

# EU EMISSIONS TRADING SCHEME – ANNUAL EMISSIONS REPORT

## GUIDANCE TO OPERATORS FOR COMPLETION OF FORM ETS7

(Issue 7, 29-10-09)

### **Introduction**

This guidance is intended to help Operators in completion of Form ETS7 (Annual Emissions Reporting Form) to meet their annual reporting requirements as defined within the EC Monitoring and Reporting Guidelines, Annex I, Section 8 and Section 14 and Annex IV of the Emissions Trading Directive. Form ETS7, together with this Guidance, is designed to lead you, stepwise, through the EC's requirements for Annual Emissions Reports.

Full details of reporting requirements are laid out in the European Commission's Monitoring and Reporting Guidelines (Commission Decision of 18 July 2007/589/EC). Operators should refer to these Monitoring and Reporting Guidelines where further clarification of the guidance provided herein is required e.g. for definitions of 'source streams' emission sources', 'tiers' etc.

Form ETS7 and this Guidance comprise four Parts:

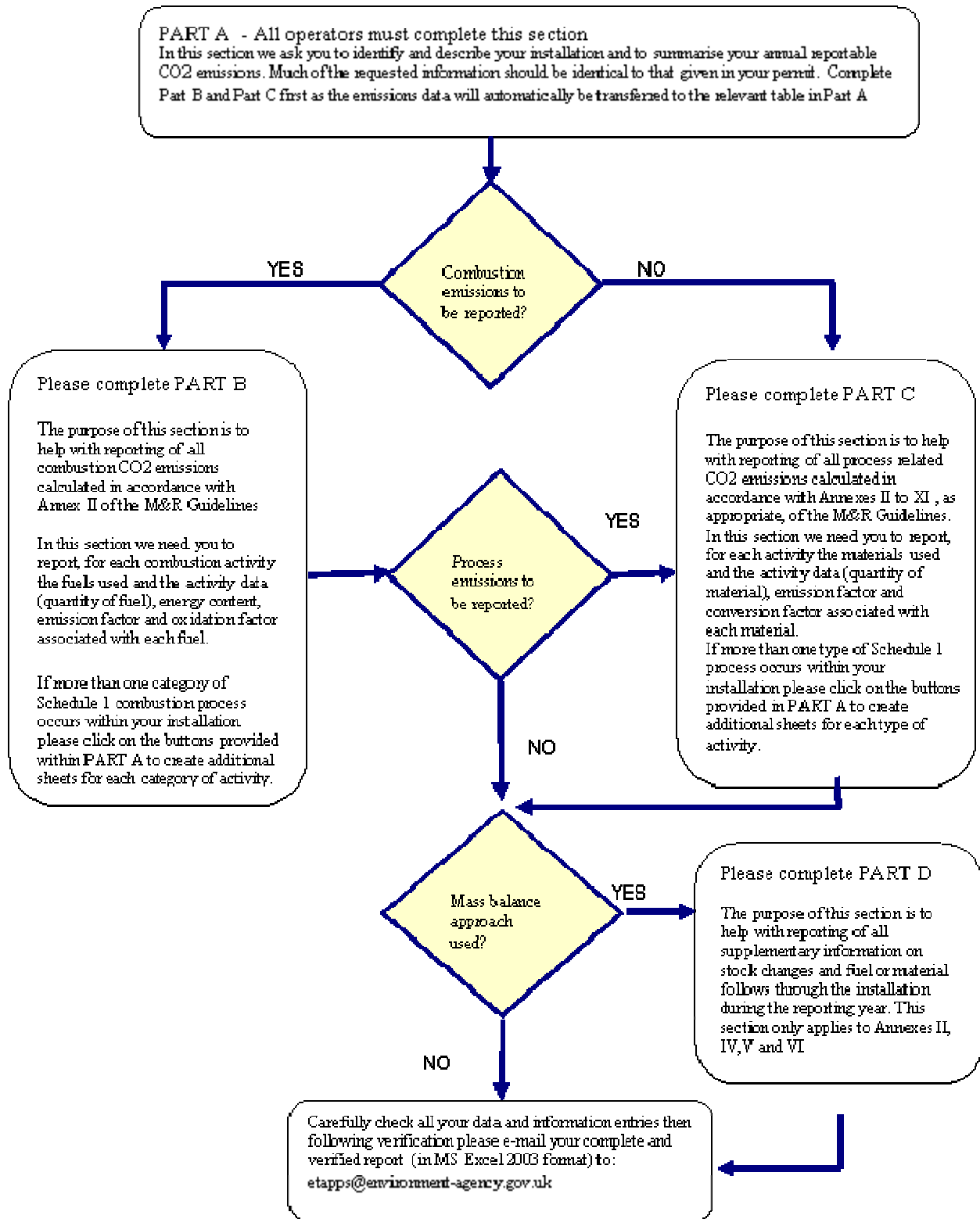
- ❑ Part A to provide identification of the installation, a summary of emissions, activities and the monitoring tiers employed;
- ❑ Part B to provide information on carbon dioxide emissions from combustion activities;
- ❑ Part C to provide information on process related carbon dioxide emissions; and
- ❑ Part D to provide supplementary information, to that provided in either Parts A or B, where a mass balance approach has been employed.

