection for health and the environment as intended in Article 130r of the Treaty

A further aim of the proposed Council Directive is to improve air quality where it is poor and maintain good air quality elsewhere. Where air quality is poor Member States are required to provide the Commission with plans listing the measures they intend to take to improve the situation. These plans will be evaluated by the Commission in terms of the suitability of the measures chosen and their effectiveness in improving air quality. Unlike the earlier Directives, the proposed Council Directive specifies the information which must be provided to the Commission in these thus enabling an easier evaluation. The effective implementation of this aspect of the Directive will require good communication between the Commission and Member States regarding the state of air quality in different areas and a close follow-up of the results of measures taken.

It is intended that future policy will continue with the parallel use of ambient air quality objectives and emission reduction measures to improve air quality. Perhaps the best example of the successful use of these tools in parallel has been with lead where the introduction of an ambient air quality Directive and measures for the reduction of the lead content of petrol (Directive 85/210/EEC O J 1985; L096:25) have resulted in considerable reductions in lead concentrations in air and blood lead levels in exposed populations.

A harmonised approach to the assessment and management of air quality in the European Union will allow for the identification of areas where action is needed and for this the necessary action to be taken in a way which is proportionate to the extent of the problem. The most effective way for this to proceed and to result in improvement of the air quality in the European Union is through close cooperation between the Commission and Member States at national, regional, local and individual level.

ANNEX 1

DIRECTIVE 80/779/EEC, AMENDED BY 89/427/EEC, ON AIR QUALITY LIMIT VALUES FOR SULPHUR DIOXIDE AND SUSPENDED PARTICULATES

CONTENTS

1.a. Limit and guide values for sulphur dioxide and suspended particulates

Table 1. Limit values for sulphur dioxide (all values in µg/m³) from Directive 80/779/EEC and 89/427/EEC

Reference period	Limit value for sulphur dioxide	Associated value for suspended particles(1)	
		As black smoke(2) (OECD method of measurement)	By gravimetric method(3)
Year	80 (median of daily mean values taken throughout the year)	> 40 (median of daily mean values taken throughout the year)	> 150 (median of daily mean values taken throughout the year)
	120 (median of daily mean values taken throughout the year)	≤ 40 (median of daily mean values taken throughout the year)	≤ 150 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)	> 60 (median of daily mean values taken throughout the winter)	> 200 (median of daily mean values taken throughout the winter)
	180 (median of daily mean values taken throughout the winter)	≤ 60 (median of daily mean values taken throughout the winter)	≤ 200 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250 (4) (98th percentile of all daily mean values taken throughout the year)	> 150 (98th percentile of all daily mean values taken throughout the year)	> 350 (98th percentile of all daily mean values taken throughout the year)
	350 (4) (98th percentile of all daily mean values taken throughout the year)	≤ 150 (98th percentile of all daily mean values taken throughout the year)	≤ 350 (98th percentile of all daily mean values taken throughout the year)

(1) The values given for suspended particulates measured as black smoke or gravimetrically are not comparable

(2) The results of the measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD.

(3) These values are from the amending Directive 89/427/EEC and cannot be compared with the values for suspended particulates measured as black smoke

(4) Member States must take all appropriate steps to ensure that this value is not exceeded for more than three consecutive days. Moreover, Member States must endeavour to prevent and to reduce any such instances in which this value has been exceeded.

Table 2. Limit values for suspended particulates (as measured by the black-smoke method described in Annex III of Directive 80/779/EEC) expressed in μg/m³

Reference period	Limit value for suspended particulates
Year	80 (median of daily mean values taken throughout the year)
Winter (1 October to 31 March)	130 (median of daily mean values taken throughout the winter)
Year (made up of units of measuring periods of 24 hours)	250 (1) (98th percentile of all daily mean values taken throughout the year)

The results of the measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD.

(1) Member States must take all appropriate steps to ensure that this value is not exceeded for more than three consecutive days. Moreover, Member States must endeavour to prevent and to reduce any such instances in which this value has been exceeded.

Table 3. Limit values for suspended particulates (as measured by the gravimetric method described in Annex IV of Directive 80/779/EEC) expressed in μg/m³

Reference Period	Limit value for suspended particulates
Year	150 (arithmetic mean of daily mean values taken throughout the year)
Year (made up of units of measuring periods of 24 hours)	300 (95th percentile of all daily mean values taken throughout the year)

Table 4. Guide values for sulphur dioxide

Reference period	Guide value for sulphur dioxide
Year	40-60 (arithmetic mean of daily mean values taken throughout the year)
24 hours	100-150 (daily mean value)

Table 5. Guide values for suspended particulates (as measured by the black smoke method) expressed in µg/m³ (1)

Reference period	Guide value for suspended particulates
Year	40-60 (arithmetic mean of daily mean values taken throughout the year)
24 hours	100-150 (daily mean value)

(1) The results of measurements of black smoke taken by the OECD method have been converted into gravimetric units as described by the OECD

There are no guide values for suspended particulates measured gravimetrically.

1.b. Explanation of averaging times

Median of daily values taken throughout the year	Calculated by listing the measured values throughout the year in increasing order. The median is the value which occurs in the middle of this list
Median of daily values taken throughout the winter	Calculated by listing the measured values between 1 October and 31 March of following year in increasing order. The median is the value which occurs in the middle of this list
98th percentile of daily values throughout the year	Calculated by listing the measured daily values in increasing order for each site $X_1 \leq X_2 \leq X_3 \leq \ldots\ldots \leq X_k \leq \ldots\ldots \leq X_{n-1} \leq X_n$ where X = the values recorded, n = total number of measurements and Xk = the value of the 98th percentile calculated by k = 0.98 x n. 75% of possible values were required to be available
Arithmetic mean of daily mean values taken throughout the year	Calculated by adding all of the daily mean values measured and dividing by the number of measurements
Daily mean value	Value recorded over a 24 hour sampling period or calculated by dividing the sum of valid daily values by the number of days for which valid values have been obtained

2. Legislation in Member States

Belgium

Belgium transmitted to the Commission the Royal Decree of 16 March 1983 which transposes the requirements of the Directive into national law. The text repeats almost literally the different provisions of the Directive, establishing limit and guide values and fixing the methods of sampling and analysis of sulphur dioxide and black smoke.

Belgium have also notified the Commission of the Decree of the Flemish Executive of 7 January 1992 regarding ecological conditions applying to non-complying industries.

Denmark

A Statutory Order (Bekendtg0relse nr. 836 af 10. december 1986) provides that national authorities dealing with matters that fall under the Act of Environmental Protection (polluting activities) shall ensure that the limit values of the Directive are complied with.

The limit values are laid down in the Order, which also fixes rules where measuring stations shall have to be set up. Denmark referred, as regards sulphur dioxide, to the sampling method laid down in the Directive, but allowed the use of equivalent alternative methods. For suspended particulates, specific methods for the taking and analysing of samples were fixed. No guide values were fixed.

France

Directives 80/779/EEC, 82/884/EEC and 85/203/EEC

Directive 80/779/EEC, 82/882/EEC and 85/203/EEC are transposed into French law in a common regulation. This is Decree number 91-1122 of 25 October 1991 relative to air quality and modifies Decree number 74-415 of 13 May 1974 relating to the control of emission of pollutants into the atmosphere and certain uses of thermal energy (OJ (France) of 29.10.91, p.14180).

This Decree, adopted for the transposition of the three Directives applies to all sources of emission of pollutants, fixed or mobile. The limit values and guide values fixed in the Directives are contained in an annex to the Decree. The establishment of measurement stations in the places where the pollution is presumed to be the highest for controlling air quality is also provided for in this Decree. The functioning of these stations is ensured by bodies agreed by the minister for the environment. Zones where the levels pollutants approach or exceed the limits judged to be acceptable are called "zones de protection spéciale".

Germany

In 1982, Germany notified the Commission of a series of legislation and national measures which, taken together assured the transposition and application of Directive 80/779/EEC.

The major pieces of legislation protecting against air pollution are the federal law of 1974 (Bundesimmissionsschutzgesetz) which contains provisions covering industrial installations,

products and regions, several regulations applying the federal law and the Technische Anleitung (TA) Luft of 1974,

The Commission did not accept that these pieces of legislation ensured the complete and correct transposition of the provisions of the Directive throughout all of the country and therefore began a procedure under Article 169 against Germany. In 1991 the Court of Justice (Decree of 30.6.91, case number 361/88) decided that Germany had not taken all the necessary measures to ensure the complete transposition of the Directive. The Court considered that the TA-Luft, an administrative circular, was not sufficient to ensure the transposition of the Directive.

Following this Court Judgement, the German authorities sent (by letter, 3 January 1994) the twenty second amendment/regulation relative to the Bundesimmissionsschutzgesetz made on 26 October 1993. This transposed the limit values (Immissionswerte) of the Directive into national law and prohibited their being exceeded. This regulation also anticipated that the authorities in the Länder establish monitoring stations according to Article 6 of Directive 80/779/EEC and use the measurement methods for sulphur dioxide and suspended particles prescribed in Annex IIIA and Annex IVii respectively. Other equivalent measurement methods were also permitted. When limit values were exceeded, plans must be made in order to ensure compliance with the limit values as soon as possible. If the limit values for suspended particulates are exceeded for three or more consecutive days, the competent authorities are asked to take appropriate measures to prevent future instances of concentrations above of the limit value.

With regard to the new Länder, Directive 90/656/EEC agreed with Germany the possibility of applying the provisions of Directive 80/779/EEC in the zones designated under Article 3.2 until 31 December 1995. Germany has not adopted specific legislation for the new Lander but has designated 14 zones under Article 3.2. Measures for improvement of air quality have been communicated to the Commission.

Greece

This Directive has been transposed into Greek law by two different legislative acts: a) the Act of the Council of ministers No 99 of 10.7.87 (O.J. Greece No 153 A, 27.7.87) and b) modification of this Act by Act of the COuncil of Ministers No25 (see Article 9.2) (O.J. Greece No 52 A, 1988). These two Acts are published under Article 7 of the framework law 1650/1986 for the protection of the environment

The titles of these Acts are:

α) Πράξη Υπουργικού Συμβουλίου αριθ. 99/10.7.87 "Οριακές και κατευθυντήριες τιμές ποιότητος της ατμόσφαιρας σε διοξείδιο του θείου και αιωρούμενα σωματίδια" (ΦΕΚ/Α/135/28.7.87, σελ.1385).

β) Πραξη Υπουργικού Συμβουλίου αριθ. 25/18.3.88 (ΦΕΚ/52/Α/1988);

γ) Ν. 1650/86 "Για την προστασία του περιβάλλοντος".

Greece has not transposed Directive 89/427/EEC (modifying the above). The Greek authorities have chosen to measure particulates using the black smoke method.

The transposition is correct. The town of Athens has been designated under Article 3 but the plans required to be sent to the Commission for improving air quality have never been communicated. The transposition allows for civil and administrative penalties against polluters

Ireland
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
The Air Pollution Act, 1987 constitutes the principal primary, legislation for implementing Community air pollution directives, including Directives 80/779/EEC, 82/884/EEC and 85/203/EEC.

The Act is divided into six parts. Part I deals with preliminary and general matters, including definitions of terms, offences and penalties, and the scope for the Irish Minister for the Environment for making more detailed implementing regulations. Part II contains general provisions on air pollution, including certain prohibitions. Part III establishes a licensing system for air emissions from industrial plant. Part IV sets out provisions for controlling air pollution in special control areas. Part V deals with air quality management plans and standards, and provides for regulations in relation to fuel. Part VI addresses a number of miscellaneous matters, including the monitoring of air quality and emissions.

Using the Act's enabling powers, the Irish Minister for the Environment adopted S.I.No 244 of 1987, Air Pollution Act, 1987 (Air Quality Standards) Regulations, 1987, in order to transpose the limit values of Directives 80/779/EEC, 82/884/EEC and 85/203/EEC.
The term "air quality standard" is employed instead of "limit value". The Regulations refer to the measuring methods provided for in the Directives (in the case of Directive 80/779/EEC, Ireland applies the black smoke method).

In response to concentrations in excess of suspended particulate limit values in Dublin, the Minister adopted a series of further regulations under the Air Pollution Act. Initially, the strategy was to rely on Part IV of the Act i.e. to create special control areas in which measures would be taken to reduce smoke emissions. However, this strategy proving slow and cumbersome, in 1990 the Minister turned to Part V of the Act and adopted controls on the marketing, sale and distribution of bituminous coal in Dublin city and an extensive part of Dublin county. This brought about a rapid improvement in suspended particulate concentrations.

Italy
Directives 80/779/EEC, 89/427/EEC, 82/884/EEC, 85/203/EEC
Italy has transposed the above Directives (except 89/427/EEC) by a Decree of the President of the Republic of 24.5.88. (No 203, published in O J (Italy) of 16.6.88)

This Decree includes the air pollutants covered by the different Directives and uses, in its provisions, the terminology of the three Directives (80/779/EEC, 82/884/EEC and 85/203/EEC). The Italian authorities have chosen to measure suspended particulates by the black smoke method as defined in Annex I of 80/779/EEC.

Luxembourg

Directive 80/779/EEC has been transposed in Luxembourg by the Grand Ducal Regulation of 7 September 1987. This regulation is an almost literal copy of the Directive. The authorities in Luxembourg have not taken any specific measures in the sense of those foreseen in Article 3.1 of the Directive. Article 4 of the regulation simply states that the concentrations of sulphur dioxide and suspended particulates must not be above the values stated in Annex I of the Directive.

The authorities in Luxembourg have informed the Commission of 2 zones where the limit values are at risk of being exceeded according to Article 3.2 of the Directive (Letter of 8 December 1982). These zones are Colmar-Berg and Contern. In each case the concentrations in excess of the limit values are due to a single source and a list of the measures foreseen for the sources in question for the reduction of emissions of sulphur dioxide have been sent to the Commission.

By letter of 29 May 1984, the authorities of Luxembourg informed the Commission that, taking into account that the possible instances of concentrations in excess of the limit value were due in each case to a single source, the measures envisaged by the sources concerned can be identified as plans for the progressive improvement of air quality as required by Article 3.2 of the Directive.

In October 1985, the authorities in Luxembourg informed the Commission that the measures taken in the zone of Contern had resulted in levels of sulphur dioxide and suspended particulates being below the limit values of the Directive. In 1986, the authorities in Luxembourg communicated that the zone of Contern was no longer considered as one where the limit values would be exceeded.

Regarding the zone of Colmar-Berg, the authorities in Luxembourg have communicated that even though the limit values are exceeded, the concentrations of sulphur dioxide have been reduced thanks to certain changes in the factories of the principal emitter. The concentrations measured have continued to decrease progressively following the changes and improvement made by the industries concerned. In March 1989 the authorities in Luxembourg communicated that a limit of 1% sulphur in heavy fuel oil had applied from 1 January 1988, the levels of sulphur dioxide in the zone of Colmar-Berg were considerably reduced and concentrations above the limit values was not expected in the future.

Portugal

Directives 80/779/EEC, 82/884/EEC and 85/203/EEC

The law decree 352/90 of 9 November 1990 establishes the regime of protection and control of air quality and creates the framework for the management of air quality for the protection of public health and the protection of nature, the organisation of regional programmes for controlling atmospheric pollution and the establishment of obligatory measures to ensure that the levels of air pollutants do not exceed the limit values. Article 5 of the decree states that limit and guide values for sulphur dioxide, suspended particulates, nitrogen dioxide, carbon monoxide and ozone and limit values for lead are to be fixed by Portaria.

Portaria 286/93 of 12 March 1993 fixed limit and guide values for sulphur dioxide, suspended particulates, lead and nitrogen dioxide among others.

The national legislation correctly transposes the three Directives in question.

Spain
Transposition of Directive 80/779/EEC into Spanish law was made through the following measures:

Real Decreto 1613/1985 of 1 August 1985 and Real Decreto 1321/1992 of 30 October 1992.

Decree 1613/1985 fixes limit and guide values for sulphur dioxide and suspended particulates as laid down in Directive 80/779/EEC. This Decree also establishes reference values for sulphur dioxide for the declaration of an emergency situation, the administrative regime for this is contained in Decree 833/1975 (chapter IV).

Decree 1321/1992 transposes Directive 89/427/EEC into Spanish law. This Decree establishes that the places where the limit values are exceeded will be declared as zones with a polluted atmosphere by the competent authorities. The regime for these zones is provided for in Decree 833/1975 (chapter III).

The Netherlands
The Dutch legislation does not provide a base for the establishment of limit or guide values. This base was created by a modification to the "Wet inzake de luchtverontreiniging" (art. 2), which came into force on 1 February 1986 On 1 March 1993, this article was replaced by articles 5.1 - 5.4 of the "Wet milieubeheer".

