

**Bestandsaufnahme der Emissionen
versauernder und eutrophierender
Schadstoffe sowie der
Ozonvorläufersubstanzen von 1990 - 2001**

**Berichterstattung gemäß Richtlinie 2001/81/EG des
Europäischen Parlaments und des Rates**



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VORWORT

Der vorliegende Bericht präsentiert eine Zusammenfassung der Daten zur Erfüllung der Richtlinie 2001/81/EG des Europäischen Parlaments und des Rates vom 23. Oktober 2001 über nationale Emissionshöchstmengen für bestimmte Luftschadstoffe (SO₂, NO_x, NMVOC, NH₃). Nach der englischen Bezeichnung "national emission ceilings" ist sie auch als "NEC-Richtlinie" bekannt. Sie legt für die einzelnen Mitgliedstaaten verbindliche nationale Emissionshöchstgrenzen ab dem Jahr 2010 fest. Für Österreich gelten folgende Werte:

Tabelle1: Nationale Emissionshöchstgrenzen für Österreich

	Zielwerte 2010 (in 1000 t)
SO ₂	39
NO _x	103
NH ₃	66
VOC	159

Anhang III der Richtlinie sieht die Erstellung der Inventur unter Anwendung jener Verfahren vor, welche im Rahmen des Übereinkommens über weiträumige grenzüberschreitende Luftverunreinigung vereinbart wurden. Zur Ermittlung der Daten wurde das gemeinsame Handbuch von EMEP/CORINAIR¹ angewandt. Die Darstellung erfolgt im neuen NFR-Format² der UNECE.

Im Anschluß an dieses Vorwort wird der von der Republik Österreich an die Europäische Kommission zu übermittelnde Emissionsbericht in englischer Sprache wiedergegeben. Es handelt sich hierbei um eine Zusammenfassung der wichtigsten Daten mit Anführung der wesentlichsten methodischen Änderungen.

Dieser Bericht enthält im Anhang Überblickstabellen für die Schadstoffe SO₂, NO₂, NH₃, und NMVOC. Der vollständige Datensatz wird der Europäischen Kommission in digitaler Form übermittelt. Das Umweltbundesamt wird nächstes Jahr eine detaillierte Darstellung der (in der diesjährigen Inventur) angewandten Methodik in einem eigenen Bericht ("Informative Inventory Report 2003 – Submission under the UNECE/ CLRTAP Convention") veröffentlichen. Der heuer erstmals erstellte "Informative Inventory Report 2002" wird der Kommission zusammen mit diesem Bericht in elektronischer Form übermittelt.

Der vorliegende Bericht wurde vom Umweltbundesamt auf Grundlage des Umweltkontrollgesetzes BGBl. Nr. 152/1998 erstellt. Der Umweltbundesamt GmbH wird in diesem Bundesgesetz in § 6 (2) Z.19 unter anderem die Aufgabe übertragen, an der Erfüllung der Berichtspflichten an die Europäische Kommission gemäß Richtlinien und Entscheidungen der EG mitzuwirken. In § 6 (2) Z.20 werden die Entwicklung und Führung von Inventuren und Bilanzen zur Dokumentation des Zustandes und der Entwicklung der Umwelt sowie der Umweltbelastungen und ihrer Ursachen ausdrücklich als besondere Aufgaben des Umweltbundesamtes genannt.

¹ EMEP/CORINAIR Emission Inventory Guidebook. Third edition. Prepared by the EMEP Task Force on Emission Inventories. October 2002 update. Internet site: <http://reports.eea.eu.int>

² Nomenclature For Reporting

Das Umweltbundesamt versteht den vorliegenden Bericht als Beitrag im Rahmen der Wahrnehmung seiner Funktion als Umweltschutzfachstelle des Bundes in Erfüllung der ihm im Umweltkontrollgesetz zugewiesenen Kompetenzen.

Datengrundlage

Das Umweltbundesamt führt jährlich eine Inventur des Ausstoßes von Luftschadstoffen durch, die als Grundlage für die Erfüllung der nationalen und internationalen Berichtspflichten herangezogen wird. Diese *Österreichische Luftschadstoff-Inventur* (OLI) wird erforderlichenfalls auch für zurückliegende Jahre aktualisiert, um eine konsistente Zeitreihe zur Verfügung zu haben. Die in diesem Bericht dargestellten Emissionsdaten ersetzen somit die publizierten Daten vorhergehender Berichte.