The Form also includes two Annexes containing information to assist you with completion of your report.

A schematic overview of how to complete the form is provided in Figure 1 and detailed guidance is provided in the following pages. If you need further advice on how to complete ETS7 or if you have comments on how ETS7 could be improved then please contact the Northern Ireland Environment Agency via [emissions.trading@doeni.gov.uk](mailto:emissions.trading@doeni.gov.uk)

Note: When opening the form in Excel 2007 where a security warning appears at the top of the page you will need to click on this and from the options select enable content, to enable the macros to work. Forms will need to be saved as Excel 2003 or earlier for submission to the Northern Ireland Environment Agency.

**Figure 1 Schematic of how to complete Form ETS7**



# PART A

**Part A is to be completed by all operators reporting emissions from Schedule 1 combustion or process sources within their installation**

## A1 Identification of installation (M&RG Section 14.1)

### Section A1.1

You are asked to provide your emission trading permit and National Allocation Plan (NAP) numbers. The permit number entered should be the last 4 digits of the permit reference listed on the permit, if entered correctly the NAP number, operator and installation names should be populated automatically. This information enables the competent authority to relate your Annual Emissions Report to your ETS permit and Registry account. This applies only to England and Wales, Northern Ireland participants must manually enter their details.

### Section A1.2

Please confirm the Operator name is correct. This should be identical to that stated within your ETS permit.

### Section A1.3

You are asked to confirm the installation name and the site name and address. These must be identical to those given in your ETS permit.

### Section A1.4

Please identify a person and their job title together with their contact details that we can contact directly should we have any questions about your emissions report. If the contact person is an employee of the installation subject to this plan then leave the first row of the box blank. However, if the contact person is an agent (e.g. consultant) acting on your behalf then the name of the Agent's organization should be given.

### Section A1.5

Please identify, by clicking on the relevant boxes, the activities that are included within your installation.

### Section A1.6

Select, by clicking on the "select" box, the relevant reporting year from the list provided i.e. the year in which the reported emissions occurred.

#### A1.6 What is the reporting year?

*Please click on the box below then select the relevant reporting date (the year in which the emissions occurred).*

|        |
|--------|
| select |
| select |
| 2008   |
| 2009   |
| 2010   |
| 2011   |
| 2012   |

## A2 Overview of activities and emissions within an installation (M&RG section 14.2)

Section A2 presents a summary of the annual emissions data reported in the subsequent parts of the form. The form provides some automation in the transfer of data from Parts B and C to Section A2. You are therefore advised to complete Parts B/C prior to completing Section A2.

### Section A2.1

Please complete Part B and Part C before you complete this table.

#### Row ID

The Row ID is populated automatically.

Row ID 1 to 5 refer to Part B combustion (1) to Part B Combustion (5)  
 Row ID 6 to 10 refer to Part C Processes (1) to Part C Processes (5)