According to article 2 of the "Wet inzake de luchtverontreiniging", the decree - as well as if the occasion should arise, the regulations - have been fixed which transpose the Directives concerning atmospheric quality. These decrees oblige local and regional authorities to respect the limit and guide values. This legislation is now the basis of the "Wet milieubeheer"

Directive 80/779/CEE
The national measures which transpose this Directive are:

- Wet milieubeheer;
- Besluit luchtkwaliteit zwaveldioxide en zwevende deeltjes (zwarte rook);
- Meetbesluit zwaveldioxide en zwevende deeltjes (zwarte rook).

The "besluit" and the "meetbesluit" came into force on 1 May 1986. Most of the obligations of the Directive are contained in the "besluit", the "meetbesluit" gives more precise provisions for the stations and measurement methods.

The limit values in the Netherlands lie between the limit and guide values fixed in Directive 80/779/EEC.

The Netherlands has not designated urban or industrial zones, or zones requiring special protection (Article 4 of Directive) for which lower values have been fixed; the guide values applying throughout The Netherlands are lower than those in the Directive. The provinces have the obligation to establish measurement stations. Also, all of the territory of the Netherlands is covered by the "Landelijk meetnet luchtverontreiniging" of the "Rijksinsituut

voor Volksgezondheid en Milieuhygiëne". The provinces are obliged to inform the national authorities of measurements made and of the actions taken or planned to attain or maintain the prescribed values. The Dutch authorities base the reports required by the Directive on this information and that received from the "Rijksinstituut".

For sulphur dioxide, The Netherlands does not use the reference method of sampling and analysis contained in Annex III of the Directive, use of another method giving result with satisfactorily correlate with the reference method is permitted in Article 10. For suspended particulates, the reference method in Annex III is used (black smoke). Annex IV is not used in the Netherlands and Directive 89/427/EEC containing the amended Annex IV has not been transposed into Dutch legislation.

United Kingdom
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
The Air Quality Standards Regulations 1989 and the Air Quality Standards Regulations (Northern Ireland) 1990 provide for the Secretary of State (in GB) and the Department of the Environment (in Northern Ireland) to take measures to ensure compliance with the air quality standards and provide for the establishment of measuring and sampling stations as laid down in Directives 80/779, 82/884 and 85/203. There are a number of provisions in other clean air and health and safety legislation and in circulars which contribute to the attainment of the objectives of the directives.

3. List of instances of concentrations in excesss of the limit values for sulphur dioxide and suspended particulates

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
BE	ANTWERPEN	-	SO2	-	-	-	-	-	-	-	-
	BRUSSELS	-	SO2	-	-	-	-	-	-	-	-
	GENT	SO2	SO2	-	-	-	-	-	-	-	-
	LIEGE	-	-	-	SO2	-	-	-	-	-	-
DE	BERLIN WEST	SO2	SO2+SPM	-	SO2	-	SO2	SO2	-	-	-
	BITTERFELD-WOLFEN-DESSAU GROßRAUM (ST)									-	-
	BLANKENBURG (ST)									-	-
	BORNA LANDKREIS (SN)									SO2	SO2
	BURG-MAGDEBURG-SCHÖNEBECK RAUM (ST)									SO2	SO2
	CHEMNITZ (SN)									SO2	SO2
	DELITZSCH LANDKREIS (SN)									SO2	SO2
	ELBTAL OBERES (SN)									SO2	SO2
	ERFURT (TH)									-	SO2
	ERZGEBIRGE (SN)									SO2	SO2
	GERA (TH)									SO2	SO2
	GLAUCHAU (TH)									-	SO2
	GREIZ (TH)									-	SO2
	HALLE-MERSEBURG GROßRAUM (ST)									SO2	SO2
	HETTSTEDT-EISLEBEN (ST)									SO2	-
	HOHENSTEIN-ERNSTTHAL (SN)									SO2	SO2
	LEIPZIG STADT (SN)									SO2	SO2
	MEERANE (SN)									SO2	SO2
	OLBERLAUSITZ/GÖRLITZ (SN)									SO2	-
	PÖßNECK (TH)									-	SO2
	RÖTHA (TH)									-	SO2
	SAAFELD (TH)									-	SO2
	SONNEBERG (TH)									SO2	-

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	WEIßENFELD (ST)									SO2	SO2
	WEIMAR (TH)									SO2	-
	WURZEN (SN)									SO2	SO2
	ZWICKAU (SN)									SO2	SO2
ES	ANDORRA TERUEL				-	-	-	-	BS	-	-
	AVILES				-	-	-	-	-	-	-
	BARCELONA (MET.)				-	SPM	SPM	SPM	BS+SPM	BS	BS
	BILBAO				SO2+BS	SO2+BS	BS	BS	BS	-	-
	CARTAGENA				-	SPM	-	-	-	SO2+SPM	-
	GERONA				-	-	-	-	-	-	BS
	GIJON				BS	-	-	-	BS	-	-
	HUELVA				-	-	-	-	-	-	BS
	LA CORUÑA (IND.)				-	-	-	-	-	-	-
	LA LINEA-ALGECIRAS				-	-	-	-	-	-	-
	LANGREO				BS	BS	-	BS	BS	SO2+BS	-
	LAS PALMAS (GRAN CANARIAS)				BS	-	BS	BS	BS	BS	-
	MADRID				-	-	-	-	-	-	-
	MADRID (MET.)				-	-	-	-	-	-	-
	OVIEDO				BS	-	-	-	BS	BS	BS
	PONTEVEDRA				-	-	-	-	-	-	BS
	PUERTOLLANO				-	-	-	SO2	-	-	-
	SANTA CRUZ (TENERIFE)				BS	-	BS	BS	-	-	-
	SEVILLA				-	-	BS	-	-	-	-
	TARRAGONA				-	-	-	-	-	-	BS
	TORRELAVEGA				-	-	-	-	-	-	-
	VALENCIA				-	-	-	-	-	-	-
	VALLADOLID				-	-	-	-	-	-	-

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	ZARAGOZA				BS	BS	BS	BS	SPM	SPM	SPM
FR	CARLING AGGLO	-	SO2	-	SO2	-	-	-	-	-	-
	CHAUNY	-	SO2	SO2	-	-	-	-	-	-	-
	CREIL AGGLO.	SO2	-	-	-	-	-	-	-	-	-
	DUNKERQUE CALAIS	-	SO2	-	-	-	-	-	-	-	-
	FOS ETANG DE BERRE	-	-	-	SO2	-	-	-	-	-	-
	-> PORT DE BOUC					SO2	-	SO2	-	-	-
	-> LES VENTRONS - LA GATASSE								-	SO2	-
	GRENOBLE AGGLO.	-	-	-	-	-	-	-	-	-	-
	IGNAUVAL	-	-	-	-	-	-	-	-	SO2	-
	LACQ	-	-	-	-	-	-	-	-	SO2	-
	LE HAVRE AGGLO.	SO2	SO2	SO2	-	-	-	-	-	-	-
	-> LE HAVRE (VILLE)					-	-	SO2	-	-	-
	-> N.D. DE GRAVENCHON					SO2	-	-	-	-	-
	LENS AGGLO	-	SO2	SO2	SO2	-	-	-	-	-	-
	-> NOYELLES GODAULT					SO2	SO2	SO2	-	SO2	SO2
	LILLE-ROUBAIX	-	SO2	-	-	-	-	-	-	-	-
	LYON AGGLO.	-	SO2	-	-	SO2	SO2	SO2	SO2	-	-
	MARSEILLE AGGLO.	SO2	SO2	-	-	-	-	-	-	-	-
	-> GARDANNE BIVER					-	-	-	-	-	-
	MONTBELIARD AGGLO.	-	SO2	-	-	-	-	-	-	-	-
	NANTES CHEVIRE DONGES	-	-	-	-	-	BS	BS	BS	-	-
	PARIS AGGLO.	SO2	SO2	-	SO2	-	-	-	-	-	-
	-> VITRY S/ SEINE					-	-	-	-	-	-
	ROUEN AGGLO.	-	-	SO2	SO2	-	-	-	-	-	-
	-> PETIT COURONNE					SO2	SO2	SO2	SO2	SO2	-
	SALSIGNE	-	-	-	-	-	-	-	SO2	-	-

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	SAULNES	-	SO2	-	-	-	-	-	-	-	-
	STRASBOURG AGGLO.	SO2	SO2	SO2	SO2	-	-	-	-	-	-
	THANN AGGLO.	-	-	-	-	-	-	-	-	-	-
	VIVIEZ AGGLO.	-	-	SO2+BS	-	-	-	-	-	-	-
GB	ALLERDALE	-	-	-	-	-	-	-	-	-	-
	BARNSLEY	SO2+BS	-	BS	-	-	-	-	-	-	SO2
	BASSETLAW	-	-	-	SO2+BS	-	-	-	-	-	-
	BELFAST	-	SO2+BS	BS	SO2+BS	BS	SO2+BS	SO2+BS	SO2+BS	SO2	-
	BLYTH VALLEY	-	-	-	-	-	-	-	-	-	-
	BOLSOVER	-	-	-	-	-	-	-	-	-	-
	BRADFORD	-	-	-	-	-	-	-	-	-	-
	CANNOCK CHASE	-	-	-	-	-	-	-	-	-	-
	CASTLE MORPETH	-	-	-	-	-	-	-	-	-	-
	CHESTERFIELD	-	-	-	-	-	-	-	-	-	-
	COPELAND	BS	-	-	-	-	-	-	-	-	-
	CREWE AND NANTWICH	-	-	-	-	BS	-	-	-	-	-
	CUNNINGHAM	-	-	-	-	-	-	-	-	-	-
	DONCASTER	SO2+BS	-	SO2+BS	-	BS	-	-	-	-	-
	DURHAM	-	-	-	-	-	-	-	-	BS	-
	EASINGTON	-	-	-	BS	BS	-	-	-	-	-
	FALKIRK	-	-	-	-	-	-	-	-	-	-
	GLASGOW	-	-	-	-	-	-	-	-	-	-
	KIRKLEES	-	-	-	-	-	-	-	-	-	-
	LONDONDERRY	-	BS	-	-	-	-	-	-	-	-
	MANSFIELD	SO2+BS	-	-	-	-	-	-	-	-	-
	NEWARK	-	-	-	-	-	SO2+BS	-	-	-	-
	NEWCASTLE UNDER LYME	-	-	-	-	-	-	-	-	-	-
	NEWRY	-	BS	BS	BS	-	-	BS	-	-	-

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	NOTTINGHAM	-	-	-	-	-	-	-	-	-	-
	ROTHERHAM	-	-	-	-	-	-	-	-	-	-
	STAFFORDSHIRE MOORLANDS	-	-	-	-	-	-	-	-	-	-
	STRATHKELVIN	-	-	-	-	-	-	-	-	-	-
	SUNDERLAND	BS	-	BS	BS	BS	BS	BS	-	-	-
	WAKEFIELD	BS	-		-	BS	-	-	-	-	-
	WANSBECK	BS	-	-	-	BS	-	-	-	-	-
GR	ATHENS	BS	BS	BS	BS	BS	BS	?	-	SO2+BS	SO2+BS
	THESSALONIKI	-	-	-	-	-	SO2+BS	?	SO2	-	-
IE	DUBLIN	BS	BS	BS	BS	BS	BS	BS	-	-	-
IT	ABBIATEGRASSO (LOMB)	?	?	?	?	-	-	-	?	?	?
	ARCORE (LOMB)	?	?	?	?	-	-	-	?	?	?
	ARZIGNANO (VENE)	?	?	?	?	-	-	-	?	?	?
	BARREGIO (LOMB)	?	?	?	?	-	-	-	?	?	?
	BASSANO DEL GRAPPA (VENE)	?	?	?	?	-	-	-	?	?	?
	BELLUNO (VENE)	?	?	?	?	-	-	-	?	?	?
	BIASSONO (LOMB)	?	?	?	?	-	-	-	?	?	?
	BOLLATE (LOMB)	?	?	?	?	-	-	-	?	?	?
	BOLZANO	SO2	-	?	?	?	?	?	?	?	?
	BOVISIO M. (LOMB/MILA)	-	SO2	-	SO2	-	-	-	?	?	?
	BRESSO (LOMB)	?	?	?	?	-	-	-	?	?	?
	BRUGHERIO (LOMB)	?	?	?	?	-	-	-	?	?	?
	BUSTO GAROLFO (LOMB)	?	?	?	?	-	-	-	?	?	?
	CAMPI BISENZIO	SPM	-	?	?	?	?	?	?	?	?
	CANEGRATE (LOMB)	?	?	?	?	-	-	-	?	?	?
	CASSANO D'ADDA (LOMB/MILA)	-	-	-	-	-	-	-	?	?	?

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	CASTELFRANCO VENETO (VENE)	?	?	?	?	-	-	-	?	?	?
	CERNO MAGGIORE (LOMB)	?	?	?	?	-	-	-	?	?	?
	CERNUSCO S/N (LOMB)	?	?	?	?	-	-	-	?	?	?
	CESANO MADERNO (LOMB/MILA)	SO2	?	?	?	-	-	-	?	?	?
	CESATE (LOMB)	?	?	?	?	-	-	-	?	?	?
	CHIOGGIA (VENE)	?	?	?	?	-	-	-	?	?	?
	CINISELLO BALSAMO (LOMB/MILA)	?	?	?	?	-	SO2	-	?	?	?
	COLOGNO N. (LOMB)	?	?	?	?	-	-	-	?	?	?
	CONCOREZZO (LOMB)	?	?	?	?	-	-	-	?	?	?
	CONEGLIANO (VENE)	?	?	?	?	-	-	-	?	?	?
	CORBETTA (LOMB)	?	?	?	?	-	-	-	?	?	?
	CORMANO (LOMB/MILA)	SO2	SO2	-	-	-	-	-	?	?	?
	CORNAREDO (LOMB)	?	?	?	?	-	-	-	?	?	?
	CORNATE D'ADDA (LOMB)	?	?	?	?	-	-	-	?	?	?
	CUGGIONO (LOMB)	?	?	?	?	-	-	-	?	?	?
	CUSANO M. (LOMB)	?	?	?	?	-	-	-	?	?	?
	DESIO (LOMB)	?	?	?	?	-	-	-	?	?	?
	FERRARA	-	-	-	SO2	?	?	?	?	?	?
	GENOVA	?	SO2+SPM	?	?	?	?	?	?	?	?
	GARBAGNATE (LOMB)	?	?	?	?	-	-	-	?	?	?
	GORGONZOLA (LOMB)	?	?	?	?	-	-	-	?	?	?
	INVERUNO (LOMB)	?	?	?	?	-	-	-	?	?	?
	LAINATE (LOMB)	?	?	?	?	-	-	-	?	?	?
	LEGNAGO (VENE)	?	?	?	?	-	-	-	?	?	?
	LEGNANO (LOMB)	-	SO2	-	-	-	-	-	?	?	?
	LIMBIATE (LOMB)	?	?	?	?	-	-	-	?	?	?
	LISSONE (LOMB)	?	?	?	?	-	-	-	?	?	?
	LIVORNO	SO2	SO2	SO2	?	?	?	?	?	?	?

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	LODI (LOMB/MILA)	-	-	-	-	-	-	-	?	?	?
	MAGENTA (LOMB)	-	-	-	-	-	-	-	?	?	?
	MASSA CARRARA	?	SPM	?	?	?	?	?	?	?	?
	MEDA (LOMB)	?	?	?	?	-	-	-	?	?	?
	MELEGNANO (LOMB/MILA)	-	-	-	-	-	-	-	?	?	?
	MELZO (LOMB)	?	?	?	?	-	-	-	?	?	?
	MESTRE (VENE)	?	?	?	?	-	SO2	-	-	?	?
	MILANO (LOMB/MILA)	SO2+SPM	SO2	SO2+SPM	SO2+SPM	SO2+SPM	SO2+SPM	SO2	?	?	?
	MIRA (VENE)	-	-	-	-	-	-	-	?	?	?
	MODENA	?	SPM	SPM	?	?	?	?	?	?	?
	MONTECCHIO MAGGIORE (VENE)	?	?	?	SO2	-	-	-	?	?	?
	MONZA (LOMB/MILA)	SO2	SO2	SO2	SO2	-	-	-	?	?	?
	MUGGIO (LOMB)	SO2	SO2	?	?	-	-	-	?	?	?
	NERVIANO (LOMB)	?	?	?	?	-	-	-	?	?	?
	NOVA MILANESE (LOMB)	?	?	?	?	-	-	-	?	?	?
	NOVATE MILANESE (LOMB)	?	?	?	?	-	-	-	?	?	?
	PADERNO D. (LOMB)	?	?	?	?	-	-	-	?	?	?
	PADOVA (VENE)	-	-	-	SPM	-	-	-	?	?	?
	PARABIAGO (LOMB)	?	?	?	?	-	-	-	?	?	?
	PIACENZA	-	-	-	-	-	SPM	-	-	?	?
	PIOLTELLO (LOMB/MILA)	SO2	SO2	-	-	-	-	-	?	?	?
	PORTO TOLLE (VENE)	?	?	?	?	-	-	-	?	?	?
	RESCALDINA (LOMB)	?	?	?	?	-	-	-	?	?	?
	RHO (LOMB)	-	SO2	-	SO2	SO2	SO2	-	?	?	?
	ROMA	?	?	?	?	SPM	SPM	SPM	SPM	?	?
	S. GIULIANO M. (LOMB)	?	?	?	?	-	-	-	?	?	?
	SCHIO (VENE)	?	?	?	?	-	-	-	?	?	?
	SEGRATE (LOMB)	?	?	?	?	-	-	-	?	?	?