Tabelle 2 fasst den Stand der Daten und das Berichtsformat des vorliegenden Berichtes zusammen.

Tabelle 2: Datengrundlage des vorliegenden Berichtes

<i>Inventur</i>	<i>Datenstand</i>	<i>Berichtsformat</i>
OLI 2002	Dezember 2002	NFR-Format der UNECE

**AUSTRIA'S
NATIONAL AIR EMISSIONS INVENTORY
1990 - 2001**

Submission under the Directive 2001/81/EC
on national emission ceilings for certain atmospheric pollutants

Title of Inventory	<i>Austria's Annual National Inventory 1990-2001 on acidifying and eutrophying emissions and ozone precursors</i>
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Vienna, December 2002

Prepared by the Austrian Federal Environment Agency

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1 INTRODUCTION

This report presents a summary of Austria's Annual National Inventory 1990-2001 on acidifying and eutrophying emissions and ozone precursors. The inventory is submitted to the Commission by the Austrian Federal Government in fulfilment of Austria's annual reporting obligation under Directive 2001/81/EC of the European Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants. In Table 1 Austria's National Emission Ceilings are listed:

Table 1: Austria's National Emission Ceilings 2010

	Emission Ceilings 2010 (1000 t)
SO ₂	39
NO _x	103
NH ₃	66
VOC	159

Basis of this report is the Austrian Air Emission Inventory 2002 (Österreichische Luftschadstoff-Inventur, OLI 2002) prepared by the Federal Environment Agency Austria for the years 1990 to 2001. According to Annex III of the Directive 2001/81/EC, the Member States shall establish emission inventories and projections using the methodologies agreed upon by the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP). Thus they are requested to use the joint EMEP/CORINAIR³ guidebook in preparing these inventories and projections. Table 2 shows the summary of Austria's NEC-emissions 2001:

Table 2: Summary of Austria's NEC-emissions 1990-2001 (1000 t)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
SO ₂	78,68	71,67	59,09	57,91	51,63	52,01	51,16	45,77	42,99	38,99	38,05	36,67
NO _x	203,88	209,16	200,46	196,98	190,63	188,15	206,64	194,70	203,00	192,55	196,38	199,40
NH ₃	52,27	53,41	49,92	56,45	57,53	56,88	55,54	56,86	56,14	54,94	53,72	53,72
NM ₂ VOC	344,78	322,72	293,17	282,02	269,97	271,13	268,68	249,86	242,49	236,86	231,51	232,25

In 2002 the Executive Body adopted new guidelines for estimating and reporting emission data to further improve transparency, consistency, comparability, completeness and accuracy of reported emissions. The new guidelines define the format for reporting of emission data (Nomenclature For Reporting / NFR) and offer guidance on how to provide supporting documentation. They specify minimum and additional reporting obligations.

Annex 1 of this report presents trend tables of SO_x, NO_x, NH₃ and NMVOC. The complete tables of the NFR-Format, including in particular sectoral reports and sectoral background tables are submitted to the European Commission separately in digital form only (excel files).

Following an recommendation of the guidelines mentioned above, this year the Federal Environment Agency has provided an "Informative Inventory Report 2002 – Submission under the UNECE/ CLRTAP Convention" for the first time. This new report contains detailed and complete background information on the compilation of the 2001 emission inventory for NO_x and is submitted to the European Commission together with this report in digital form. The "Informative Inventory Report 2003" will be published next year and is planned to address NH₃, SO₂ and NMVOC.

³ EMEP/CORINAIR Emission Inventory Guidebook. Third edition. Prepared by the EMEP Task Force on Emission Inventories. October 2002 update. Internet site: <http://reports.eea.eu.int>

2 RELATION WITH EARLIER REPORTED DATA

The emission data reported in this submission (for each of the years from 1990 to 2001) are revised and updated data, derived in line with the most recent findings on the comprehensive estimation of emissions.