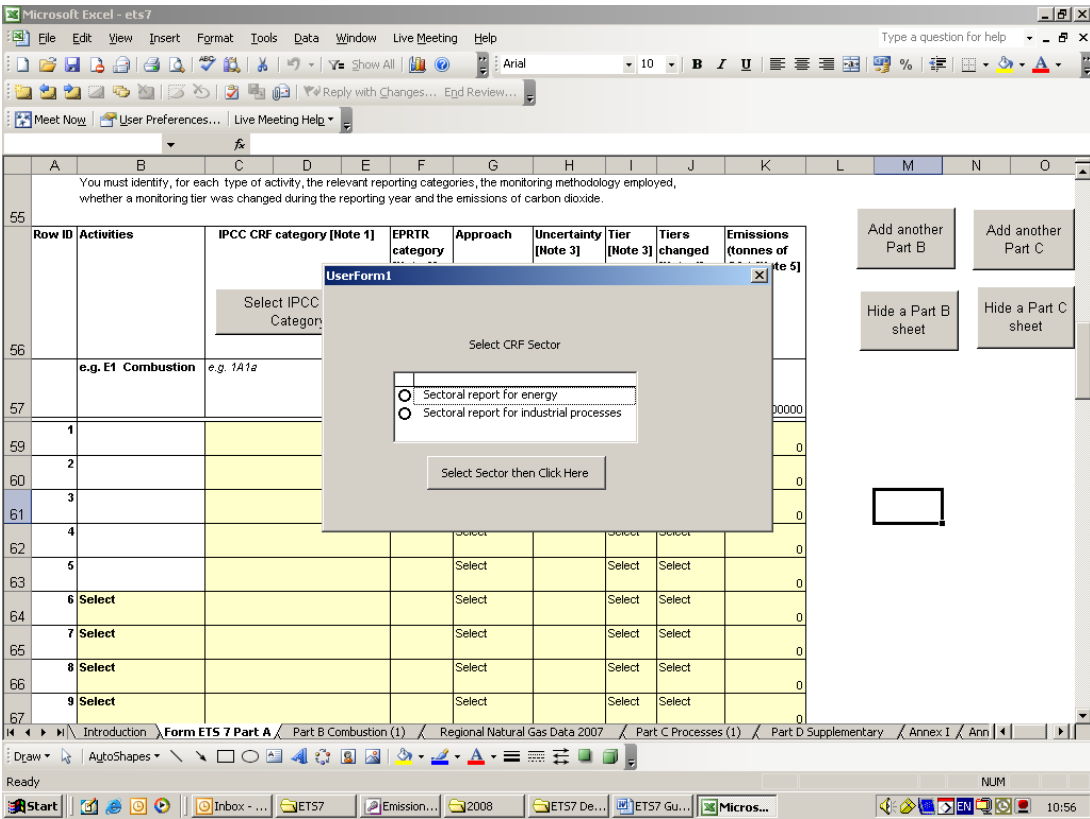
Normally only sheets Part B Combustions (1) and Part C Processes (1) would be used. The data from these sheets is automatically transferred to Row ID 1 and Row ID 6 respectively in this table. If additional sheets are used, the data from the sheets will also be transferred to the relevant Row ID.

#### Activities/Categories

The “Activities” category will be transferred from the Part B Combustion (Row ID 1 to 5) and Part C Processes sheets (Row ID 6 to 10).

#### IPCC CRF category

Click on the “Select IPCC CRF category”. You will be presented with a series of sector and sub sector choices. See the example below. Select the categories appropriate to the emissions you are reporting for each Row ID. You will be presented with the appropriate sub sectors based on your previous selections. Once you have been taken through all the appropriate sectors and sub sectors, you will be presented with a text box asking which Row ID your selections refer to. Enter the Row ID number you wish the category to be entered in. The category based on your selections will automatically be entered into the selected Row ID. Free text can also be added to these boxes so if the sector is “Other (please specify)”, then you can add the information accordingly.



### **EPTR category**

The EPTR category is entered in exactly the same way as the IPCC CRF. Make your selections and select the relevant Row ID that you wish the category based on your selections to be entered into.

If there is no appropriate code for your type of installation then simply type 'N/A' into the appropriate box.

#### **Note**

The MRG states:-

"EPTR Emissions shall be reported according to the following categories of the Reporting Format and the IPCC code of Annex I of the EPTR Regulation EC 166/2006 (see Section 15.2 of this Annex). The specific categories of both reporting formats are shown below. Where an activity could be classified under two or more categories the selected classification shall reflect the primary purpose of the activity." The lists are reproduced in Annex I and II of the ETS7 Form.

### **Approach**

The applied approach will be "Calculation" for Row ID 1 to 10. Row ID 11 is reserved for the "Measurement" approach.

#### **Note**

'Measurement' means direct measurement of flue gases using a continuous emission monitoring system (CEMS).

'Calculation' means application of the formulae given in Annexes II to XI, as appropriate, of the EC monitoring and reporting Guidelines.