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
	SENAGO (LOMB)	?	?	?	?	-	-	-	?	?	?
	SEREGNO (LOMB)	?	?	?	?	-	-	-	?	?	?
	SESTO S. GIOVANNI (LOMB/MILA)	SO2	SO2	SO2	SO2	-	SO2	-	?	?	?
	SEVESO (LOMB)	?	?	?	?	-	-	-	?	?	?
	SOLARO (LOMB)	?	?	?	?	-	-	-	?	?	?
	TORINO	?	SO2+SPM	?	?	SPM	SPM	SPM	-	?	?
	TREVISO (VENE)	?	?	?	?	-	-	-	?	?	?
	TRIBIANO (LOMB/MILA)	-	-	-	-	-	-	-	?	?	?
	VALDAGNO (VENE)	?	?	?	?	-	-	-	?	?	?
	VEDUGGIO (LOMB)	?	?	?	?	-	-	-	?	?	?
	VERONA (VENE)	?	?	?	?	-	-	-	?	?	?
	VENEZIA (VENE)	?	?	?	?	-	-	-	?	?	?
	VICENZA (VENE)	?	?	?	?	-	-	-	?	?	?
	VIMODRONE (LOMB)	?	?	?	?	-	-	-	?	?	?
	VITTORIO VENETO (VENE)	?	?	?	?	-	-	-	?	?	?
	VITTUONE (LOMB)	?	?	?	?	-	-	-	?	?	?
	ZELARINO	?	?	?	?	-	SO2	-	?	?	?
LU	COLMAR BERG	SO2	SO2	SO2	SO2	-	-	-	-	-	-
	CONTERN	-	-	-	-	-	-	-	-	-	-
NL	BORN	-	-	-	SO2	-	-	-	-	-	-
	LIMBURG	-	-	-	-	-	-	-	-	-	-
	NOORD BRABANT (NOORD)	-	-	-	-	-	-	-	-	-	-
	NOORD BRABANT (OOST)	-	-	-	-	-	-	-	-	-	-
	RIJNMONDING	-	-	-	-	-	-	-	-	-	-
	VELSEN IJMUIDEN	-	-	-	-	-	-	-	-	-	-
	ZEELAND (ZUID)	-	-	-	-	-	-	-	-	-	-

SO2 - SP : List of zones (article 3 and non-article 3) with mention of concentrations above limit values since 1983-84

MS	FORMAL NAME OF THE ZONE	83-84	84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
PT	BARREIRO-SEIXAL				-	SO2+SPM	SO2+SPM	SO2+SPM	SO2	-	-
	LISBOA				-	BS	-	-	-	-	-
	PORTO				-	-	SO2	SO2	-	-	-

Notes:

: reference periods for which an Article 3 zone was validly declared

-> : Article 3 zone being declared as a sub-zone in substitution of the zone listed above

? : no information or dubious data

SO2 - SP : List of instances of concentrations above of limit values (period 04/83 - 03/84)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
BE		GENT	714	28	37	**353**	-	-	-	
			703	33	44	**354**	-	-	-	
DE	•	BERLIN WEST	3	41	-	**277**	-	-	-	
			5	64	-	**307**	-	-	-	
			6	57	-	**307**	-	-	-	
			7	40	-	**259**	-	-	-	
			8	49	-	**286**	-	-	-	
			9	52	-	**287**	-	-	-	
			10	60	-	**324**	-	-	-	
			11	73	-	**428**	-	-	-	
			14	57	-	**317**	-	-	-	
			16	71	-	**308**	-	-	-	
			17	59	-	**307**	-	-	-	
			18	59	-	**267**	-	-	-	
			19	59	-	**267**	-	-	-	
			20	57	-	**264**	-	-	-	
			22	47	-	**264**	-	-	-	
			23	55	-	**277**	-	-	-	
			24	54	-	**277**	-	-	-	
FR	•	CREIL	022	17	25	**451**	-	-	-	SO2: 1*4, 1*8/250/
	•	LE HAVRE AGGLO.	AF5	40	68	**418**	-	-	-	
			AF37	20	18	**358**	-	-	-	SO2: 1*4/350/
	•	MARSEILLE AGGLO.	MAIRIE BOUC-BEL AIR	58	71	**315**	-	-	-	
	•	PARIS AGGLO.	EDF 25	42	88	**326**	-	-	-	
	•	STRASBOURG AGGLO.	11	**99**	103	241	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/83 - 03/84) (cont.)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
GB	*	BARNSLEY	GOLDTHORPE 1	81	85	240	71	95	329	
			GRIMETHORPE 2	-	-	-	46	87	324	BS:1*4
			WOMBWELL 2				42	82	269	
	*	COPELAND	WITEHAVEN 2	-	-	-	28	46	291	
	*	DONCASTER	27	97	115	264	-	-	-	
			ASKERN 6	-	-	-	42	55	291	
			DONCASTER 32	-	-	-	81	111	369	BS: 1*5
			MOORENDS 1	-	-	-	76	109	273	
	*	MANSFIELD	WOODHOUSE 2	82	97	199	46	87	244	
	*	SUNDERLAND	8	-	-	-	47	88	321	
	*	WAKEFIELD	CASTLEFORD 9	-	-	-	41	65	286	
	*	WANSBECK	ASHINGTON 4	-	-	-	56	104	329	
IE	*	DUBLIN	RATHINES	-	-	-	36	78	328	
			DAME STREET	-	-	-	47	80	280	
			CABRA WEST	-	-	-	46	73	282	
			BALLYFERMOT	-	-	-	60	149	447	BS: 1*4
			CORNMARKET	-	-	-	34	68	298	
IT (1,3)		BOLZANO (4)	VIA AMBA ALAGI	43	-	341	-	-	-	
			PIAZZA WALTHER	53	-	289	-	-	-	
			FIERALAMPIONARIA	71	-	295	-	-	-	
		CAMPI BISENZIO (4)	ASNU 01	97	-	329	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/83 - 03/84) (cont.)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	•	CESANO (2)	NORD	71	107	290	-	-	-	SO2: 9
	•	CORMANO (2)		105	173	450	-	-	-	SO2: 35
	•	MAGENTA (2)		60	99	290	-	-	-	
	•	MILANO (2)	SEMPIONE	118	199	440	-	-	-	SO2: 55
			MARCHE	136	225	540	139	-	302	SO2: 69
			LATTANZIO	92	162	420	-	-	-	SO2: 33
			JUVARA	123	215	520	-	-	-	SO2: 68
			ZAVATTARI	126	215	440	-	-	-	SO2: 69
			NIGUARDA	89	152	370	-	-	-	SO2: 24
			BRERA	149	237	690	-	-	-	SO2: 78
			VILLOSANTA	86	141	300	-	-	-	SO2: 21
			CASSINA	76	126	290	-	-	-	SO2: 18
			VILLASANTA CS	76	123	310	-	-	-	SO2: 16
			VILLASANTA RAFFINERIA	76	126	300	-	-	-	SO2: 12
			TERRAZANO	86	141	340	-	-	-	SO2: 14
			BARANZATI	134	225	460	-	-	-	SO2: 72
			PERO	118	196	430	-	-	-	SO2: 51
	•	MONZA (2)		97	152	400	-	-	-	SO2: 23
	•	PIOLTELLO (2)		92	160	380	-	-	-	SO2: 22
	•	SESTO S.GIOVANNI (2)	?	105	157	440	-	-	-	SO2: 43
			ASILO	110	186	440	-	-	-	SO2: 50
GR	•	ATHENS	PATISSION	-	-	-	-	-	-	BS: 2*4

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
LU	*	COLMAR BERG	RUE DE LUXEMBOURG	**82**	131	**642**	-	-	-	SO2: 1*6/250/, 2*5/250/

All measures expressed in µg/m3

* Article 3 zone

(1) Italy uses the lower limit values of Annex I for SO2 and the limit values.
of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98.

(2) calendar year.

(3) for the 3 days rule, total number of days, not necessarily number of consecutive days.

(4) not officially communicated by the National Authorities.

SO2 - SP : List of instances of concentrations above limit values (period 04/84 - 03/85)

MS	LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
BE	ANTWERP	801	-	-	-	-	-	-	SO2: 1*4/350/
	BRUSSELS	013	-	-	-	-	-	-	SO2: 1*4/350/
		014	-	-	-	-	-	-	SO2: 1*4/350/
	GENT	032	-	-	-	-	-	-	SO2: 1*4/350/
		721	-	-	-	-	-	-	SO2: 1*4/350/
DE *	BERLIN	5	62	106	337	-	-	-	
		4	54	100	279	-	-	-	
		8	47	96	267	-	-	-	
		9	53	98	297	-	-	-	
		10	54	102	327	-	-	-	
		11	73	152	407	-	-	-	SO2: 45
		12	43	75	257	-	-	-	SO2: 5
		13	44	82	288	-	-	-	SO2: 6
		14	60	106	277	-	-	-	SO2: 9
		15	62	104	317	-	-	-	SO2: 9
		16	67	120	323	-	-	-	SO2: 9
		17	58	97	288	-	-	-	SO2: 6
		18	64	104	267	-	-	-	
		19	61	101	323	-	-	-	SO2: 7
		20	54	104	277	-	-	-	
		22	48	85	286	-	-	-	SO2: 6
		23	48	92	263	-	-	-	SO2: 5
		24	53	108	263	-	-	-	SO2: 6
		25	54	87	253	-	-	-	
		RATHAUS WEDDING (5)	-	-	-	121		316	
		VIRCHOW KRANKENHAUS (5)	-	-	-	130		335	
		HANS -SCHULE (5)				122		338	
	DORTMUND		52	64	310	-	-	-	SO2: 1*4/350/
	DUISBURG		53	68	376	-	-	-	SO2: 1*6/350/
	GELSENKIRCHEN		66	81	379	-	-	-	SO2: 1*5/350/

SO2 - SP : List of instances of concentrations above limit values (period 04/84 - 03/85) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
		WITTEN		36	42	279	-	-	-	SO2: 1*5/350/
FR		CALAIS	31	29	37	**279**	-	-	-	
	*	CARLING	6	58	80	**257**	-	-	-	SO2: 1*4/250/
		CHAUNY	LA CHAUSSEE	74	**174**	**586**	-	-	-	SO2: 1*6/350/,1*30/350/
			HOPITAL	43	52	**440**	-	-	-	SO2: 1*7/350/, 1*5/350/
	*	LE HAVRE AGGLO.	AF37	41	65	**369**	-	-	-	
			AF33	22	30	**418**	-	-	-	SO2: 1*5/250/, 1*4/350/
			AF30	29	42	**528**	-	-	-	SO2: 2*4/250/
			AF38	16	33	**418**	-	-	-	SO2: 2*4/250/
	*	LENS	028	62	53	**1190**	-	-	-	
	*	LYON AGGLO.	TERREAUX	**84**	102	221	**88**	115	217	SO2: 5/250/
			LA DUCHESE	49	80	202	-	-	-	SO2: 5/250/
			CROIX ROUSSE	49	70	173	-	-	-	SO2: 4/250/
			CROIX LUIZET	38	67	169	-	-	-	SO2: 4/250/
			VAISE	44	78	185	-	-	-	SO2: 4/250/
			GRAND CLEMENT	44	68	181	-	-	-	SO2: 5/250/
			POINT DU JOUR	41	63	210	-	-	-	SO2: 5/250/
			MONCHAT	45	62	175	-	-	-	SO2: 4/250/
			GIVORS	42	51	187	-	-	-	SO2: 5/250/, 4/350/
			TRANBAS	7	22	179	-	-	-	SO2: 4/250/, 3/350/
	*	MARSEILLE AGGLO.	MAIRIE DE BOUC-BEL AIR	43	49	**321**	-	-	-	
	*	MONTBELIARD	CRL5	22	22	226	-	-	-	SO2: 1*5/250/
			DUPM3	26	28	211	-	-	-	SO2: 1*4/350/
	*	PARIS AGGLO.	EDF 24	45	51	**326**	-	-	-	
		ROUBAIX	601	33	40	**297**	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/84 - 03/85) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
		SAULNES	66	50	50	**253**	-	-	-	
	*	STRASBOURG AGGLO.	1	32	50	**256**	-	-	-	
			2	46	47	244	-	-	-	SO2: 1*6/250/
			3	38	49	**329**	-	-	-	SO2: 1*7/250/
			4	47	55	**315**	-	-	-	
			5	47	67	**289**	-	-	-	SO2: 1*6/250/
			6	61	79	**325**	-	-	-	SO2: 1*4/250/, 1*6/250/
			7	44	62	**320**	-	-	-	
			8	**81**	108	**330**	-	-	-	
			9	61	82	**317**	-	-	-	SO2: 1*6/250/
			11	**82**	79	**310**	-	-	-	SO2: 1*4/250/,1*7/250/
			13	41	26	189	-	-	-	SO2: 1*4/250/
			27	72	97	**389**	-	-	-	SO2: 1*6/250/, 1*4/350/,1*8/350/
			33	57	62	**298**	-	-	-	SO2: 1*7/250/
GB	*	BELFAST	12	-	-	-	31	52	**286**	BS: 1*5
			17	64	89	**265**	-	-	-	
			33	61	80	**258**	-	-	-	
	*	LONDONDERRY	8	-	-	-	24	44	**254**	BS: 1*7
	*	NEWRY	3	-	-	-	-	68	-	BS: 1*7
			4	-	-	-				BS: 1*4
GR	*	ATHENS	PATISSION	-	-	-	**172**	-	-	
			MINISTRY	-	-	-	**104**	-	-	
IE	*	DUBLIN	RATHINES	-	-	-	44	80	**400**	BS: 1*8
			CABRA WEST	-	-	-	41	84	**255**	
			BALLYFERMOT	-	-	-	36	127	**429**	BS: 1*9
			CORNMARKET	-	-	-	47	75	**342**	BS: 1*4
			MOUNTJOY	-	-	-	45	79	**311**	BS: 1*4
			EAST WALL ROAD	-	-	-	32	67	**293**	
IT (1,3)	*	BOVISIO (2)		71	107	250	-	-	-	SO2: 8

MS	LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
*	CESANO (2)	NORD	60	94	-				SO2: 4
*	CORMANO (2)		92	154	>250	-	-	-	SO2: 24
*	LEGNANO (2)		84	141	>250	-	-	-	SO2: 20
*	MAGENTA (2)		66	99	-	-	-	-	SO2: 4
	MASSA CARRARA (4)	1	-	-	-	173	-	325	
		5	-	-	-	142	-	313	
*	MILANO (2)	SEMPIONE	141	250	>250	-	-	-	SO2:64
		MARCHE	120	204	>250	-	-	-	SO2: 37
		LATTANZIO	105	186	>250	-	-	-	SO2: 25
		JUVARA	139	238	>250	-	-	-	SO2: 54
		ZAVATTARI	97	141	>250	-	-	-	SO2: 9
		NIGUARDA	94	162	>250	-	-	-	SO2: 26
		BRERA	110	183	-	-	-	-	
		CASSINA	99	162	-	-	-	-	SO2: 21
		VILLASANTA CS	81	131	>250	-	-	-	SO2: 12
		VILLASANTA RAFFINERIA	73	118	>250	-	-	-	SO2: 13
		TERRAZANO	84	131	>250	-	-	-	SO2: 15
		BARANZATI	144	246	>250	-	-	-	SO2: 40
		PERO	126	209	>250	-	-	-	SO2: 45
		CORSICO	86	147	>250	-	-	-	SO2: 18
		LUCERNATE	66	107	>250	-	-	-	SO2: 13
		LIGURIA	94	149	>250	-	-	-	SO2: 8
		GRATOSOGLIO	55	89	-	-	-	-	SO2: 5
*	MONZA (2)		86	141	>250	-	-	-	SO2: 23
*	PIOLTELLO (2)		97	165	>250	-	-	-	SO2: 25
*	RHO (2)	CENTRO	97	147	>250	-	-	-	SO2: 26
		NORD	92	168	>250	-	-	-	SO2: 16

SO2 - SP : List of instances of concentrations above limit values (period 04/84 - 03/85) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	•	SESTO S.GIOVANNI (2)	COMUNE	**118**	**194**	**>250**	-	-	-	SO2: 34
			ASILO	**118**	**191**	**>250**	-	-	-	SO2: 39
		TORINO (4)	CMP STATION	-	-	-	**158**	-	**324**	
			C. VERCELLI (2)	-	-	-	**171**	-	**305**	
			C. RACCONIGI (2)				**162**		**287**	
LU	•	COLMAR BERG	RUE DE LUXEMBOURG	51	62	**444**	-	-	-	

All measures expressed in µg/m3

• Article 3 zone

(1) Italy uses the lower limit values of Annex I for SO2 and the limit values of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98.