The most substantial revision of this submission is the generation of completely new, consistent time series of the energy balance by STATISTIK AUSTRIA. The national energy balance is the main data supplier for the underlying energy source data. Its activity data are the basis for the calculation of the vast majority of the energy-induced emissions. Thus it have been mainly the revisions of the energy balance, which considerably changed the trend of Austria's emissions.

Improvements in the sector "Agriculture" resulted in significant changes of NH₃ emissions.

The figures presented in this report replace data reported earlier by the Austrian Federal Government under the reporting framework of the UNECE/CLRTAP and NEC-Directive of the European Union.

3 SOURCES OF DATA

- The energy balance of STATISTIK AUSTRIA is the main data supplier of Austria's Greenhouse Gas Inventory.
- Information about activity data and emissions for the industry sector is submitted to the Federal Environment Agency by the Association of the Austrian Industries.
- Operators of steam boilers of public electricity and heating plants with more than 50 MW report their emissions and activity data to the UBAVIE. Emissions of the pollutants addressed in the inventory are calculated on the basis of these reported data.
- Operators of landfill sites report their activity data directly to UBAVIE. Emissions of the years 1998-2001 are calculated on the basis of these data.
- Non energetic emissions are estimated by means of statistical data as well as by national and international studies.

4 METHODOLOGICAL CHANGES WITH RESPECT TO THE PREVIOUS UNECE-SUBMISSION

This chapter describes the methodological changes made to the inventory since the previous submission. Further background information and a complete description of the 2002 inventory will be given in the "Informative Inventory 2003" published next year. A detailed description of the 2001 submission for NO_x is included in the new "Informative Inventory Report 2002" which is submitted together with this report in digital form.

ENERGY (1A)

Energy Balance

Until the previous submission 2002 the main data suppliers for the underlying energy source data were the Austrian Institute for Economic Research (WIFO) for the period 1980-1995 and STATISTIK AUSTRIA for the period 1996-2000.

This year STATISTIK AUSTRIA compiled a new energy balance in the IEA format on the basis of the old WIFO energy balance and new information from industry. Inconsistencies of the old energy balance time series were eliminated. More detailed fuel types are another benefit of the new energy balance.

Revisions of the national energy balance have a great influence on the national emission trend. In comparison to the submission from January 2002 lower energy related emissions have been estimated for the base year and the whole time series.

Public Electricity and Heat Production (1A1a)

Total fuel consumption has been taken from the new energy balance. In comparison with previous energy balances it reports a considerably lower consumption of fuel oil of thermoelectric power conversion (-250.000 t).

For the year 2000 the emission declarations of combustion plants ≥ 50 MW have been updated. Emissions of waste incineration for energy purposes reported in the previous submission under categories 6C1 and 1A5 are now reported under category 1A1a. Natural gas so far double counted under categories 1A1a and 1A1b is now reported in sector 1A1b only.

Petroleum refining (1A1b)

Liquid fuel consumption of refineries has been taken from the new energy balance. Natural gas consumption which in previous submissions was allocated under category 1A2f is now reported under category 1A1b.

Manufacture of Solid Fuels and Other Energy Industries (1A1c)

Emissions from coal consumption of the mining industry which formerly were included in category 1A2f are now included in category 1A1c.

Manufacturing Industries and Construction (1A2)

Emissions from the different industry branches so far included under category 1A2f are now reported under the corresponding categories 1A2b to 1A2e.

Iron and steel (1A2a)

Energy consumption of iron and steel industry has been updated according to the new energy balance and information of the plant operators. Natural gas and residual fuel oil consumption which in previous submissions were considered under category 1A2f are now reported under category 1A2a.

Industry-Other (1A2f)

In previous submissions all emissions from fuel combustion in industry except iron and steel industry were included in category 1A2f. In this submission only emissions from industry which are not considered under the categories 1A2a to 1A2e are included.

The new energy balance includes a more detailed description of fuel application increasing transparency and thus avoiding double counting of previous submissions under sector 1A2f:

Coke:

Coke so far double counted under categories 1A2f and 1A2a is now reported in sector 1A2a only.

Fuel oil:

Fuel oil so far double counted under categories 1A2f and 1A2a is now reported in sector 1A2a only.

Natural gas

Natural gas so far double counted under categories 1A2f and 1A2a is now reported in sector 1A2a only.