### **Uncertainty**

Only complete these boxes if your CO<sub>2</sub> emissions have been determined through direct measurement (see note in the box above). Uncertainty should be expressed as a percentage of the overall emission value that is to be reported in the final column of Table 2.1. This option is only available in Row ID 11 which is reserved for the "Measurement" approach.

### **Tier**

Only complete these boxes if your CO<sub>2</sub> emissions have been determined through direct measurement (see note in the box above). Select the appropriate tier from the drop down box. This option is only available in Row ID 11 which is reserved for the "Measurement" approach.

### **Tiers changed**

Please select 'yes' or 'no' as appropriate. If any of the monitoring tiers as specified in the appropriate Annex of the EC Monitoring and Reporting Guidelines (Annexes II to XII) have changed during the reporting period, either temporary or permanent changes, then you must select 'yes'. Details of these changes are to be provided in section A3.

### **Emissions**

Emissions will be automatically transferred from the appropriate, completed Part Bs and Part Cs and will be rounded only after the total has been summed.

### **Section A2.2**

Please identify, by clicking on the appropriate box, whether you have used biomass that has been used as a fuel or material during the reporting year. If 'yes' then you must complete the following table. If 'no' then please proceed directly to A2.3.

#### **Completion of table A2.2**

##### **Row ID**

Select the Row ID that refers to the relevant biomass combustion from Table A2.1

##### **Activities/Categories**

Please select the appropriate activity category (e.g. Energy Activities) by clicking on "select" and choosing a category from those listed. You must use a new row for each type of activity.

**Biomass employed in combustion (TJ)**

The tera joules will be automatically transferred from the relevant combustion or processes sheet based on the Row ID selection

**Biomass employed in Process**

Please insert the amount of biomass employed in your process in terms of tonnes or m<sup>3</sup>, as appropriate. If no biomass was used in your process(es) please type in 'N/A' or 'not applicable'.

**Emissions of CO<sub>2</sub> (tonnes of CO<sub>2</sub>)**

If measured by CEMS [see Note 1]

**Section A2.3**

In this section you are required to identify, for each appropriate activity, how much CO<sub>2</sub> (in terms of tonnes) were transferred out of your installation during the reporting period and in what type of compounds or form was the CO<sub>2</sub> transferred (see the table below)

Select the Activity/Category and if the CO<sub>2</sub> is Inherent or Transferred. The CO<sub>2</sub> transferred or Inherent can only be subtracted from your emissions if it has been accounted for in your emissions calculations but has not actually been emitted.

In the e.g.1 in the table below, the transferred CO<sub>2</sub> can be subtracted if:

1. the combustion CO<sub>2</sub> emissions are calculated based on the fuel used; and
2. the emitted gasses are processed to remove the CO<sub>2</sub> to produce compressed CO<sub>2</sub> for sale.

The reportable CO<sub>2</sub> would then be the calculated CO<sub>2</sub> emissions minus the transferred CO<sub>2</sub>.

In the e.g.2 in the table below, the Inherent CO<sub>2</sub> cannot be subtracted from the reportable emissions as it is merely inherent in the Blast Furnace gas produced by the operator that is being exported. The operator will not have reported this CO<sub>2</sub> in their emissions report as it has been exported and not combusted. The Inherent CO<sub>2</sub> will be included in the Emissions Factor by the end user and reported as part of their emissions report. (See M&R Guidelines Sections 5.5 and 5.7 to find more context on what constitutes inherent and transferred CO<sub>2</sub>).

| Row ID | Activity/category                                          | Amount transferred /Inherent (tonnes CO <sub>2</sub> ) | Transferred/Inherent | Transferred material or fuel(description)                               |
|--------|------------------------------------------------------------|--------------------------------------------------------|----------------------|-------------------------------------------------------------------------|
| e.g. 1 | <i>e.g. Other activities</i>                               | 22                                                     | <i>Transferred</i>   | 99% pure CO <sub>2</sub> sold as a compressed gas                       |
| e.g. 2 | <i>e.g.2 Production &amp; processing of ferrous metals</i> | 10                                                     | <i>Inherent</i>      | Inherent CO <sub>2</sub> in Blast Furnace gas sold to other EU ETS site |
| Select | Select                                                     |                                                        | Select               |                                                                         |
| Select | Select                                                     |                                                        | Select               |                                                                         |
| Select | Select                                                     |                                                        | Select               |                                                                         |

**Reporting Deducted CO<sub>2</sub>.**

If it has been agreed that the transferred or inherent CO<sub>2</sub> can be deducted for the reportable CO<sub>2</sub> emissions then it should be included in as a separate source stream in the "Part B Combustion" or "Part C Processes" emissions. The tonnes CO<sub>2</sub> to be deducted should be calculated as agreed in your permit.