(2) calendar year.

(3) for the 3 days rule, total number of days, not necessarily number of consecutive days.

(4) not officially communicated by the National Authorities.

(5) SPM values; reported as average/P 95 (Annex IV values) instead of P 50/ P 98.

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
FR	•	CARLING	1	28	-	**296**	-	-	-	
		CHAUNY	LA CHAUSSEE	37	53	**419**	-	-	-	SO2: 1*>3/350/
	•	FOS ETANG DE BERRE	PONTEAU	26	40	**258**	-	-	-	
	•	LENS AGGLO.	228	54	58	**1813**	-	-	-	SO2: 4*>3/250/
			227	18	20	**355**	-	-	-	SO2: 1*>3/250/
	•	LE HAVRE AGGLO	AF 30	25	55	**380**	-	-	-	SO2: 1*>3/350/
			AF 43	15	38	**365**	-	-	-	SO2: 1*>3/350/
	•	LYON AGGLO.	TERREAUX				**113**	111	203	
	•	ROUEN AGGLO.	AF11	62	66	**403**	-	-	-	
			AF20	51	65	**400**	-	-	-	SO2: 1*6/250/
	•	STRASBOURG	11	**97**	108	**373**	-	-	-	SO2: 1*11/250/
			3	55	66	**323**	-	-	-	
			5	64	109	**264**	-	-	-	
			7	68	101	**265**	-	-	-	
			8	74	116	**286**	-	-	-	
			9	51	98	**287**	-	-	-	SO2:1*4/250/
			10	**83**	117	**286**	-	-	-	
			13	46	75	**299**	-	-	-	
			27	52	87	**255**	-	-	-	SO2:1*4/250/
			33	32	83	**257**	-	-	-	
	•	VIVIEZ	HOTEL DES CELIBATAIRES	52	53	**321**	30	40	**380**	
GB	•	BARNSLEY	BARNSLEY 9	-	-	-	36	62	**258**	

SO2 - SP : List of instances of concentrations above limit values (period 04/85 - 03/86) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
			GRIMETHORPE 2	-	-	-	40	76	**280**	
	•	BELFAST	12	-	-	-	29	54	**312**	
	•	DONCASTER	29	**82**	113	228	-	-	-	
			ASKERN 8	62	90	**393**	46	108	**464**	SO2: 1*5/350/ BS: 1*6
			DONCASTER 32	-	-	-	68	116	**347**	
			MOORENDS 1	-	-	-	66	**148**	**353**	BS: 1*5
		EASINGTON	1	53	73	132	77	110	**256**	
	•	NEWRY	3	-	-	-	46	74	**272**	
	•	SUNDERLAND	8	-	-	-	53	82	**400**	BS: 2*4
	•	WAKEFIELD	FEATHERSTONE	-	-	-	39	61	**279**	
GR	•	ATHENS	PATISSION	-	-	-	**156**	**162**	**>250**	BS: 2*4
			MINISTRY	-	-	-	**96**	111	**>250**	BS: 1*6
IE	•	DUBLIN	RATHINES	-	-	-	36	58	**276**	
			BALLYFERMOT	-	-	-	60	**136**	**432**	BS: 3*4
			CLONDALKIN	-	-	-	25	45	**254**	
			CRUMLIN	-	-	-	35	64	**392**	
IT (1,3)	•	CESANO (2)	NORD	42	58	223	-	-	-	SO2: 4
	•	CORMANO (2)		65	105	**314**	-	-	-	SO2: 22
	•	LEGNANO (2)		65	102	**330**	-	-	-	SO2: 20

SO2 - SP : List of instances of concentrations above limit values (period 04/85 - 03/86) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	*	MILANO (2)	SEMPIONE	**94**	**158**	**521**	-	-	-	SO2: 19
			MARCHE	**118**	**186**	**458**	-	-	-	SO2: 30
			LATTANZIO	79	**128**	**455**	-	-	-	SO2: 15
			JUVARA	**94**	**158**	**487**	129		**304**	SO2: 28
			ZAVATTARI	68	102	**295**	-	-	-	SO2: 4
			NIGUARDA	65	105	**366**	-	-	-	SO2: 8
			BRERA	**104**	**183**	**495**	-	-	-	SO2: 33
			VILLASANTA	58	92	**250**	-	-	-	SO2: 12
			VILLASANTA CS	37	63	**290**	-	-	-	SO2: 13
			VILLASANTA RAFFINERIA	55	89	**295**	-	-	-	SO2: 13
			TERRAZANO	68	102	**316**	-	-	-	SO2: 15
			BARANZATE	**94**	**146**	**535**	-	-	-	SO2: 40
			PERO	**97**	**149**	**471**	-	-	-	SO2: 45
			CASSINA	42	63	**399**	-	-	-	SO2: 21
			LUCERNATE	68	84	**261**	-	-	-	SO2: 13
			CORSICO	71	**115**	**309**	-	-	-	SO2: 18
			LIGURIA	73	99	215	**168**	-	**347**	
		MODENA (4)	CMP STATION				**150**	-	**306**	
	*	MONZA (2)		68	105	**404**	-	-	-	SO2: 23
	*	PIOLTELLO (2)		47	68	**348**	-	-	-	SO2: 25
	*	RHO (2)	CENTRO	63	89	**447**	-	-	-	SO2: 26
			NORD	52	73	**343**	-	-	-	SO2: 16
	*	SESTO S.GIOVANNI (2)	COMUNE	**84**	128	**466**	-	-	-	SO2: 34
			ASILO	**89**	**148**	**415**	-	-	-	SO2: 39
LU	*	COLMAR-BERG	RUE DE LUXEMBOURG	-	-	**385**	-	-	-	

All measures expressed in µg/m3

* Article 3 zone

(1) Italy uses the lower limit values of Annex I for SO2 and the limit values of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98.

(2) calendar year.

(3) for the 3 days rule, total number of days, not necessarily number of consecutive days.

(4) not officially communicated by the National Authorities.

MS	LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
BE	LIEGE	210	23	-	256	-	-	-	SO2: 1*>3/350/
DE *	BERLIN	2	37	-	357	-	-	-	
		11	69	-	489	-	-	-	SO2: 1*>3/350/
		14	53	-	381	-	-	-	
		16	64	-	439	-	-	-	SO2: 1*>3/350/
		18	55	-	362	-	-	-	SO2: 1*>3/350/
		20	52	-	375	-	-	-	SO2: 1*>3/350/
		21	38	-	367	-	-	-	
		23	51	-	369	-	-	-	SO2: 1*>3/350/
		24	47	-	374	-	-	-	SO2: 1*>3/350/
		25	46	-	352	-	-	-	
		29	38	-	356	-	-	-	SO2: 1*>3/350/
		30	35	-	351	-	-	-	SO2: 1*>3/350/
	RHEIN-MAIN	FRANKFURT	40	-	8	-	-	-	SO2: 1*>3/350/
	RUHRGEBIET	OBERHAUSE	54	-	382	-	-	-	
		BOTTROP	53	-	360	-	-	-	
		GLADBECK	56	-	358	-	-	-	
ES *	BARCELONA (4)	64	87	87	208				
		MARQUES DE MONTR.	-	-	-	96	142	228	
		INDUSTRIA	-	-	-	119	143	292	
		TORTOSA	-	-	-	128	156	256	
		MAJOR	-	-	-	106	150	289	
		STA.COLOMA	-	-	-	104	177	264	
		PL. PALAU	-	-	-	93	135	275	
		PL. UNIV.	-	-	-	105	186	378	
		PERE IV	-	-	-	139	145	326	
		CALDERON	-	-	-	98	-	213	

SO2 - SP : List of instances of concentrations above limit values (period 04/86 - 03/87) (cont)

MS	LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
		FONT PUDENTA	-	-	-	89	-	245	
		SANT ADRIA	-	-	-	98	-	216	
		PL. LESSEPS	-	-	-	89	-	210	
		BRUC-ARAGO	-	-	-	89	-	326	
		MONTSENY	-	-	-	96	-	186	
	* BILBAO	205	-	-	-	91	96	176	
		208 (2)	84	94	158	151	173	207	
		209	-	-	-	110	125	201	
		213	-	-	-	86	116	191	
	ERANDIO	182	69	57	530	-	-	-	
		196	67	74	531	-	-	-	SO2: 1*4/350/
	* GIJON	112	-	-	-	96	156	305	BS: 1*5
		113	-	-	-	45	100	281	BS: 1*5
		114	-	-	-	56	115	298	BS: 1*6
		120	-	-	-	77	138	346	BS:1*6
		121	-	-	-	75	131	276	BS: 1*5
	* LANGREO	100	-	-	-	133	228	573	BS: 1*24
		101	-	-	-	46	92	310	BS: 1*8
		103	-	-	-	67	109	356	
		105	-	-	-	63	114	325	BS: 1*6
		107	-	-	-	67	134	493	BS: 1*7
		108	-	-	-	174	228	522	BS: 1*23
	* LAS PALMAS	128	-	-	-	316	484	715	BS: 1*20
		129	-	-	-	55	124	580	BS: 1*16
		130	-	-	-	174	326	713	BS: 1*21

SO2 - SP : List of instances of concentrations above limit values (period 04/86 - 03/87) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	*	MADRID (4)	48	-	-	-	75	91	**258**	BS: 1*4
			51	100	171	**401**	-	-	-	SO2: 1*5/350/
			53	78	150	**352**	-	-	-	
			55 (2)	**82**	97	226	-	-	-	
			59 (2)	**90**	98	201	-	-	-	
			64 (2)	**87**	87	208	-	-	-	
	*	SANTA CRUZ	141	-	-	-	**87**	94	194	
			144	-	-	-	**117**	**131**	204	
	*	SEVILLA	150	-	-	-	**114**	117	239	
			153	-	-	-	**83**	92	184	
			155	-	-	-	**81**	104	212	
		VIGO	131	-	-	-	**175**	**203**	**350**	BS: 1*8
			132	-	-	-	**173**	**193**	**333**	BS: 1*5
			133	-	-	-	**126**	**144**	**272**	
			134	-	-	-	**90**	108	218	
			135	-	-	-	**84**	119	212	
			136	-	-	-	**95**	95	185	
			137	-	-	-	**97**	117	224	
	*	ZARAGOZA	229	-	-	-	**89**	123	**329**	BS: 1*4
			232	-	-	-	**102**	**138**	238	
FR	*	CARLING	1	26	60	272	-	-	-	SO2: 1*>3/250/
			10	30	50	266	-	-	-	SO2: 1*>3/250/
	*	FOS ETANG DE BERRE	PONTEAU	28	79	425	-	-	-	SO2: 1*>3/250/
			LES VENTRONS	21	33	348	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/86 - 03/87) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	*	LENS AGGLO.	228	59	59	**1059**	-	-	-	
	*	PARIS AGGLO.	EDF 22	**103**	**145**	**290**	-	-	-	SO2: 1*>3/250/
	*	ROUEN AGGLO.	AF11	63	82	**357**	-	-	-	
	*	STRASBOURG AGGLO.	1	39	65	201	-	-	-	SO2: 1*>3/250/
			2	31	37	181	-	-	-	SO2: 1*>3/250/
			4	42	57	211	-	-	-	SO2: 1*>3/250/
			5	46	62	214	-	-	-	SO2: 1*>3/250/
			6	72	92	238	-	-	-	SO2: 1*>3/250/
			7	56	79	200	-	-	-	SO2: 1*>3/250/
			8	73	96	**280**	-	-	-	SO2: 1*>3/250/, 1*>3/350/
			10	79	91	**309**	-	-	-	SO2: 1*>3/250/, 1*>3/350/
			11	77	68	**347**	-	-	-	SO2: 1*>3/250/, 1*>3/350/
			12	47	52	**283**	-	-	-	SO2: 1*>3/250/, 1*>3/350/
			21	23	35	178	-	-	-	SO2: 1*>3/250/
			27	41	96	**336**	-	-	-	SO2: 1*>3/250/
			33	33	32	**378**	-	-	-	SO2: 1*>3/250/, 1*>3/350/
			39	44	50	**292**	-	-	-	SO2: 1*>3/250/
GB	*	BASSETLAW	LANGOLD	**105**	114	114	-	-	-	
	*	BELFAST	13	70	118	**344**	-	-	-	SO2: 1*4/250/, 1*5/250/
		EASINGTON	SEAHAM	-	-	-	71	99	**305**	
			1	54	70	172	**93**	98	229	
	*	NEWRY	4	24	33	280	-	-	-	
	*	SUNDERLAND	HETTON LE HOLE	42	54	251	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/86 - 03/87) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
GR	*	ATHENS	PATISSION	**128**	**142**	**306**	-	-	-	BS: 2*4
IE	*	DUBLIN	CABRA	49	85	**326**	-	-	-	
			BALLYFERMOT (4)	**104**	**152**	**507**	-	-	-	BS: 1*7
			CLONDALKIN (4)	25	34	**340**	-	-	-	BS: 1*4
			CRUMLIN	46	72	**358**	-	-	-	BS: 1*4
			BLUEBELL	18	29	**267**	-	-	-	
			HERBERT STREET (4)	26	40	**255**	-	-	-	BS: 1*4
			MOUNTJOY	45	86	**332**	-	-	-	BS: 1*4
			SOUTH QUAYS	26	46	**296**	-	-	-	
IT (1,3)	*	CORMANO (2)		68	107	202	-	-	-	SO2: 9
		FERRARA	STAZIONE	29	26	**624**	-	-	-	
		GENOVA	SAN QUIRICO	**105**	-	**250**	-	-	-	
	*	LEGNANO (2)		65	58	144	-	-	-	
	*	MILANO (2)	SEMPIONE	**106**	**186**	**356**	-	-	-	SO2: 40
			MARCHE	**117**	**188**	**401**	-	-	-	SO2: 49
			LATTANZIO	**101**	**175**	**339**	-	-	-	SO2: 32
			JUVARA	**107**	**183**	**385**	169	-	368	SO2: 35
			ZAVATTARI	**97**	**165**	**259**	-	-	-	SO2: 24
			NIGUARDA	68	123	**256**	-	-	-	SO2: 17
			BRERA	**106**	**191**	**416**	-	-	-	SO2: 34
			VILLASANTA	57	92	183	-	-	-	
			CASSINA	52	86	170	-	-	-	
			TERRAZANO	71	115	202	-	-	-	
			BARANZATE	67	113	**299**	-	-	-	SO2: 20
			PERO	**87**	**144**	**291**	-	-	-	SO2: 17

SO2 - SP : List of instances of concentrations above limit values (period 04/86 - 03/87) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
			LUCERNATE	58	92	199	-	-	-	
			CORSICO	**99**	-	-	-	-	-	
			LIGURIA	69	**186**	113	180	-	370	
	*	MONZA		73	105	**257**	-	-	-	SO2: 7
	*	PADOVA (2)	MONSELICE	-	-	-	**164**	-	-	
	*	PIOLTELLO (2)		56	99	178	-	-	-	
	*	RHO (2)	CENTRO	**84**	**147**	185	-	-	-	
			NORD	67	113	238	-	-	-	
	*	SESTO S.GIOVANNI (2)	COMUNE	72	105	**285**	-	-	-	SO2: 15
			ASILO	**81**	**131**	**298**	-	-	-	SO2: 12
	*	VICENZA	MONTECCHIO MAGG.	87	-	-	-	-	-	
LU	*	COLMAR BERG	RUE DE LUXEMBOURG	**82**	120	**720**	-	-	-	
NL		BORN	108	19	22	220	-	-	-	SO2: 1*4/350/
PT (4)		BARREIRO/SEIXAL	Q2	43	-	**595**	-	-	-	SO2: 1*4, 1*5 /250/
			Q5	10	-	**270**	-	-	-	

All measures expressed in µg/m3

* Article 3 zone

(1) Italy uses the lower limit values of Annex I for SO2 and the limit values of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98

(2) calendar year.

(3) for the 3 days rule, total number of days, not necessarily number of consecutive days.

(4) calendar year for particulates.