Aviation (1A3a)

The following study is the basis of the recalculations of NO_x, SO₂ and VOC emissions:

Kalivoda M., Kudrna M.: "Air Traffic Emission Calculation for Austria 1990-2000"; on contract to the Federal Environment Agency Austria, 2002. Unpublished report.

In this new study emissions from aviation have been recalculated for the time series 1990 to 2000. The study has been performed to improve the accuracy of data concerning the movements and associated emissions.

NO_x, VOC and SO₂:

For the air transport class IFR (Instrument Flight Rules) the very detailed methodology from the CORINAIR guidebook in an advanced version has been used (based on the MEET model⁴). Emissions for VFR (Visual Flight Rules) have been calculated using average emission factors, an average fuel flow per hour and annual flight hours reported from Austrocontrol. For military flights the consumed fuel and average emission factors have been used. The calculation of the emissions of military flights does not distinguish between LTO and cruise.

The number of LTO cycles has been reported by STATISTIK AUSTRIA. The split international/national LTOs has been calculated by disaggregating the total number of movements according to the ratio of fuel used for IFR domestic LTO and IFR international LTO (assuming an equal fuel consumption for domestic and international LTO).

Assignment of the calculated emissions to the SNAP codes:

The SNAP category "Domestic LTO" includes emissions from IFR domestic LTO, VFR and Military. The SNAP category "international LTO" corresponds with the IFR international LTO. The SNAP category "domestic cruise" corresponds with the IFR domestic cruise. The SNAP category "international cruise" corresponds with the IFR international cruise but is adjusted for reasons of conformity with national energy statistics.

Calculation for 2001:

The same emission factors and fuel allocation as in the year 2000 have been used. For the total fuel consumption, new data reported by STATISTIK AUSTRIA have been used.

⁴ European Commission: „MEET – Methodology for calculating transport emissions and energy consumption“; DG VII, European Communities, Belgium 1999.

Road Transportation (1A3b)

The driving pattern of the vehicle fleet has been recalculated for the whole time series, taking into account the heavy increase of diesel vehicles share in the Austrian passenger car fleet. As a result, total fuel consumption and emissions (especially NO_x and particles) of passenger cars have increased. Emission factors for passenger cars have not been recalculated.

Due to new data on the driving behaviour in Austria the number of starts per vehicle and day have changed. The cold start emissions have been recalculated.

On the basis of following study, emission factors for heavy duty vehicles (especially for EURO 2 and EURO 3 vehicles) have been revised:

Hausberger, St.: „Update of the Emission Functions for Heavy Duty Vehicles in the Handbook Emission Factors for Road Traffic“; on contract to the Federal Environment Agency Austria, 2002; Unpublished report.

Other Sectors (1A4)

Energy consumption and disaggregation to sub categories have been updated according to the new energy balance.

INDUSTRIAL PROCESSES (2)

Mineral Products (2A): Asphalt Roofing (2A5), Road Paving with Asphalt (2A6)

Other Production (2D): Pulp and Paper (2D1), Chipboard (2D1), Food and Drink (2D2)

Activity data have been updated using updated statistical data.

WASTE (6)

Solid Waste Disposal on Land - Managed Waste Disposal (6A1)

From 1998 on all operators of landfill sites have to report their activity data directly to UBAVIE (*Deponieverordnungsdatenbank* - Austrian disposal database). Emissions from 1998 to 2001 have been recalculated on the basis of these data.

Waste Incineration – Incineration of Municipal/Industrial Wastes (6C)

Emissions of waste incineration for energy purposes reported in previous submissions under category 6C are now reported under category 1A1a.

AGRICULTURE (4)

In the previous inventory a very simple methodology using default and constant (for soils: area- based) emission factors was applied. In 2001, UBAVIE contracted the Austrian Research Center Seibersdorf and the Institute for Land-, Environment- and Energy Engineering of the University of Agriculture Vienna to develop new emission estimates for the sectors “Enteric Fermentation”, “Manure Management” and “Agricultural Soils”.