The "Part B Combustion" sheets have an automatic calculation as described later in this guidance. This needs to be overridden to allow the deduction of the transferred or inherent CO<sub>2</sub>. To do this all you need to do is select "tCO<sub>2</sub> Deduct" as the activity data units. Then enter the tCO<sub>2</sub> to be deducted as the Activity data. The tCO<sub>2</sub> will be turned into a negative figure in the tCO<sub>2</sub> emissions for that block

so it will be deducted from the total CO2 emissions. Select “Transferred or all the Units and Tiers as shown in the example below.

|                                                             |                  |             |                     |          |
|-------------------------------------------------------------|------------------|-------------|---------------------|----------|
| <b>Block</b>                                                |                  |             |                     | <b>1</b> |
| <b>Type of fuel:</b>                                        | Select           |             |                     |          |
| <b>Sources included</b>                                     |                  |             |                     |          |
| <b>Waste catalogue number (where applicable) See Note 1</b> | Select           |             |                     |          |
| <b>Parameter</b>                                            | <b>Units</b>     | <b>Data</b> | <b>Tier applied</b> |          |
| <b>Activity data (mass/vol.) (NCV)*</b>                     | tCO2 Deduct      | 1,000       | Transferred         |          |
|                                                             | Transferred      |             | Transferred         |          |
| <b>Emission factor</b>                                      | Transferred      |             | Transferred         |          |
| <b>Oxidation factor</b>                                     | No units         |             | Transferred         |          |
| <b>Emissions</b>                                            | tCO <sub>2</sub> | -1000.0     |                     |          |

The Part C Processes sheets have a similar automatic calculation function but it needs to be used in a different way than the Part B. Just select “tCO2 Deduct” as the units, enter the calculated CO2 deduction in the activity data as a negative number then enter 1 as the Emissions Factor and Conversion Factor. See the example below.

|                                                                            |                  |             |                     |
|----------------------------------------------------------------------------|------------------|-------------|---------------------|
| <b>Type of process:</b>                                                    |                  |             |                     |
| <b>Source(s):</b>                                                          |                  |             |                     |
| <b>Type of material</b>                                                    |                  |             |                     |
| <b>Waste catalogue number (where applicable) See Note 1</b>                |                  |             |                     |
| <b>Calculation method applied</b><br>(only if specified in the guidelines) |                  |             |                     |
| <b>Parameter</b>                                                           | <b>Units</b>     | <b>Data</b> | <b>Tier applied</b> |
| <b>Activity data</b>                                                       | tCO2 Deduct      | -1000       | Select              |
| <b>Emission factor</b>                                                     | select           | 1           | Select              |
| <b>Conversion factor</b>                                                   | no units         | 1           | Select              |
| <b>Emissions</b>                                                           | tCO <sub>2</sub> | -1000       |                     |

**Section A3.1**

In this section you are required to indicate, by clicking on the relevant box, whether any of the applied monitoring tiers (e.g. for activity data, emission factors etc) during the reporting period are different to those stated in the approved monitoring and reporting plan. This will include any instances where, in the opinion of the verifier, an applied tier is different to that stated in the extant monitoring and reporting plan.

**Section A3.2**

In this section you are required to describe the changes to monitoring tiers identified in Section A3.1. These changes include any temporary or permanent changes to any tier methodology. For each change of tier you are required to provide a succinct description including:

- Identification of the sources, fuel and/or materials concerned
- Parameters and tiers changed
- The start and end dates (if appropriate) for the changes
- The reason for the change(s)

In addition, you should reference any appropriate documents, for example correspondence with the Environment Agency agreeing to a change.

Please note: When tiers are changed during a reporting period the reporting parameters for the affected period must be calculated and reported separately for the respective parts of the reporting period. Accordingly, you should use separate boxes in Parts B and/or C to report emissions that have been calculated in this way.