- s o concen ra ons a ove m va ues pe -

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
ES	•	BARCELONA (3)-	MONTCADA I REIXAC	-	-	-	162	-	356	
			POBLE NOU	-	-	-	182	-	297	
			SANT ADRIA JOAN XXIII	-	-	-	162	-	255	
	•	BILBAO	CONDE MIRASOL	86	89	184	163	191	397	BS: 1*4
			AYUTAMIENTO	-	-	-	92	85	202	
	•	CARTAGENA (3,4)	ALHUMBRES (6)	16	16	293	244	-	499	
			BASTARRECHE	-	-	-	223	-	499	
			LO CAMPANO	-	-	-	200	-	498	
	•	LANGREO (OV.) (4)	LA FELGUERA	-	-	-	90	-	190	
	•	MADRID (6)	GLORIETA DE QUEVEDO	108	142	294	-	-	-	
			GLORIETA MARQUES D.V.	83	98	197	-	-	-	
		SERCH (5,6)	VALLCEBRE	70	-	364	-	-	-	
	•	ZARAGOZA	NAVARRA	-	-	-	101	112	314	
			SAN JOSE	-	-	-	169	177	483	BS: 1*12, 1*9, 1*7, 5*4
			LUIS VIVES	-	-	-	120	139	419	BS: 2*9, 2*4
			PUENTE VIRREY	-	-	-	114	127	229	
			FRANKLIN Y FERRAN	-	-	-	174	176	354	
			MARIE AGUSTIN				102	113	225	
FR	•	LYON	MAIRIE DE FEYZIN	36	29	275	18	23	79	SO2: 1*7 /250/
			TE 90 (1)	81	-	-	-	-	-	
	•	N.D. DE GRAVENCHON	AF 5	52	96	498	19	22	60	
	•	NOYELLES-GODAULT	STAT. RELEVAGE 228	30	25	671	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/87 - 03/88) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	*	PETIT COURONNE	AF 20	66	70	**480**	23	25	59	
			AF 11	73	88	**433**	14	18	55	SO2: 1*4/250/
	*	PORT-DE-BOUC	LES VENTRONS	32	37	**284**	-	-	-	
			LA GATASSE 7	32	38	**278**	-	-	-	SO2: 1*5/250/
GB	*	BELFAST	BELFAST 39	72	91	208	44	58	232	BS: 1x4
	*	CREWE AND NANTWICH	CREWE 17	39	45	89	13	22	189	BS: 1x4
	*	DONCASTER	MEXBOROUGH 19	49	60	166	25	35	151	BS: 1x4
		EASINGTON	SEAHAM 2	30	41	103	60	89	**269**	BS: 1*4
	*	SUNDERLAND	HETTON-LE-HOLE 3	41	52	108	48	72	**312**	BS: 1x4
			HOUGHTON-LE-SPRING 2	27	27	61	32	63	**309**	BS: 1*7
			SUNDERLAND 8	66	75	164	34	46	**435**	
	*	WAKEFIELD	FEATHERSTONE 1	75	78	191	41	63	**263**	BS: 1*4
	*	WANSBECK	ASHINGTON 4	45	54	156	33	55	245	BS: 1*4
GR	*	ATHENS	MINISTRY 12	-	-	-	**104**	124	**374**	BS: 2*4
			PATISSION 11	-	-	-	**158**	**198**	**378**	BS: 1*4, 5*5, 1*7
IE	*	DUBLIN	BALLYFERMOT 16	-	-	-	79	**135**	**371**	BS: 1*4
			BLUEBELL 13	-	-	-	19	36	**276**	
			CABRA 14	-	-	-	46	72	**262**	
			HERBERT STREET 12	-	-	-	29	47	**255**	
			OLD COUNTY ROAD 17	-	-	-	46	71	**389**	BS: 1*4

SO2 - SP : List of instances of concentrations above limit values (period 04/87 - 03/88) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
IT (2)	*	MILANO	BRERA	31	-	**321**	-	-	-	
			JUVARA	45	-	**276**	**161**	-	**301**	
			LIGURIA	-	-	-	**159**	-	297	
	*	RHO	RHO NORD	58	-	**252**	-	-	-	
		ROMA (PROV.)	MENTANA	-	-	-	**215**	-	**340**	
			PALESTRINA	-	-	-	**190**	-	**345**	
		TORINO	CORSO RACCONIGLI	-	-	-	**170**	-	286	
			CORSO VERCELLI	-	-	-	**168**	-	295	
			ST. AEROPORTO	-	-	-	**250**	-	**454**	
PT (5)		BARREIRO-SEIXAL	Q2	43	-	**595**	-	-	-	SO2: 1*5, 1*4/250/
			Q5	10	-	**270**	-	-	-	
			B1 (3)	-	-	-	**169**	-	**304**	
			B2 (3)	-	-	-	**197**	-	**540**	
		LISBOA	1	-	-	-	**113**	-	233	
			2A	-	-	-	**162**	-	**342**	
			9	-	-	-	**145**	-	**394**	

All measures expressed in µg/m3

* Article 3 zone

(1) not officially communicated by the National Authorities.

(2) Italy uses the lower limit values of Annex I for SO2 and the limit values of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98.

(3) SPM values; reported as average/P 95 (Annex IV values) instead of P 50/P 98.

(4) insufficient number of data.

(5) calendar year.

(6) above limit values for SO2 if Spain used limit values of Annex 1.

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
DE (2,6)	*	BERLIN WEST	06 ROEDERNALLEE 51	39	57	239	-	-	-	SO2: 1*4/350/
			11 BEHMSTR.	49	83	**293**	-	-	-	SO2: 1*4/350/
ES	*	BARCELONA (6)	L'HOSPITALET	-	-	-	**186**	-	**274**	
			POBLE NOU	-	-	-	**199**	-	**303**	
			SANT ADRIA JOAN XXIII	-	-	-	**206**	-	**287**	
	*	BILBAO	AUTONOMIA	-	-	-	**88**	100	216	
			CONDE MIRASOL	-	-	-	**146**	**216**	**445**	
			GRAL. CONCHA	-	-	-	**81**	100	209	
			TALLERES ZORROZA	-	-	-	38	63	**344**	BS: 1*4
	*	LAS PALMAS (GR. CAN.)	ALVAREDA	-	-	-	**131**	109	**326**	
	*	MADRID (5)	ESCUELAS AGUIRRE	83	86	226	-	-	-	
			GLORIETA DE QUEVEDO	80	129	399	-	-	-	SO2: 1*5/250/
			LUCA DE TENA	84	122	293	-	-	-	
			VALLECAS	83	88	174	-	-	-	
	*	S.CRUZ TENERIFE	RAMBLA PULIDO	-	-	-	**125**	129	243	
			VUELTA DE PAJAROS	-	-	-	**94**	95	219	
		SEVILLA	ALTOS COLEGIOS	-	-	-	**82**	90	177	
			LUIS MONTOTO	-	-	-	**83**	97	230	
	*	ZARAGOZA	AV. DE NAVARRA	-	-	-	70	100	**256**	
			AV. SAN JOSE	-	-	-	**162**	**202**	**421**	BS: 3*5
			C. FRANKLIN Y FERRAN	-	-	-	**176**	**175**	**340**	BS: 1*4
			LUIS VIVES	-	-	-	**88**	102	**255**	
			PUENTE VIRREY	-	-	-	**85**	79	186	

SO2 - SP : List of instances of concentrations above limit values (period 04/88 - 03/89) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
FR	•	LYON	TERREAUX (3)	**86**	-	139	-	-	-	
		NANTES (4)	LABORATOIRE HYGIENE	47	57	119	**109**	126	176	
	•	NOYELLES-GODAULT	STAT. RELEVAGE 228	21	21	**745**	-	-	-	SO2: 1*4/350/, 1*9/350/
	•	PETIT COURONNE	AF 11	54	61	**412**	17	22	78	SO2: 2*4/250/
			AF 20	50	61	**425**	28	28	57	SO2: 2*4/250/
GB	•	BELFAST	BELFAST 39	48	66	**251**	34	47	239	SO2: 1*4/250/ - BS: 1*4
	•	NEWARK	NEW OLLERTON 2	43	50	126	22	32	159	SO2: 1*4/250/ - BS: 1*5
	•	SUNDERLAND	HETTON-LE-HOLE 3	39	46	139	44	60	**264**	
GR	•	ATHENS	PATISSION	74	95	239	**121**	111	**289**	
		THESSALONIKI	1	**134**	**191**	**377**	47	63	166	SO2: 1*6, 2*4/250/
			2	**126**	148	**303**	52	59	179	SO2: 1*4/250/
			3	73	98	204	101	124	**261**	BS: 1*4
IE	•	DUBLIN	R.D.S	-	-	-	21	32	186	BS: 1*4
			MOUNTJOY SQUARE	-	-	-	39	60	240	BS: 1*4
			SOUTH QUAYS	-	-	-	26	47	207	BS: 1*4
			CLONTARF	-	-	-	14	25	172	BS: 1*4
			HERBERT STREET	-	-	-	19	27	218	BS: 1*4
			CABRA	-	-	-	47	73	**288**	BS: 1*4
			RATHMINES	-	-	-	24	29	175	BS: 1*4
			BALLYFERMOT	-	-	-	56	79	**335**	BS: 1*4
			OLD COUNTY ROAD CRUMLIN	-	-	-	31	48	**394**	BS: 1*4
			COLLEGE STREET	-	-	-	71	67	**254**	BS: 1*5

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
			CLONDALKIN	-	-	-	20	27	179	BS: 1*4
			NEILSTOWN	-	-	-	27	48	**313**	BS: 1*4
IT	•	CINISELLO BALSAMO	CINISELLO	**117**	-	**407**	-	-	-	
		MESTRE	ZELARINO	24	-	**330**				
	•	MILANO	JUVARA	**101**	-	**329**	**141**	-	171	
			LIGURIA	52	-	218	**171**	-	300	
			MARCHE	80	-	**432**	95	-	171	
			ZAVATTARI	**85**	-	**283**	-	-	-	
		PIACENZA	P. LE ROMA	-	-	-	**169**	-	299	
	•	RHO	RHO NORD	72	-	**305**	-	-	-	
		ROMA (PROV.)	MENTANA	-	-	-	**242**	-	**444**	
			PALESTRINA	-	-	-	-	-	-	
	•	SESTO S.GIOVANNI	SESTO S.GIOVANNI COMUNE	**91**	-	**270**	-	-	-	
		TORINO	VIA CONSOLATA	-	-	-	**164**	-	**346**	
			CORSO RACCONIGLI	-	-	-	**184**	-	**370**	
			CORSO VERCELLI	-	-	-	**167**	-	**346**	
			ST. AEROPORTO	-	-	-	**261**	-	**484**	
		ZELARINO	ZELARINO	26	-	**360**	74	-	167	

SO2 - SP : List of instances of concentrations above limit values (period 04/88 - 03/89) (cont)

MS	LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
PT (7)	BARREIRO-SEIXAL	ALTO DO SEIXALINHO Q2	56	-	**619**	-	-	-	SO2: 1*4, 1*8, 1*10, 1*17/250/
		CAMARA MUNICIPAL CM (3)	37	-	**686**	144	(3)	**466**	SO2: 1*4,1*5/250/ - SPM: 1*5
		CAMPO DE LUSO Q1	26	-	**302**	-	-	-	
		HOSPITAL VELHO HV (3)	35	-	211	171	(3)	**313**	
		PATIO ALBERS Q3	15	-	**566**	-	-	-	SO2: 2*4/250/, 1*5/250/
		SEIXAL S4 (3)	8	-	**268**	55	(3)	86	
		SIDERURGIA S1 (3)	17	-	104	171	(3)	**335**	
	PORTO								
		LECA DA PALMEIRA	61	-	**333**	-	-	-	

All measures expressed in µg/m3

- • Article 3 zone

(1) Italy uses the lower limit values of Annex I for SO2 and the limit values of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98.
(2) notification not mandatory: application of Annex IV modified by directive 89/427/EEC.
(3) insufficient number of data.
(4) article 3 zone of Nantes - Chevire - Donges withdrawn in 1988.
(5) above limit value for in SO2 if Spain used limit values of Annex 1.
(6) SPM values; reported as average/P 95 (Annex IV values) instead of P 50/ P 98.
(7) calendar year.

SO2 - SP : List of instances of concentrations above limit values (period 04/89 - 03/90)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
DE (2,5)	*	BERLIN	11 BEHMSTR.	48	84	325	96	-	219	SO2: 1*4/350/
			15 BACHSTR.	51	71	295	90	-	213	SO2: 1*4/350/
			16 GITSCHINERSTR.	44	73	268	99	-	201	SO2: 1*4/350/
			42 NANSESTR.	50	80	283	102	-	219	SO2: 1*4/350/
ES (4)	*	BARCELONA (5)	L'HOSPITALET	-	-	-	**171**	-	268	
			POBLE NOU	-	-	-	**166**	-	**323**	
			SANT ADRIA JOAN XXIII	-	-	-	**173**	-	279	
			SANT VICENT HORTS	-	-	-	**164**	-	256	
	*	BILBAO	AUTONOMIA	-	-	-	**90**	100	215	
			AYUTAMIENTO	-	-	-	**98**	95	206	
			CONCHA	-	-	-	**82**	91	169	
			CONDE MIRASOL	-	-	-	**113**	**134**	**297**	
			TALLERES ZORROZA	-	-	-	54	62	**252**	
	*	LANGREO	BARROS	-	-	-	66	71	**292**	
			LA FELGUERA	-	-	-	**114**	**141**	**455**	BS: 1*8, 1*4
			LADA	-	-	-	67	78	**303**	BS: 1*7
			SAMA	-	-	-	**96**	108	**408**	BS: 1*5, 1*4
			TENENCIA DE ALCADIA	-	-	-	**104**	**159**	**501**	BS: 1*17,1*8, 1*7
	*	LAS PALMAS (GR. CAN.)	ALVAREDA	-	-	-	**84**	68	208	
	*	PUERTOLLANO	CORDOBA	31	25	**252**	59	86	206	
			GASOLINERA	30	20	**328**	36	48	156	
	*	S.CRUZ TENERIFE	VTA. DE PAJAROS	-	-	-	**85**	90	199	
	*	ZARAGOZA	AV. SAN JOSE	-	-	-	**100**	119	**276**	

SO2 - SP : List of instances of concentrations above limit values (period 04/89 - 03/90) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
FR	*	LE HAVRE	CAUCRIOVILLE	24	29	**355**	41	30	150	
	*	LYON	FEYZIN STADE	31	28	**324**	-	-	-	
		NANTES (3)	VICTOR HUGO	42	45	97	**88**	88	181	
	*	NOYELLES GODAULT	STAT. RELEVAGE 228	15	14	**333**	-	-	-	
	*	PETIT COURONNE	AF 20	53	68	**370**	-	-	-	SO2: 2*4/250/
	*	PORT DE BOUC	LES VENTRONS	35	34	**285**	-	-	-	
			PONTEAU	32	42	**265**	-	-	-	
GB	*	BELFAST	BELFAST 42	45	60	**298**	25	38	**255**	
	*	NEWRY	NEWRY 3	35	38	122	27	45	**418**	BS: 1*11
	*	SUNDERLAND	HETTON-LE-HOLE 3	33	33	117	30	31	**348**	BS: 1*6
IE	*	DUBLIN	CLONDALKIN	-	-	-	19	25	**273**	
IT (1)	*	MILANO	MARCHE	52	-	**380**	83	-	132	
			JUVARA	38	-	**308**	90	-	184	
		ROMA	VIA CILICIA	-	-	-	**196**	-	**370**	
			C.SO V. EMANUALE	-	-	-	**179**	-	**343**	
		TORINO	VIA CONSOLATA	-	-	-	132	-	**309**	
			CORSO RACCONIGLI	-	-	-	**164**	-	**323**	
			CORSO VERCELLI	-	-	-	144	-	**306**	
			ST. AEROPORTO	-	-	-	**283**	-	**569**	

- P : List of instances of concentrations above limit values (period 04/89 - 03/90) (cont)

MS	LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
PT (5,6)	BARREIRO-SEIXAL	CAMARA MUNICIPAL CM	54	-	**482**	-	-	-	SO2: 1*5, 1*8/250/
		HOSPITAL VELHO HV	39	-	**392**	-	-	-	SO2: 1*4/250/
		ALTO DO SEIXALINHO Q2	24	-	**300**	-	-	-	
		PATIO ALBERS Q3	6	-	**303**	-	-	-	
		CASAL DO MARCO S2	6	-	73	**160**	(7)	**402**	
	PORTO	GOMES TEXEIRA GT	**87**	-	188	17	(7)	56	

All measures expressed in µg/m3

* Article 3 zone

(1) Italy uses the lower limit values of Annex I for SO2 and the limit values of Annex IV for SPM; reported as average/P 95 instead of P 50/P 98.

(2) application of Annex IV modified by directive 89/427/EEC.

(3) article 3 zone of Nantes - Chevire - Donges withdrawn in 1988.

(4) all the locations appearing for Spain in this table have been notified as article 3 zones in 1991 in accordance with Directive 89/427

(5) SPM method; reported as average/P 95 instead of P 50/P 98.

(6) calendar year.

(7) insufficient number of data.