Following studies are the basis of the revised data:

- Gebetsroither, E.; Orthofer, R. & Strebl, F. (2002): Greenhouse Gas Emissions from Agricultural Soils in Austria. ARC Seibersdorf research. Revised version. November 2002.
- Gebetsroither, E.; Orthofer, R. & Strebl, F., (2002): Greenhouse Gas Emissions from Enteric Fermentation in Austria. ARC Seibersdorf research. July 2002.
- Amon B.; Amon T. & Hopfner-Sixt K. (2002): Emission Inventory for the Agricultural Sector in Austria - Manure Management. Institute of Agricultural, Environmental and Energy Engineering (BOKU – University of Agriculture, Vienna). July 2002.

For the first time NH₃ and NO_x-emissions from fertilized and unfertilized cultures were estimated as well as VOC-emissions from agricultural vegetation. Furthermore new counting methods resulted in changes of the activity data in the livestock categories cattle, sheep, fattening pigs and poultry. The consistency of the time series still needs further improvement.

5 METHOD OF REPORTING AND DATA BASIS

Austria, as many other European Countries, uses the CORINAIR calculation method (CORE INventory AIR) for quantifying national emissions. The CORINAIR system is designed to report air emissions from the EC and Phare countries to the European Environment Agency in a common format. This common European-wide database is applied for the preparation of specific inventories in accordance with the guidelines under the UNECE/CLRTAP and UNFCCC.

Similar to the IPCC categories, the CORINAIR system has its own nomenclature, called SNAP (Selected Nomenclature for sources of Air Pollution). This nomenclature is designed to estimate not only emissions of greenhouse gases but all kind of air pollutants. The specification of the SNAP categories has to be revised continuously due to new reporting requirements. The current SNAP code version used is SNAP 97. The results are presented in CollectER databases on the EIONET. Each database stores one year of the time series and can be read by using the CollectER V1.3 Software. The databases also include information about non-GHG air pollutants which are needed for reporting to other conventions. The Austrian Federal Environment Agency uses internally an expert system, which is a combination of an Access database and Excel sheets. This system is more comprehensive and more flexible than the CollectER databases.

The national project covering the entire present estimation of Air Emissions in Austria during the reported period is the Austrian Air Emission Inventory (*Österreichische Luftschadstoff-Inventur - OLI*). The OLI figures for Austria's national emissions resulting from this project have been transferred to the NFR-Format using CORINAIR standard procedures, in order to comply with NEC (respectively UNECE) reporting obligations to ensure comparability of the reported data.

The complete tables of the NFR-Format, including in particular Sectoral Reports and Sectoral Background Tables are submitted separately in digital form only (excel files). In this report the NFR-Summary Tables are presented in Annex 1.

The following table summarises the status of the present report:

Table 3: Status of the present report

<i>Reporting Obligation</i>	<i>Format</i>	<i>Inventory</i>	<i>Version</i>
NEC-Directive	NFR-Format (UNECE)	OLI 2002	December 2002

6 ANNEX 1

In Annex 1 trend tables of SO_x, NO_x, NH₃ and NMVOC are presented. The complete tables of the NFR-Format, including in particular Sectoral Reports and Sectoral Background Tables are submitted separately in digital form only (excel files).

In this report the following notation keys are used for all tables:

“**NO**” (not occurring) for emissions by sources of compounds that do not occur for a particular compound or source category within a country.

“**NE**” (not estimated) for existing emissions by sources of compounds that have not been estimated.

“**IE**” (included elsewhere) for emissions by sources of compounds that are estimated but included elsewhere in the inventory instead of in the expected source category.

“**0**” for emissions by sources of compounds which are estimated to be less than one half the unit being used to record the inventory table and which therefore appear as zero after rounding.

Trend table 1: SO_x [Gg]

NFR sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1 ENERGY	68,12	62,34	51,11	49,59	42,83	43,61	41,83	36,10	34,16	30,33	29,82	27,97
1 A FUEL COMBUSTION ACTIVITIES	66,12	61,04	49,11	47,49	41,55	42,08	40,63	36,03	34,11	30,19	29,67	27,81
1 B FUGITIVE EMISSIONS FROM FUELS	2,00	1,30	2,00	2,10	1,28	1,53	1,20	0,07	0,04	0,14	0,15	0,16
2 INDUSTRIAL PROCESSES	10,49	9,27	7,95	8,28	8,76	8,35	9,28	9,62	8,78	8,60	8,17	8,64
3 SOLVENT AND OTHER PRODUCT USE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4 AGRICULTURE	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
5 LAND USE CHANGE AND FORESTRY	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6 WASTE	0,06	0,05	0,03	0,04	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
7 OTHER	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NATIONAL TOTAL	78,68	71,67	59,09	57,91	51,63	52,01	51,16	45,77	42,99	38,99	38,05	36,67
International Bunkers	0,28	0,32	0,34	0,36	0,38	0,42	0,47	0,48	0,50	0,49	0,53	0,51