**Section A3.3**

In this section you are required to indicate, by clicking on the relevant box, whether any changes to your installation have occurred during the reporting period, other than those notified in Section 3.2, that may be relevant to your emissions report i.e. have an impact upon the emissions of CO<sub>2</sub> from your installation. Such changes could include unplanned and prolonged shutdowns, addition or removal of new plants etc.

**Section 3.4**

In this section you are required to describe the changes to your installation identified in Section A3.3. For each change tier you are required to provide a succinct description including:

- Identification of the sources, fuel and/or materials concerned
- The start and end dates (if appropriate) for the changes
- The reason for the change(s)

In addition, you should reference any appropriate documents, for example correspondence with the Environment Agency agreeing to the change(s), if applicable.

## PART B

### Part B is to be completed by operators reporting emissions from Schedule 1 combustion sources within their installation

Where carbonate is used for scrubbing emissions from a waste combustion gas stream, these should be reported as process emissions in Part C together with all relevant process emissions.

If a mass balance approach has been used to calculate carbon dioxide emissions from a combustion activity then in addition to completion of this section, the mass flows of fuels into and out of the installation must also be reported in Part D together with their carbon content in support of the summary activity figures provided in this section.

## B1 Combustion Emissions Data (M&RG section 14.3)

### Section B1.1

In this section, the activity data, emission factors, oxidation factors and emissions are to be reported for each type of fuel combusted within an installation. Data may be reported in an aggregate manner where a fuel is used in a number of emission sources and provided that the oxidation and emission factors are identical. NCV and EF Figures should be entered using all the available decimal places (only 5 are shown).

#### Relevant Row ID in table A 2.1

Is pre selected and cannot be changed. It is unique to each Part B Combustion Sheet.

#### Type of Schedule 1 activity

Please select, the appropriate activity category (e.g. E1 Combustion) by clicking on “select” and choosing the appropriate category from those listed. If more than one Schedule 1 activity type is carried out at your installation you will need to create additional sheets for each activity by clicking onto the button ‘Add another Part B’ at the top of Table A2.1 (in Part A).

#### Description of activity

Please provide a succinct description of the activity

*For example, a small hospital site with a number of boilers may be described as:*

Multiple Boilers for domestic heating

|                                        |                                        |
|----------------------------------------|----------------------------------------|
| <b>Relevant Row ID in Table A 2.1:</b> | 1                                      |
| <b>Type of Schedule 1 activity:</b>    | E1 Combustion                          |
| <b>Description of activity:</b>        | Multiple Boilers for domestic heating. |

#### Type of fuel

Select the type of fuel from the drop down list. If the fuel used is not on the list, then the fuel can be entered manually.

Fuel types must be described as given using the Inter-Governmental Panel on Climate Change (IPCC) standard fuel categories. Fuel descriptions that conform to IPCC requirements are given in Defra’s published national emission factors for use in EU ETS Reporting. For other fuel types not listed then the fuel type shall be described as given using the Inter-Governmental Panel on Climate Change (IPCC) standard fuel categories.

You must complete one box and one table for each type of fuel used unless different tiers or factors are applied to the fuel for different sources, in this case separate boxes should be used. In addition, if a monitoring tier (e.g. for activity data or emission factor) has changed during the reporting period then separate boxes must be used to report the emissions from the fuel combustion for the respective parts of the reporting period.

## Sources included

Please identify the emission source(s) that use the fuel that you have identified above. You should use the same descriptors given within your emissions permit e.g. S1, S2 etc.

More than one source may be associated with a single fuel and these sources may be aggregated into a single box and table provided that the emission factor and oxidation factors are identical for each of the aggregated sources.

## Waste Catalogue Number

If wastes are used as fuels then the waste types must be reported using the classification of the 'European List of Wastes' (Commission Decision 2000/532/EC). The list of classifications can be found at [www://europa.eu.int/eur-lex/en/consleg/pdf/2000/en\\_2000D0532\\_do\\_001.pdf](http://www.europa.eu.int/eur-lex/en/consleg/pdf/2000/en_2000D0532_do_001.pdf). Select N/a if fuel is not a classified waste.

## Emissions Calculations

The calculation is carried out automatically in the spread sheet and is dependent on the units selected. If the EF is in tCO<sub>2</sub>/TJ then it will be Activity x NCV x EF x OF. If it is tCO<sub>2</sub>/Nm<sup>3</sup> or tCO<sub>2</sub>/tonne then the calculation will be Activity x EF x OF. With this in mind, it is important that the correct units are selected. The calculated emissions will read "Select Units" until all the units are selected. The calculation will then be carried out and the tCO<sub>2</sub> will be shown (See example Below).