SO2 - SP : List of instances of concentrations above limit values (period 04/90 - 03/91)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
ES		ANDORRA TERUEL	CENTRAL	38	33	**364**	3	2	14	SO2: 1*7
	*	BARCELONA	BADALONA VENTURA (1,2)	-	-	-	**181**	-	**321**	
			CASTELLBISBAL (1,2)	-	-	-	**167**	-	294	
			MONTCADA I REIXAC (1,2)	-	-	-	**218**	-	**444**	
			PLAZA PALAU	-	-	-	**86**	89	175	
			POBLE NOU (1,2)	-	-	-	**237**	-	**417**	
			SANT ANDREU (1,2)	-	-	-	**321**	-	**573**	
			SANT VINCENC (1,2)	-	-	-	**216**	-	**343**	
			T12 BADALONA INDUSTRIA	-	-	-	**108**	106	241	
	*	BILBAO	AUTONOMIA	-	-	-	**93**	96	200	
			PORTUGALETE-P.MOVIL	-	-	-	**86**	86	177	
	*	GIJON	COLEGIO PRIMO DE RIVERA	-	-	-	**95**	123	232	
	*	LANGREO	LA FELGUERA	-	-	-	**89**	**163**	**351**	BS: 1*>5
			SAMA	-	-	-	47	107	**278**	
			TENECIA DE ALCALDIA	-	-	-	67	**172**	**397**	BS: 1*>10
	*	LAS PALMAS (GR. CAN.)	ALVAREDA	-	-	-	**103**	111	**431**	BS: 1*>13
	*	OVIEDO	CASA DE LA JUVENTUD	-	-	-	39	88	**258**	
	*	ZARAGOZA (1)	FRANKLIN Y FERRAN	-	-	-	**159**	-	277	
FR	*	LYON	TERREAU	**96**	80	220	66	76	127	
		NANTES (3)	LABORATOIRE HYGIENE	-	-	-	**>80**	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/90 - 03/91) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	*	PETIT COURONNE	AF 20	55	54	**373**	28	35	97	
		SALSIGNE	EST	30	-	**855**	-	-	-	SO2: 86*3/250/
			OUEST	30	-	**371**	-	-	-	
GB	*	BELFAST	BELFAST 42	47	80	**363**	22	40	**278**	SO2: 1*4 - BS: 1*4
			BELFAST 12	59	65	235	24	37	**287**	BS: 1*4
			BELFAST 11	35	48	242	15	22	**267**	BS: 1*4
GR		THESSALONIKI	AG. SOFIA	56	55	**252**				SO2: 1*5/250/
			KORDELIO	**118**	125	**344**				
IT (5)		ROMA	VIA CILICIA	-	-	-	**162**	-	284	
PT (4)		BARREIRO-SEIXAL	ALTO DO SEIXALINHO 2	22	-	**448**	-	-	-	SO2: 1*7/250/, 1*5/250/
			CAMARA MUNICIPAL CM	20	-	**419**	-	-	-	SO2: 1*6/250/

All measures expressed in µg/m3

* Article 3 zone

(1) SPM method; reported as average/P 95 instead of P 50/P 98.
(2) insufficient number of data.
(3) article 3 zone of Nantes - Chevire - Donges withdrawn in 1988 .
(4) calendar year.
(5) not officially communicated by the National Authorities.

SO2 - SP : List of instances of concentrations above limit values (period 04/91 - 03/92)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
DE (2)	•	ANNABERG (SN) (5)		60	80	540	-	-	-	
	•	AUE (SN) (5)		90	120	750	-	-	-	SO2: 1*8, 1*9/350/
	•	BÄRENSTEIN (SN) (5)		40	60	560	-	-	-	
	•	BÖHLEN (SN) (6)		80	90	370	-	-	-	
	•	CHEMNITZ (SN)	ALTENDORF	80	130	480	-	-	-	SO2: 1*4/350/
			EBERSDORF	60	90	550	-	-	-	
	•	DELITSCHZ (SN)		100	100	430	-	-	-	
	•	DRESDEN (SN) (7)	POSTPLATZ	67	68	360	-	-	-	
	•	EISLEBEN (ST) (1)		N.C.	N.C.	N.C.	-	-	-	
	•	GERA (TH)		63	97	377	-	-	-	
	•	GÖRLITZ (SN)		52	42	364	-	-	-	
	•	HALLE (ST) (1)	ZENTRUM-SÜD	N.C.	N.C.	N.C.	-	-	-	
	•	HOHENSTEIN (SN)		70	100	440	-	-	-	
	•	KLINGENTHAL (SN) (5)		90	120	790	-	-	-	SO2: 1*6/350/
	•	LEIPZIG (SN)	MITTE	80	110	480	-	-	-	
			SÜDWEST	110	120	400	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/91 - 03/92) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	•	MAGDEBURG (ST) (1)	NORD	N.C.	N.C.	N.C.	-	-	-	
	•	MEERANE(SN)		90	160	600	-	-	-	SO2: 1*9, 1*4/350/
	•	MERSEBURG (ST) (1)		N.C.	N.C.	N.C.	-	-	-	
	•	OLBERNHAU (SN) (5)		50	-	370	-	-	-	
	•	PIRNA (SN) (7)		49	90	374	-	-	-	
	••	PLAUEN (SN) (5)		60	110	450	-	-	-	
	•	SONNEBERG (TH)		79	136	458	-	-	-	
	•	WEIMAR (TH)		85	140	447	-	-	-	
	•	WEIßENFELS (ST) (1)		N.C.	N.C.	N.C.	-	-	-	
	•	WURZEN (SN)		80	100	410	-	-	-	
	•	ZITTAU (SN) (8)		52	79	361	-	-	-	
	•	ZWICKAU (SN)	SÜD	60	80	440	-	-	-	
			MITTE	60	90	660	-	-	-	SO2: 1*5, 1*6, 1*12/350/
ES	•	BARCELONA	MARTORELL-CARRETERA II.	-	-	-	170	190	349	BS: 1*>5
			MATARO-C.PL. ESPAÑA	-	-	-	82	63	439	BS: 1*>7
			VIC-EBHER	-	-	-	141	178	332	BS: 1*5
	•	CARTAGENA (3)	BASTARRECHE	83	88	281	85	115	372	

SO2 - SP : List of instances of concentrations above limit values (period 04/91 - 03/92) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	•	LANGREO	BARROS	-	-	-	45	104	**258**	
			SAMA	33	88	**264**	55	**146**	**545**	BS: 2*>11
			LA FELGUERA	-	-	-	70	**150**	**347**	BS: 1*6
			TENENCIA ALCADIA	-	-	-	76	**179**	**408**	BS: 1*>10
	•	LAS PALMAS (GR.CAN.)	ALVAREDA	-	-	-	**88**	98	208	
	•	OVIEDO	CASA DE LA JUVENTUD	-	-	-	39	83	**275**	
			E. TAMALLO	-	-	-	28	73	**257**	
			P. DE DEPORTES	-	-	-	54	116	**289**	
	•	ZARAGOZA (4)	FRANKLIN Y FERRAN	-	-	-	170	-	363	
FR	•	COURCELLES		-	-	**250**	-	-	-	
		LACQ		-	-	**320**	-	-	-	
	•	LA GATASSE		-	-	**312**	-	-	-	
		IGNAUVAL		-	-	**310**	-	-	-	
	•	PETIT COURONNE		-	-	**366**	-	-	-	
GB	•	BELFAST	BELFAST 42	52	72	**332**	18	28	165	SO2: 1*5/250/
		DURHAM	SHERBURN 1	26	34	123	40	69	**275**	
GR	•	ATHENS	PATISSION	-	-	**276**	-	-	**301**	

* Article 3 zone

(1) statistical values not computed or not communicated.
(2) instances of concentrations in excess of limit values observed in new Länder only.
(3) application of Annex IV of directive 89/427.
(4) SPM method; reported as average/95 percentile instead of P50/P98.
(5) located in Erzgebirge zone.
(6) located in Landkreis Borna zone.
(7) located in Oberes Elbtal zone.
(8) located in Oberlausitz/Görlitz zone.

SO2 - SP : List of instances of concentrations above limit values (period 04/92 - 03/93)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
DE (2)	•	ANNABERG (SN) (5)		49	52	398	-	-	-	
	•	AUE (SN) (5)		69	182	410	-	-	-	SO2: 1*5/350/
	•	BÖHLEN (SN) (6)		82	118	397	-	-	-	SO2: 1*5/350/
	•	CHEMNITZ (SN)	ALTENDORF	57	105	397	-	-	-	
			MITTE 2	41	65	337	-	-	-	SO2: 1*4, 1*5/350/
	•	DELITSCHZ (SN)		83	125	370	-	-	-	SO2: 1*5/350/
	•	DRESDEN (SN) (7)	OST	54	58	405	-	-	-	SO2: 1*4/350/
	•	ERFURT (TH)	KRÄMPF	54	84	361	-	-	-	SO SO2 : 1*6 /350/
	•	GERA (TH)		52	85	402	-	-	-	SO2: 1*6 /350/
	•	GLAUCHAU (SN)		54	84	432	-	-	-	SO2: 1*5, 1*6/350/
	•	GREIZ (TH) (1)	MOLLBERGSTR.	N.C.	N.C.	N.C.	-	-	-	SO2: 1*6, 1*7/350
	•	HALLE (ST)	ZENTRUM-SÜD	64	118	359	-	-	-	
	•	HOHENSTEIN (SN)	EMSTTHAL	55	55	379	-	-	-	SO2: 1*6/350/
	•	KLINGENTHAL (SN) (5)		81	111	529	-	-	-	SO2: 1*4, 1*6/350/
	•	LEIPZIG (SN)	HBF	83	95	401	-	-	-	SO2: 1*5/350/
	•	MAGDEBURG (ST)	WEST	73	114	355	-	-	-	

SO2 - SP : List of instances of concentrations above limit values (period 04/92 - 03/93) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
	*	MEERANE(SN)		89	140	**501**	-	-	-	SO2: 1*4, 1*6, 1*8/350/
	*	OLBERNHAU (SN) (5)		58	64	**380**	-	-	-	
	*	PLAUEN (SN) (5)	2	53	N.C.	**399**	-	-	-	
	*	PÖßNECK		82	159	**486**				SO2: 1*7, 1*9
	*	RÖTHA (SN)		98	118	**409**	-	-	-	SO2: 1*5/350/
	*	SAAFELD (TH) (1)		N.C	N.C.	**N.C.**				SO2: 1*5/350/
	*	WEIßENFELS (ST)		86	132	**465**	-	-	-	
	*	WURZEN (SN)		56	84	**410**	-	-	-	
	*	ZWICKAU (SN)	ZENTRUM	51	82	**465**	-	-	-	SO2: 1*6, 1*8/350/
ES	*	BARCELONA	BADALONA (4)	-	-	-	**194**	-	**343**	
			POBLE NOU (4)	-	-	-	**164**	-	**265**	
			SAN ANDRES DE LA BARCA (4)	-	-	-	**262**	-	**479**	
			SAN VICENTE DELS HORTS (4)	-	-	-	**172**	-	**288**	
			HOSPITALET DE LLOBREGAT	-	-	-	**87**	79	177	
			MANLIEU-MERCAT MUNICIPAL	33	94	294	21	36	89	
			SAN FELIU DE LLOBREGAT	-	-	-	**93**	98	184	
		GERONA (4)	CASSA DE LA SELVA-FAR	-	-	-	**218**	-	**428**	
		HUELVA (4)	PUNTA UMBRIA	-	-	-	**154**	-	**296**	
	*	LANGREO (OVIEDO)	LANGREO-SAMA	-	-	-	50	120	**285**	

SO2 - SP : List of instances of concentrations above limit values (period 04/92 - 03/93) (cont)

MS		LOCATION	STATION NAME	SO2 P 50 YEAR	SO2 P 50 WINTER	SO2 P 98 YEAR	SP P 50 YEAR	SP P 50 WINTER	SP P 98 YEAR	3 DAYS RULE
		VIGO (PONTEVEDRA)	VIGO-EL CALVARIO	-	-	-	**87**	90	**182**	
			VIGO-EUGENIO FADRIQUE	-	-	-	**83**	93	**191**	
		TARRAGONA	ARBOS-AJUNTAMENT	-	-	-	**191**	-	**402**	
			VALLS-FARMACIA VIVES	-	-	-	26	63	**309**	BS: 1*4
	*	ZARAGOZA (4)	FRANKLIN Y FERRAN	-	-	-	**155**	-	**313**	
FR	*	NOYELLES-GODAULT	EVIN-MALMAISON	-	-	**439**	-	-	62	SO2: 1*>3/250/
GB	*	BARNSLEY	GRIMETHORPE 3	**133**	178	280	15	17	47	
GR	*	ATHENS	PATISSION	-	-	-	-	-	-	

All measures expressed in µg/m3

* Article 3 zone

(1) statistical values not computed or not communicated.
(2) instances of concentrations in excess of limit values observed in new Länder only.
(3) application of Annex IV of directive 89/427.
(4) SPM method; reported as average/95 percentile instead of P50/P98.
(5) located in Erzgebirge zone.
(6) located in Landkreis Borna zone.
(7) located in Oberes Elbtal zone.
(8) located in Oberlausitz/Görlitz zone.

ANNEX 2

DIRECTIVE 82/884/EEC ON A LIMIT VALUE FOR LEAD IN THE AIR

CONTENTS

1.a. Limit value for lead

Limit value of 2 $\mu g/m^3$ as an annual average

1.b. Explanation of averaging time

Annual mean: calculated by dividing the sum of the daily mean values by the number of days on which valid values have been obtained. A minimum number of 10 values per month is required by the Directive

2. Legislation in Member States

Belgium
The Belgian authorities have transposed this Directive in the Royal Decree of 3 August 1984 which almost literally contains the provisions of the Directive and which also fixes the methods of sampling and measurement.

Belgium has also notified the Commission of the Flemish decree of 7 January 1992 relating to ecological conditions applying to non-complying industries.

Denmark
The Environmental Protection Act was communicated as the measure transposing the Directive, this does not contain specific provisions for limit values. The limit value was respected by a considerable margin even in the most polluted areas.

France
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
Directive 80/779/EEC, 82/882/EEC and 85/203/EEC are transposed into French law in a common regulation. This is Decree number 91-1122 of 25 October 1991 relative to air quality and modifies Decree number 74-415 of 13 May 1974 relating to the control of emission of pollutants into the atmosphere and certain uses of thermal energy (OJ (France) of 29.10.91, p.14180).

This Decree, adopted for the transposition of the three Directives applies to all sources of emission of pollutants, fixed or mobile. The limit values and guide values fixed in the Directives are contained in an annex to the Decree. The establishment of measurement stations in the places where the pollution is presumed to be the highest for controlling air quality is also provided for in this Decree. The functioning of these stations is ensured by bodies agreed by the minister for the environment. Zones where the levels pollutants approach or exceed the limits judged to be acceptable are called "zones de protection spéciale".

Germany
The major pieces of legislation protecting against air pollution are the federal law of 1974 (Bundesimmissionsschutzgesetz) which contains provisions covering industrial installations, products and regions, several regulations applying the federal law and the Technische Anleitung (TA) Luft of 1974,

As with Directive 80/779/EEC the Commission did not accept that these pieces of legislation ensured the complete and correct transposition of the provisions of the Directive on lead throughout all of the country and therefore began a procedure under Article 169 against Germany. In 1991 the Court of Justice (Decree of 30.5.91, case number 59/89) decided that Germany had not taken all the necessary measures to ensure the complete transposition of the Directive. The Court considered that the TA-Luft, an administrative circular, was not sufficient to ensure the transposition of the Directive.

Following this Court Judgement, the German authorities sent (by letter, 3 January 1994) the twenty second amendment/regulation relative to the Bundesimmissionsschutzgesetz made on 26 October 1993. This transposed the limit values (Immissionswerte) of the Directive into national law and prohibited their being exceeded. This regulation also anticipated that the authorities in the Länder establish monitoring stations according to Article 4 of Directive 82/884/EEC and use the reference measurement method for lead. Other equivalent measurement methods were also permitted. When limit values were exceeded, plans must be made in order to ensure compliance with the limit values as soon as possible. If the limit values for suspended particulates are exceeded for three or more consecutive days, the competent authorities are asked to take appropriate measures to prevent concentrations exceeding of the limit value in the future.

With regard to the new Länder, Directive 90/656/EEC agreed with Germany the possibility of applying the provisions of Directive 82/884/EEC in the zones designated under Article 3.2 until 31 December 1994. Germany has not adopted specific legislation for the new Lander but has designated 3 zones under Article 3.2.

Measures for improvement of air quality under each of the air quality Directives have been communicated to the Commission.

Greece

This Directive has been transposed into Greek legislation by the Act of the Council of Ministers No 98/10.7.87 (O J (Greece) No 135 vol A of 28.7.87). It has been modified by the same act which transposed Directive 80/779/EEC, Act of the Council of Ministers No 25/18.3.88 (see Article 9.1). These Acts have been promulgated according to Article 7 of the framework law 1650/1986 for the protection of the environment.

The title of these Acts are:

α) Πράξη Υπουργικού Συμβουλίου αριθ. 98/10.7.87 "Οριακή τιμή ποιότητας της ατμόσφαιρας σε μόλυβδο" (ΦΕΚ 135/Α/28.7.87).
β) Πράξη Υπουργικού Συμβουλίου αριθ. 25/18.3.88 (ΦΕΚ 52/Α/1988).
γ) Ν.1650/86 "Για την προστασία του περιβάλλοντος".

The transposition is correct.

Ireland

Directives 80/779/EEC, 82/884/EEC and 85/203/EEC

The Air Pollution Act, 1987 constitutes the principal primary,v legislation for implementing Community air pollution directives, including Directives 80/779/EEC, 82/884/EEC and 85/203/EEC.