Trend table 2: NO_x [Gg]

NFR sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1 ENERGY	181,2	186,1	179,0	174,5	167,9	167,0	186,1	173,8	182,9	172,5	176,7	179,7
1 A FUEL COMBUSTION ACTIVITIES	181,2	186,1	179,0	174,5	167,9	167,0	186,1	173,8	182,9	172,5	176,7	179,7
1 B FUGITIVE EMISSIONS FROM FUELS	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
2 INDUSTRIAL PROCESSES	17,4	17,5	16,8	17,1	16,8	15,8	15,3	15,3	14,9	14,9	14,6	14,6
3 SOLVENT AND OTHER PRODUCT USE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4 AGRICULTURE	5,2	5,6	4,6	5,4	5,9	5,4	5,2	5,5	5,2	5,1	5,1	5,0
5 LAND USE CHANGE AND FORESTRY	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6 WASTE	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
7 OTHER	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NATIONAL TOTAL	203,9	209,2	200,5	197,0	190,6	188,1	206,6	194,7	203,0	192,5	196,4	199,4
International Bunkers	2,8	3,1	3,4	3,6	3,8	4,2	4,7	4,8	5,0	4,9	5,4	5,2

Trend table 3: NH₃ [Gg]

NFR sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1 ENERGY	1,27	1,41	1,42	1,53	1,50	1,54	1,62	1,57	1,57	1,52	1,41	1,50
1 A FUEL COMBUSTION ACTIVITIES	1,27	1,41	1,42	1,53	1,50	1,54	1,62	1,57	1,57	1,52	1,41	1,50
1 B FUGITIVE EMISSIONS FROM FUELS	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE	IE
2 INDUSTRIAL PROCESSES	0,18	0,17	0,16	0,17	0,13	0,10	0,09	0,10	0,10	0,12	0,10	0,08
3 SOLVENT AND OTHER PRODUCT USE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
4 AGRICULTURE	50,80	51,82	48,33	54,74	55,89	55,24	53,81	55,18	54,47	53,30	52,20	52,14
5 LAND USE CHANGE AND FORESTRY	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6 WASTE	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
7 OTHER	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NATIONAL TOTAL	52,27	53,41	49,92	56,45	57,53	56,88	55,54	56,86	56,14	54,94	53,72	53,72
International Bunkers	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Trend table 4: NMVOC [Gg]

NFR sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1 ENERGY	158,2	162,3	149,0	143,0	130,3	125,6	123,7	96,4	92,6	86,7	81,7	82,4
1 A FUEL COMBUSTION ACTIVITIES	149,4	152,7	139,3	133,3	123,1	119,2	118,1	91,4	88,0	83,0	78,0	78,8
1 B FUGITIVE EMISSIONS FROM FUELS	8,8	9,6	9,7	9,7	7,2	6,4	5,5	5,0	4,6	3,7	3,7	3,6
2 INDUSTRIAL PROCESSES	16,7	18,2	19,7	21,2	21,6	21,2	21,3	21,2	20,8	21,1	20,8	20,7
3 SOLVENT AND OTHER PRODUCT USE	167,7	140,0	122,4	115,8	116,0	122,1	121,6	130,1	126,9	126,9	126,9	126,9
4 AGRICULTURE	1,9	1,9	1,9	1,8	1,9	1,9	1,9	2,0	1,9	2,0	1,9	1,9
5 LAND USE CHANGE AND FORESTRY	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
6 WASTE	0,3	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
7 OTHER	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
NATIONAL TOTAL	344,8	322,7	293,2	282,0	270,0	271,1	268,7	249,9	242,5	236,9	231,5	232,3
International Bunkers	0,3	0,3	0,4	0,4	0,4	0,5	0,5	0,6	0,7	0,6	0,7	0,6