The screenshot shows a Microsoft Excel spreadsheet titled 'Microsoft Excel - ets7-21'. The spreadsheet is divided into four blocks (Block 1 to Block 4) for different fuel types. Each block contains fields for 'Type of fuel', 'Sources included', 'Waste catalogue number (where applicable) See Note 1', and a table for 'Activity data' with columns for Parameter, Units, Data, and Tier applied. The 'Emissions' field in each block shows 'tCO<sub>2</sub>' and 'Select Units'.

| Block 1                                              |                      |             |              |  | Block 2                                              |                      |              |              |  |
|------------------------------------------------------|----------------------|-------------|--------------|--|------------------------------------------------------|----------------------|--------------|--------------|--|
| Type of fuel:                                        | Select               |             |              |  | Type of fuel:                                        | Select               |              |              |  |
| Sources included                                     |                      |             |              |  | Sources included                                     |                      |              |              |  |
| Waste catalogue number (where applicable) See Note 1 | Select               |             |              |  | Waste catalogue number (where applicable) See Note 1 | Select               |              |              |  |
| Parameter                                            | Units                | Data        | Tier applied |  | Parameter                                            | Units                | Data         | Tier applied |  |
| Activity data (mass/vol.) (NCV)*                     | Nm <sup>3</sup>      | 473,800     | Select       |  | Activity data (mass/vol.) (NCV)*                     | select               | 473,800      | Select       |  |
|                                                      | TJ/Nm <sup>3</sup>   | 3.73002E-05 | Select       |  |                                                      | TJ/Nm <sup>3</sup>   | 3.73E-05     | Select       |  |
| Emission factor                                      | tCO <sub>2</sub> /TJ | 56.71271    | Select       |  | Emission factor                                      | tCO <sub>2</sub> /TJ | 56.71271     | Select       |  |
| Oxidation factor                                     | No units             | 1           | Select       |  | Oxidation factor                                     | No units             | 1            | Select       |  |
| Emissions                                            | tCO <sub>2</sub>     | 1002.3      |              |  | Emissions                                            | tCO <sub>2</sub>     | Select Units |              |  |

## Activity data (mass/volume)

Please select the appropriate units for your activity data by clicking on "select" and choosing either tonnes or Nm<sup>3</sup> from the list and then insert, in the adjacent box, the amount of fuel used. Note that gas volumes are to be reported at MRG standard conditions which are 0 deg C and 101325 Pa (see below for information on correction of natural gas data).

Typical metering conditions for natural gas are at 15 deg C and 101325 Pa. If you are using the National Inventory factors for Natural Gas, then the “Regional Natural Gas Data 2007” sheet which is included in the ETS7 form can be used to convert the volume if you wish to use it. The converted Volume, NCV and appropriate EF can be transferred to the Part B from the “Regional Natural Gas Data 2007” sheet.

If you are using the National Inventories for Natural Gas, then go to this section now as most of the data can be transferred into this table from there. See later in guidance for instructions on how to use the “Regional Natural Gas Data 2007” conversion sheet.

### NCV

Please select the appropriate units for the net calorific value of your fuel (i.e. Tera Joules per tonne or Tera Joules per Nm<sup>3</sup>) and insert the appropriate NCV value in the adjacent box. This information must be provided for all fuels regardless of whether the data is used in your subsequent calculation of emissions.

If you are using the National Inventories, the NCV is in TJ/m<sup>3</sup> which is TJ per cubic meter at metering conditions. This must be converted to TJ per MRG standard cubic meters. The “Regional Natural Gas Data 2007” sheet will also automatically convert the NCV to TJ/Nm<sup>3</sup> if you wish to use it. This sheet will also select the appropriate regional NCV from your post code.

|                                 |                                                                                                                                                                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Note:</b> 1 Tera Joule (1TJ) | = 1000 giga joules or 10 <sup>3</sup> giga joules (10 <sup>3</sup> GJ)<br>= 1 million mega joules or 10 <sup>6</sup> mega joules (10 <sup>6</sup> MJ)<br>= 1000 million kilo joules or 10 <sup>9</sup> kilo joules (10 <sup>9</sup> kJ) |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Emission factor

Please select, the appropriate units for your emission factor by clicking on “select” and choosing from tCO<sub>2</sub>/TJ, tCO<sub>2</sub>/t (fuel), or tCO<sub>2</sub>/Nm<sup>3</sup> (fuel) from the list and then insert, in the adjacent box, the numerical value of the emission factor used. Please note that if an emission factor of tCO<sub>2</sub>/TJ is used then this should be in terms of **net** energy content.