The Act is divided into six parts. Part I deals with preliminary and general matters, including definitions of terms, offences and penalties, and the scope for the Irish Minister for the Environment for making more detailed implementing regulations. Part II contains general provisions on air pollution, including certain prohibitions. Part III establishes a licensing

system for air emissions from industrial plant. Part IV sets out provisions for controlling air pollution in special control areas. Part V deals with air quality management plans and standards, and provides for regulations in relation to fuel. Part VI addresses a number of miscellaneous matters, including the monitoring of air quality and emissions.

Using the Act's enabling powers, the Irish Minister for the Environment adopted S.I.No 244 of 1987, Air Pollution Act, 1987 (Air Quality Standards) Regulations, 1987, in order to transpose the limit values of Directives 80/779/EEC, 82/884/EEC and 85/203/EEC. The term "air quality standard" is employed instead of "limit value". The Regulations refer to the measuring methods provided for in the Directives (in the case of Directive 80/779/EEC, Ireland applies the black smoke method).

In response to non-compliance with the suspended particulate limit values in Dublin, the Minister adopted a series of further regulations under the Air Pollution Act. Initially, the strategy was to rely on Part IV of the Act i.e. to create special control areas in which measures would be taken to reduce smoke emissions. However, this strategy proving slow and cumbersome, in 1990 the Minister turned to Part V of the Act and adopted controls on the marketing, sale and distribution of bituminous coal in Dublin city and an extensive part of Dublin county. This brought about a rapid improvement in suspended particulate concentrations.

Italy (80/779/EEC - 89/427 - 82/884 - 85/203)
Italy has transposed the above Directives (except 89/427/EEC) by a Decree of the President of the Republic of 24.5.88. (No 203, published in O J (Italy) of 16.6.88)

This Decree includes the air pollutants covered by the different Directives and uses, in its provisions, the terminology of the three Directives (80/779/EEC, 82/884/EEC and 85/203/EEC).

Luxembourg
This Directive has been transposed into the legislation of Luxembourg by the Grand-Ducal Regulation of 20 December 1984 and the Grand-Ducal Regulation of 7 September 1987.

The Regulation of 20 December 1987 is an almost literal copy of the Directive in question. The legislation in Luxembourg does not contain specific measures such as those in Article 3.1 of the Directive. Article 3 of the Regulation, as modified by the Regulation of 7 December 1987, states simply that, from 9 December 1987, the levels of lead in the atmosphere, measured according to Article 4 must not be above the limit value stated in Article 2.

Luxembourg did not designate any areas under Article 3 where the levels of lead measured could exceed the limit value.

Portugal
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
The law decree 352/90 of 9 November 1990 establishes the regime of protection and control of air quality and creates the framework for the management of air quality for the protection of public health and the protection of nature, the organisation of regional programmes for controlling atmospheric pollution and the establishment of obligatory measures to ensure that

the levels of air pollutants do not exceed the limit values. Article 5 of the decree states that limit and guide values for sulphur dioxide, suspended particulates, nitrogen dioxide, carbon monoxide and ozone and limit values for lead are to be fixed by Portaria.

Portaria 286/93 of 12 March 1993 fixed limit and guide values for sulphur dioxide, suspended particulates, lead and nitrogen dioxide among others.

The national legislation correctly transposes the three Directives in question.

Spain

The transposition of this Directive into Spanish law is made through Real Decreto 717/1987 of 27 May 1987 which modifies Decree 833/1975 of 6 February 1975. This sets a limit value for lead in accordance with the Directive. Zones where the limit values are exceeded are declared as "zones with a polluted atmosphere". The procedures for doing this are laid down in Real Decreto 1613/1985 of 1 August 1985 and require that the competent authorities develop a plan for the improvement of air quality in the zone concerned. The plan must include the measures necessary to progressively reduce the concentrations of lead in the air so that the limit values are achieved.

Decreto 833/1975, Title III, articles 14-32 establishes the special system for zones with a polluted atmosphere.

The Netherlands

The Dutch legislation does not provide a base for the establishment of limit or guide values. This base was created by a modification to the "Wet inzake de luchtverontreiniging" (art. 2), which came into force on 1 February 1986 On 1 March 1993, this article was replaced by articles 5.1 - 5.4 of the "Wet milieubeheer".

According to article 2 of the "Wet inzake de luchtverontreiniging", the decree - as well as if the occasion should arise, the regulations - have been fixed which transpose the Directives concerning atmospheric quality. These decrees oblige local and regional authorities to respect the limit and guide values. This legislation is now the basis of the "Wet milieubeheer"

Directive 82/884/EEC

The national measures which transpose this Directive are:

- Wet milieubeheer;
- Besluit luchtkwaliteit koolstofmonoxide en lood.

The "besluit" came into force on 1 April 1987.

The Netherlands has set two limit values which are more severe than the single value fixed in the Directive. The values are 2 $\mu g/m^3$ as the 98th percentile of daily means over one year and 0.5 $\mu g/m^3$ as an annual mean.

The provinces are required to list the places where a value of 0.4 $\mu g/m^3$, annual mean concentration, can be exceeded. Measurement stations have been established by the provinces

which measure air quality in places where the value mentioned in the Directive can be exceeded. These can use the reference method in the Directive or another method after it has been approved by the "Rijksinstituut voor Volksgezondheid en Milieuhygiëne". For the places where the Directive does not require measurements to be made, the provinces can calculate lead concentrations.

The Colleges of Mayors and their assistants inform the provinces, at the latest on 1 March of each year, of concentrations in excess of the limit values of the installations for which the Colleges have competent authority, as well as of the measures which have been taken or are planned so that the value is not exceeded.

The provinces inform the Minister, no later than 1 April of each year of concentrations in excess of the limit values at installations for which they have the competent authority. They also inform the Minister of the measures being or to be taken to ensure that the value is not exceeded. The information received from the provinces is incorporated into an annual report on which the Dutch authorities base the report required under the Directive.

United Kingdom
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
The Air Quality Standards Regulations 1989 and the Air Quality Standards Regulations (Northern Ireland) 1990 provide for the Secretary of State (in GB) and the Department of the Environment (in Northern Ireland) to take measures to ensure compliance with the air quality standards and provide for the establishment of measuring and sampling stations as laid down in Directives 80/779, 82/884 and 85/203. There are a number of provisions in other clean air and health and safety legislation and in circulars which contribute to the attainment of the objectives of the directives.

3. List of instances of concentrations in excess of the limit value for lead

Pb : List of zones (article 3 and non-article 3) with mention of concentrations in excess of the limit value since 1985

MS	FORMAL NAME OF THE ZONE	85	86	87	88	89	90	91	92
BE	HOBOKEN	■	-	-	-	-	■	-	-
	BEERSE	-	-	-	-	-	-	-	-
DE	BRAUBACH	■	■	■	■	■	-	-	-
FR	GRENOBLE	-	-	■	■	■	-	-	-
	LILLE	-	-	-	-	-	■	-	-
	LYON	-	-	■	-	-	-	-	-
	TILLOY/MOFFLAINES	-	-	-	-	-	-	-	■
GB	WALSALL	■	■	■	■	■	-	-	-
IT	ROMA	?	?	?	?	■	■	?	?

Notes:

: reference periods for which an article 3 zone was validly declared

- : compliance reported

■ : concentration in excess of limit value

? : no or incomplete information

Pb : List of instances of concentrations above limit value (1987)

MS		LOCATION	STATION NAME	AR. MEAN
FR		GRENOBLE	FOCH	2.60
		LYON	DUQUESNE	2.00
DE	*	BRAUBACH	4	2.22
GB	*	WALSALL	PRIMLEY AVENUE	2.93

Measures expressed in µg/m3

* Article 3 zone

Pb : List of instances of concentrations above limit value (1988)

MS		LOCATION	STATION NAME	AR. MEAN
FR		GRENOBLE	FOCH	2.30
DE	*	BRAUBACH	HÜTTENTOR	2.04
			STADTTURM	2.05
GB	*	WALSALL	PRIMLEY AVENUE	2.58

Measures expressed in µg/m3

* Article 3 zone

Pb : List of instances of concentrations above limit value (1989)

MS		LOCATION	STATION NAME	AR. MEAN
FR		GRENOBLE	FOCH	2.20
DE	*	BRAUBACH	HÜTTENTOR	2.41
			EMSER STR.	2.41
			KARLSSTR	2.01
GB	*	WALSALL	PRIMLEY AVENUE	2.43
IT		ROMA	VIA CILICIA	3.3

Measures expressed in µg/m3

* Article 3 zone

Pb : List of instances of concentrations above limit value (1990)

MS	LOCATION	STATION NAME	AR. MEAN
BE	HOBOKEN	7HOB16	2.24
FR	LILLE	USINE CEAC	3.04
IT	ROMA	VIA CILICIA	2.60

Measures expressed in µg/m3

* Article 3 zone

Pb : List of instances of concentrations above limit value (1991)

MS	LOCATION	STATION NAME	AR. MEAN
IT	?	?	?

Measures expressed in µg/m3

* Article 3 zone

Pb : List of instances of concentrations above limit value (1992)

MS	LOCATION	STATION NAME	AR. MEAN
FR	TILLOY/MOFFLAINES		2.27
IT	?	?	?

Measures expressed in µg/m3

* Article 3 zone

ANNEX 3

DIRECTIVE 85/203/EEC ON AIR QUALITY STANDARDS FOR NITROGEN DIOXIDE

CONTENTS

1.a. Limit and guide values for nitrogen dioxide

Limit value	200 µg/m³	98th percentile calculated from the mean values per hour or of periods of less than an hour recorded throughout the year
Guide values	135 µg/m³	98th percentile calculated from the mean values per hour or of periods of less than an hour recorded throughout the year
	50µg/m³	50th percentile calculated from the mean values per hour or of periods of less than an hour recorded throughout the year

1.b. Explanation of averaging times

98th percentile calculated from the mean values per hour or of periods of less than an hour recorded throughout the year	Calculated by listing the values in increasing for each site $X_1 \leq X_2 \leq X_3 \leq \ldots\ldots \leq X_k \leq \ldots\ldots \leq X_{n-1} \leq X_n$ where X = the values recorded, n = total number of values recorded and X_k the value of the 98th percentile calculated by k = 0.98 x n. 75% of possible values were required to be available
50th percentile calculated from the mean values per hour or of periods of less than an hour recorded throughout the year	Calculated by listing the values in increasing for each site $X_1 \leq X_2 \leq X_3 \leq \ldots\ldots \leq X_f \leq \ldots\ldots \leq X_{n-1} \leq X_n$ where X = the values recorded, n = total number of values recorded and X_f the value of the 50th percentile calculated by f = 0.98 x n.

2. Legislation in Member States

Belgium
Belgium has transmitted to the Commission the Royal Decree of 1 July 1986 which contains the provisions of the Directive and fixes the method of reference and analysis. Also, the Belgian authorities have notified the Commission of the Flemish Decree of 7 January 1992 and the Wallonian Decree of 5 December 1991 repeating the provisions of the Directive.

Denmark
The Statutory Order concerning limit values (Bekendtg0relse nr. 119 af 12. marts 1987) is similar to the Order concerning SO2.

France
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
Directive 80/779/EEC, 82/882/EEC and 85/203/EEC are transposed into French law in a common regulation. This is Decree number 91-1122 of 25 October 1991 relative to air quality and modifies Decree number 74-415 of 13 May 1974 relating to the control of emission of pollutants into the atmosphere and certain uses of thermal energy (OJ (France) of 29.10.91, p.14180).

This Decree, adopted for the transposition of the three Directives applies to all sources of emission of pollutants, fixed or mobile. The limit values and guide values fixed in the Directives are contained in an annex to the Decree. The establishment of measurement stations in the places where the pollution is presumed to be the highest for controlling air quality is also provided for in this Decree. The functioning of these stations is ensured by bodies agreed by the minister for the environment. Zones where the levels pollutants approach or exceed the limits judged to be acceptable are called "zones de protection spéciale".

Germany
The major pieces of legislation protecting against air pollution are the federal law of 1974 (Bundesimmissionsschutzgesetz) which contains provisions covering industrial installations, products and regions, several regulations applying the federal law and the Technische Anleitung (TA) Luft of 1974,

The Commission did not accept that these pieces of legislation ensured the complete and correct transposition of the provisions of the Directives on sulphur dioxide and suspended particulates throughout all of the country and therefore began procedures under Article 169 against Germany. In 1991 the Court of Justice (case no 361/88, Decree of 30.5.91, case number 59/89, Decree of 30.6.91, case no 361/88) decided that Germany had not taken all the necessary measures to ensure the complete transposition of the Directives. The Court considered that the TA-Luft, an administrative circular, was not sufficient to ensure the transposition of the Directive.

Following this Court Judgement, the German authorities sent (by letter, 3 January 1994) the

twenty second amendment/regulation relative to the Bundesimmissionsschutzgesetz made on 26 October 1993. This transposed the limit values (Immissionswerte) of the Directive into national law and prohibited their being exceeded. When limit values were exceeded, plans must be made in order to ensure compliance with the limit values as soon as possible. If the limit values for suspended particulates are exceeded for three or more consecutive days, the competent authorities are asked to take appropriate measures to prevent concentrations in excess of the limit value in future.

With regard to the new Länder, Directive 90/656/EEC agreed with Germany the possibility of applying the provisions of Directive 85/203/EEC in the zones designated under Article 3.2 until 31 December 1995 however no 3 zones have been designated under Article 3.2.

Measures for improvement of air quality under each of the air quality Directives have been communicated to the Commission.

Greece

This Directive has been transposed into Greek legislation by the Act of the Council of Ministers No. 25 of 18 March 1988 and modification of the Acts of the Council of Ministers No.s 98 and 99/10.7.87 (published in O J (Greece) No 52 Vol A, 22 March 1988). These Acts have been promulgated according to the framework law 1650/1986 for the protection of the environment.
The titles of these Acts are:

Πράξη Υπουργικού Συμβουλίου αριθ. 25/18.3.88 "Οριακές και κατευθυντήριες τιμές ποιότητας της ατμόσφαιρας σε διοξείδιο του αζώτου και τροποποίηση των με αριθ.98 και 99/10.7.87 Πράξεων του Υπουργικού Συμβουλίου (ΦΕΚ 52/Α/22.7.1988)

Ν.1650/86 "Για την προστασία του περιβάλλοντος".

The transposition is correct.

The city of Athens has been designated under Article 3.2. The plans for improvement of air quality required under this Article have not been sent to the Commission. The transposition makes use of the possibilities offered by Article 4.1 and 4.2 and allows for civil and administrative penalties against polluters.

Ireland

Directives 80/779/EEC, 82/884/EEC and 85/203/EEC

The Air Pollution Act, 1987 constitutes the principal primary,v legislation for implementing Community air pollution directives, including Directives 80/779/EEC, 82/884/EEC and 85/203/EEC.
The Act is divided into six parts. Part I deals with preliminary and general matters, including definitions of terms, offences and penalties, and the scope for the Irish Minister for the Environment for making more detailed implementing regulations. Part II contains general provisions on air pollution, including certain prohibitions. Part III establishes a licensing system for air emissions from industrial plant. Part IV sets out provisions for controlling air pollution in special control areas. Part V deals with air quality management plans and standards, and provides for regulations in relation to fuel. Part VI addresses a number of

miscellaneous matters, including the monitoring of air quality and emissions.

Using the Act's enabling powers, the Irish Minister for the Environment adopted S.I.No 244 of 1987, Air Pollution Act, 1987 (Air Quality Standards) Regulations, 1987, in order to transpose the limit values of Directives 80/779/EEC, 82/884/EEC and 85/203/EEC. The term "air quality standard" is employed instead of "limit value". The Regulations refer to the measuring methods provided for in the Directives (in the case of Directive 80/779/EEC, Ireland applies the black smoke method).

In response to concentrations in excess of suspended particulate limit values in Dublin, the Minister adopted a series of further regulations under the Air Pollution Act. Initially, the strategy was to rely on Part IV of the Act i.e. to create special control areas in which measures would be taken to reduce smoke emissions. However, this strategy proving slow and cumbersome, in 1990 the Minister turned to Part V of the Act and adopted controls on the marketing, sale and distribution of bituminous coal in Dublin city and an extensive part of Dublin county. This brought about a rapid improvement in suspended particulate concentrations.

Italy
Directives 80/779/EEC, 89/427/EEC, 82/884/EEC, 85/203/EEC)
Italy has transposed the above Directives (except 89/427/EEC) by a Decree of the President of the Republic of 24.5.88. (No 203, published in O J (Italy) of 16.6.88)

This Decree includes the air pollutants covered by the different Directives and uses, in its provisions, the terminology of the three Directives (80/779/EEC, 82/884/EEC and 85/203/EEC).

Luxembourg
This Directive was transposed into the law of Luxembourg by the Grand-Ducal Regulation of 17 April 1986.

This Regulation is an almost literal copy of the text of the Directive. It does not provide for specific measures as in Article 3.1 of the Directive, it simply requires that from 1 July 1987, the concentrations of nitrogen dioxide in the air, measured according to Annex III must not be above the limit value in Annex I

No zones have been identified under Article 3 of the Directive.

Portugal
Directives 80/779/EEC, 82/884/EEC and 85/203/EEC
The law decree 352/90 of 9 November 1990 establishes the regime of protection and control of air quality and creates the framework for the management of air quality for the protection of public health and the protection of nature, the organisation of regional programmes for controlling atmospheric pollution and the establishment of obligatory measures to ensure that the levels of air pollutants do not exceed the limit values. Article 5 of the decree states that limit and guide values for sulphur dioxide, suspended particulates, nitrogen dioxide, carbon monoxide and ozone and limit values for lead are to be fixed by Portaria.

Portaria 286/93 of 12 March 1993 fixed limit and guide values for sulphur dioxide, suspended particulates, lead and nitrogen dioxide among others.

The national legislation correctly transposes the three Directives in question.

Spain

This Directive is transposed into Spanish law in Real Decreto 717/1987 of 27 May 1987 which modifies Real Decreto 833/1975. This decree established the limit and guide values as set in the Directive and also reference values for the declaration of an emergency situation. An emergency situation is declared when a risk to human health occurs through severe deterioration of environmental conditions. The specific administrative system for this situation is contained in Title IV of Real Decreto 833/1975.

The procedures relating to areas identified under Article 3 of the Directive relating to places where concentrations of nitrogen dioxide are at risk of exceeding the limit values are contained in Real Decreto 1613/1985.

The Netherlands

The Dutch legislation does not provide a base for the establishment of limit or guide values. This base was created by a modification to the "Wet inzake de luchtverontreiniging" (art. 2), which came into force on 1 February 1986 On 1 March 1993, this article was replaced by articles 5.1 - 5.4 of the "Wet milieubeheer".

According to article 2 of the "Wet inzake de luchtverontreiniging", the decree - as well as if the occasion should arise, the regulations - have been fixed which transpose the Directives concerning atmospheric quality. These decrees oblige local and regional authorities to respect the limit and guide values. This legislation is now the basis of the "Wet milieubeheer"

Directive 85/203/CEE

The measures which transpose this Directive are:

- Wet milieubeheer;
- Besluit luchtkwaliteit stikstofdioxyde.

The "besluit" came into force on 1 April 1987.

The "besluit" contains limit values which are more severe than that of the Directive. In the vicinity of certain streets the value in force is less severe than that applying throughout the rest of the territory but it is still more severe than the limit value in the Directive. At these places, an intermediary value must be attained by 1 January 1992; the other values must be attained by 1 January 2000. The Netherlands has not designated urban or industrial zones or zones which require special environmental protection (Article 4 of the Directive) for which lower values must be fixed.

The "besluit" allows for the establishment of a network of stations covering the territory of The Netherlands. The "Landelijk meetnet luchtverontreiniging" of the "Rijksinstituut voor Volksgezondheid en Milieuhygiëne" has already established this network. The provinces are

required to list the places where a value of 110 μg/m³ as the 98th percentile of hourly means can be exceeded. At these places, the concentration is measured or calculated. At places where a value of 160 μg/m³ is exceeded, the provinces must establish measurement stations. The Colleges of Mayors and their assistants list the streets of areas where the limit values can be exceeded, at these places, air quality is measured.

The Colleges of Mayors and their assistants inform the provinces, at the latest on 1 March of each year, of the concentrations in excess of limit values reported, as well as the measures being or to be taken so that the value is not exceeded. The provinces inform the Minister, no later than 1 April of each year of the reported concentrations in excess of limit values as well as the measures being or to be taken. The information provided by the communes is incorporated into an annual report which is used, buy the Dutch authorities, as the basis of the report required under the Directive.

United Kingdom

Directives 80/779/EEC, 82/884/EEC and 85/203/EEC

The Air Quality Standards Regulations 1989 and the Air Quality Standards Regulations (Northern Ireland) 1990 provide for the Secretary of State (in GB) and the Department of the Environment (in Northern Ireland) to take measures to ensure compliance with the air quality standards and provide for the establishment of measuring and sampling stations as laid down in Directives 80/779, 82/884 and 85/203. There are a number of provisions in other clean air and health and safety legislation and in circulars which contribute to the attainment of the objectives of the directives. The UK has not transposed Annexes I, III and IV of Directive 85/203/EEC and discussions are currently underway regarding this issue.

3. List of instances of concentrations in excess of the limit value for nitrogen ~~dioxide~~

NO2 : List of zones (article 3 and non-article 3) with mention of concentrations in excess of the limit value since 1987

MS	FORMAL NAME OF THE ZONE		87	88	89	90	91	92
DE	FRANKFURT	T	-	■	■	-	-	-
	HAMBURG	T	-	-	-	■	-	-
	KOELN	T	■	-	■	-	-	-
	MAINZ	T	■	■	-	-	-	-
ES	AVILES	I	-	-	-	-	■	-
	CARTAGENA	IC	-	-	-	■	-	-
	MADRID	CR	-	-	-	■	■	■
	SEVILLA	ICR	-	-	-	■	-	-
	VALLADOLID	IT	-	-	-	-	■	-
FR	AMBARES (AQUITAINE)	I	-	-	-	-	-	-
	BILLY-BERCLAU (NORD - PAS-DE-CALAIS)	I	-	-	-	-	-	-
	CARLING (LORRAINE)	I	-	-	-	-	-	-
	CHALAMPE (ALSACE)	I	-	-	-	-	-	-
	CHASSE-SUR-RHONE (RHONE ALPES)	I	-	-	-	-	-	-
	FRAIS-MARAIS (NORD PAS-DE-CALAIS)	I	-	-	-	-	-	-
	GRAND-COURONNE (HAUTE NORMANDIE)	I	-	-	-	-	-	-
	GRAND-PUITS (ILE-DE-FRANCE)	I	-	-	-	-	-	-
	GRAND-QUEVILLY (HAUTE NORMANDIE)	I	■	-	-	-	-	-
	LA MADELEINE (NORD - PAS-DE-CALAIS)	I	-	-	-	-	-	-
	LE HAVRE (HAUTE NORMANDIE)	I	■	-	-	-	-	-
	LIEVIN (NORD - PAS-DE-CALAIS)	I	-	-	-	-	-	-
	MAZINGARBE (NORD - PAS-DE-CALAIS)	I	-	-	-	-	-	-
	MONTOIR-DE-BRETAGNE (PAYS DE LOIRE)	I	-	-	-	-	-	-
	OISSEL (HAUTE NORMANDIE)	I	-	-	-	-	-	-
	OTTMARSHEIM (ALSACE)	I	-	-	-	-	-	-
	PARDIES (AQUITAINE)	I	-	-	-	-	-	-
	PEAGE DE ROUSSILLON (RHONE ALPES)	I	-	-	-	-	-	-
	SAINT FONS CLOCHETTES (RHONE ALPES)	I	-	-	-	-	-	-
	SOULOM (MIDI PYRENEES)	I	-	-	-	-	-	-
	BORDEAUX	T	-	-	-	-	-	-
	GRENOBLE	T	-	-	-	-	-	-
	LE HAVRE	T	-	-	-	-	-	-
	LILLE.	T	-	-	-	-	-	-
	LYON	T	■	■	□	□	■	■
	MARSEILLE	T	■	□	■	■	■	-
	NANTES	T	-	-	-	-	■	-
	NICE	T	-	-	-	-	-	-
	PARIS	T	□	□	-	-	-	-
	ROUEN	T	-	-	-	-	-	-
	STRASBOURG	T	-	-	-	-	-	-
	TOULON	T	-	-	-	-	-	-
	TOULOUSE	IT	□	□	-	-	-	-
	OTHER BIG URBAN CENTRES							
	Aix-en-Provence	T	-	-	■	-	-	-

NO2 : List of zones (article 3 and non-article 3) with mention of concentrations in excess of the limit value since 1987 (cont.)

MS	FORMAL NAME OF THE ZONE		87	88	89	90	91	92
GB	LONDON	T	-	-	■	-	-	-
GR	ATHENS	T	■	■	-	-	■	■
IT	BOLOGNA	?	-	-	■	?	?	?
	MILANO	?	■	?	■	■	?	?
	MODENA	?	■	■	■	?	?	?
	REGIO EMILIA	?	-	-	□	■	?	?
	TORINO	?	■	■	?	?	?	?
NL	UTRECHT	T	-	■	-	-	-	-
PT	BARREIRO		?	-	-	-	-	-
	LISBOA		?	-	-	-	-	-
	PORTO		?	-	-	-	-	-

Notes:

: reference periods for which an Article 3 zone was validly declared

\- : compliance reported

■ : concentration in excess of limit value

□ : value not validated (less than 75 % of data)

? : incomplete information or dubious data

T : traffic
I : industrial
C : commercial
R : residential

NO2 : List of concentrations above limit value (1987)

MS		LOCATION	STATION NAME		% VAL	P 98	
DE		KOELN	NEUMARKT	T	> 75	252	
		MAINZ	PARCUSSTRASSE		N.C.	226	
FR	•	PARIS	SMR1A	T	55	241	N.V.
	•	LYON	TERREAUX	T	87	226	
			FEYZIN	TI	60	203	N.V.
	•	MARSEILLE	PLOMBIERES	T	41	228	N.V.
			PARADIS	T	89	237	
	•	LE HAVRE	QUILLEBOEUF	I	> 75	235	
	•	ROUEN	GRAND QUEVILLY	I	91	220	
	•	TOULOUSE	POMPAGE	I	68	202	N.V.
GR	•	ATHENS	PATISSION	T	N.C.	207	
IT		MILANO	MARCHE		>90%	412	
			JUVARA		75%< <90%	299	
			ZAVATTARI		>90%	229	
		MODENA	VIALE FONTANELLI		>90%	419	
		TORINO	VIA CONSOLATA		>90%	213	
			CORSO VERCELLI		75%< <90%	306	

Measures expressed in µg/m3

•	Article 3 zone
N.C.	not communicated
N.V.	not validated
T	traffic
I	industrial

NO2 : List of concentrations above limit value (1988)

MS		LOCATION	STATION NAME		% VAL	P 98	
DE		FRANKFURT	RUNDSCHAUHAUS	T	N.C.	**262**	
		MAINZ	PARCUSSTRASSE		N.C.	**267**	
FR	*	LYON	TERREAUX	T	24	212	N.V.
			FEYZIN	TI	80	**204**	
	*	MARSEILLE	PLOMBIERES	T	61	257	N.V.
	*	PARIS	SMR5A	TI	70	202	N.V.
	*	TOULOUSE	POMPAGE	I	67	215	N.V.
GR	*	ATHENS	PATISSION	T	N.C.	**263**	
			ATHINAS	T	N.C.	**224**	
			PIREA	T	N.C.	**206**	
IT		MILANO	MARCHE			?	
			JUVARA			?	
			ZAVATTARI			?	
		MODENA	VIALE FONTANELLI		75%< <90%	**217**	
		TORINO	CORSO VERCELLI		75%< <90%	**310**	
NL		UTRECHT	637 - WITTE VROUW.	T	N.C.	**202**	

Measures expressed in µg/m3

* Article 3 zone

N.C. not communicated
N.V. not validated
T traffic
I industrial

NO2 : List of concentrations above limit value (1989)

MS		LOCATION	STATION NAME		% VAL	P 98	
DE		KOELN	NEUMARKT	T	> 75	**246**	
		FRANKFURT	RUNDSCHAUHAUS	T	N.C.	**253**	
FR	*	AIX EN PROVENCE	CENTRE	T	87	**220**	
	*	LYON	BROTTEAUX	T	36	200	N.V.
			TERREAUX	T	73	341	N.V.
	*	MARSEILLE	TIMONE	T	86	**208**	
GB		LONDON	WEST	T	94	**214**	
IT		BOLOGNA	VIA MARCONI		N.C.	**326**	
			VIA MATTEOTTI		N.C.	**226**	
			VIA IRNERIO		N.C.	**233**	
			VIA EMILIA PON.		N.C.	**207**	
		MILANO	MARCHE		75%< <90%	**288**	
			JUVARA		75%< <90%	**249**	
			ZAVATTARI		75%< <90%	**239**	
			LIGURIA		<75%	213	N.V.
			VERZIERE		75%< <90%	**261**	
			SENATO		<75%	372	N.V.
			CENISIO		<75%	233	N.V.
		MODENA	VIA FONTANELLI		75%< <90%	**299**	
		REGIO EMILIA	VIALE TIMAVO		<75%	237	N.V.
		TORINO	VIA CONSOLATA			?	
			CORSO VERCELLI			?	

Measures expressed in µg/m3

* Article 3 zone

N.C. not communicated
N.V. not validated
T traffic

NO2 : List of concentrations above limit value (1990)

MS		LOCATION	STATION NAME		% VAL	P 98	
DE		HAMBURG	STRESEMANNSTR.		N.C.	276	
ES		MADRID	P. DE RECOLETOS	CR	97	230	
			GL. M. DE VADILLO	CR	82	229	
			GL. C. CAMINOS	CR	95	231	
			PL. SALAMANCA	CR	94	216	
			ESCUELAS AGUIRRE	CR	92	206	
		CARTAGENA	PL. BASTARRECHE	IC	82	237	
		SEVILLA	MACARENA	ICR	85	246	
FR	•	MARSEILLE	PLOMBIERES	T	89	207	
	•	LYON	TERREAUX	T	44	238	N.V.
IT		BOLOGNA	VIA MARCONI			?	
			VIA MATTEOTTI			?	
			VIA IRNERIO			?	
			VIA EMILIA PON.			?	
		MILANO	MARCHE		>90%	297	
			JUVARA		>90%	259	
			ZAVATTARI		75%< <90%	270	
			LIGURIA		<75%	319	N.V.
			VERZIERE		>90%	293	
			SENATO		75%< <90%	324	
			CENISIO		<75%	292	N.V.
			AQUILEIA		75%< <90%	307	
			STATUTO		<75%	319	N.V.
		MODENA	VIA FONTANELLI			?	
		REGIO EMILIA	CAVAZZOLI		>90%	201	
			MASSENZATICO		<75%	236	N.V.
			VIALE RISORGIMENTO		>90%	276	
			VIALE TIMAVO		75%< <90%	311	
		TORINO	VIA CONSOLATA			?	
			CORSO VERCELLI			?	

Measures expressed in µg/m3

•	Article 3 zone
N.C.	not communicated
N.V.	not validated
T	traffic
I	industrial
C	commercial
R	residential

NO2 : List of concentrations above limit value (1991)

MS		LOCATION	STATION NAME		% VAL	P 98
ES		AVILES	LLANOPONTE	I	91	309
		MADRID	GL. CUATRO CAMINOS	CR	96	202
			GL. MARQUES VADILLO	CR	95	201
		VALLADOLID	ARCO DE LADRILLO	IT	75	248
FR	*	LYON		T	N.C.	223
	*	MARSEILLE		T	N.C.	209
	*	NANTES		T	N.C.	204
GR	*	ATHENS	PATISSION	T	N.C.	243
IT		BOLOGNA	VIA MARCONI			?
			VIA MATTEOTTI			?
			VIA IRNERIO			?
			VIA EMILIA PON.			?
		MILANO	MARCHE			?
			JUVARA			?
			ZAVATTARI			?
			LIGURIA			?
			VERZIERE			?
			SENATO			?
			CENISIO			?
			AQUILEIA			?
			STATUTO			?
		MODENA	VIA FONTANELLI			?
		REGIO EMILIA	CAVAZZOLI			?
			MASSENZATICO			?
			VIALE RISORGIMENTO			?
			VIALE TIMAVO			?
		TORINO	VIA CONSOLATA			?
			CORSO VERCELLI			?

Measures expressed in µg/m3

* Article 3 zone

N.C. not communicated
T traffic
C commercial
R residential
I industrial

NO2 : List of concentrations above limit value (1992)

MS	LOCATION	STATION NAME		% VAL	P 98
ES	MADRID	PASEO DE RECOLETOS		97	204
		GL. DE QUEVEDO	CR	99	202
		PUERTO DE TOLEDO	CR	92	201
FR *	LYON		T	N.C.	202
GR *	ATHENS	PATISSION	T	N.C.	266
IT	BOLOGNA	VIA MARCONI			?
		VIA MATTEOTTI			?
		VIA IRNERIO			?
		VIA EMILIA PON.			?
	MILANO	MARCHE			?
		JUVARA			?
		ZAVATTARI			?
		LIGURIA			?
		VERZIERE			?
		SENATO			?
		CENISIO			?
		AQUILEIA			?
		STATUTO			?
	MODENA	VIA FONTANELLI			?
	REGIO EMILIA	CAVAZZOLI			?
		MASSENZATICO			?
		VIALE RISORGIMENTO			?
		VIALE TIMAVO			?
	TORINO	VIA CONSOLATA			?
		CORSO VERCELLI			?

Measures expressed in µg/m3

* Article 3 zone

N.C. not communicated
T traffic
C commercial
R residential
I industrial

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