If you are using the National Inventories, The “Regional Natural Gas Data 2007” sheet can be used to select the appropriate EF for your region based on your post code.

### Oxidation factor

Please insert the numerical value of the oxidation factor to be applied. The oxidation factor will be determined in accordance with your permitted tier methodology i.e. based on a given factor within the M&R Guidelines, a country-specific factor, or one derived by ISO 17025 underpinned accredited analyses. Please note that if a national emission factor (from the latest UK inventory as submitted to the UNFCCC) is used, the oxidation factor should be entered as “1” where this factor is already accounted for in the national emission factor, as advised in the National Inventory Factors spreadsheet.

### Tiers

Please ensure you have selected the tier applied for each of the reported parameters (activity data, NCV, emission and oxidation factors).

### Emissions

The emissions will be calculated automatically but it is essential that the operator checks the calculations are correct. The calculation will be dependent on the selected EF units. If the EF units are tCO<sub>2</sub>/TJ then the calculation will be:-

$$CO_2 \text{ emissions} = \text{activity data}(\text{mass/volume}) \times \text{NCV} \times \text{emission factor} \times \text{oxidation factor}$$

If the EF units are tCO<sub>2</sub>/t or tCO<sub>2</sub>/Nm<sup>3</sup> then the calculation will be:-

$$CO_2 \text{ emissions} = \text{activity data}(\text{mass/volume}) \times \text{emission factor} \times \text{oxidation factor}$$

Please complete further tables, as described above, for additional fuels. If additional tables are required e.g. for additional activities, then please create additional rows using the buttons provided to the right of the tables in Rows 56 and 140.

## Section B1.2

Operators need only complete this section if biomass or fuels containing biomass are combusted in a Schedule 1 process within their installation.

Operators who use mixed biomass fuels or fuels with an agreed biomass fraction should enter all the data for the particular fuel into a block in this section including the biomass fraction as a percentage carbon as shown in the example below.

**B1.2 Calculation of carbon dioxide emissions from biomass and mixed fuel combustion**

*Only complete this section if you have used fuels that contain a proportion of biomass.*

| Type of biomass/mixed fuel:                          | Tyres                |         |              |                                 | Type of biomass/mixed fuel:                          |              |              |  |  |
|------------------------------------------------------|----------------------|---------|--------------|---------------------------------|------------------------------------------------------|--------------|--------------|--|--|
| Sources included                                     | S1                   |         |              |                                 | Sources included                                     |              |              |  |  |
| Waste catalogue number (where applicable) See Note 1 | 16.01.03             |         |              |                                 | Waste catalogue number (where applicable) See Note 1 |              |              |  |  |
| Fraction of biomass (0 - 100% of carbon content)     | 27.8                 |         |              |                                 | Fraction of biomass (0 - 100% of carbon content)     |              |              |  |  |
| Parameter                                            | Units                | Data    | Tier applied | Parameter                       | Units                                                | Data         | Tier applied |  |  |
| Activity data (mass/vol.) (NCV)                      | tonnes               | 20,000  | Tier 4       | Activity data (mass/vol.) (NCV) | Select                                               |              | Select       |  |  |
|                                                      | TJ/tonne             | 0.02689 | Tier 2a      |                                 | Select                                               |              | Select       |  |  |
| Emission factor                                      | tCO <sub>2</sub> /TJ | 62.06   | Tier 2a      | Emission factor                 | Select                                               |              | Select       |  |  |
| Oxidation factor                                     | No units             | 1       | Tier 1       | Oxidation factor                | No units                                             |              | Select       |  |  |
| Emissions                                            | tCO <sub>2</sub>     | 33375.9 |              | Emissions                       | tCO <sub>2</sub>                                     | Select Units |              |  |  |

**B1.3 Calculation of total carbon dioxide emissions from this combustion activity**

|                                                                                                                                                               |           |                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------|
| Total reportable emissions (sum of fossil fuel emissions, fossil fraction of mixed biomass fuels and agreed transferred/inherent CO <sub>2</sub> deductions). | 33375.868 | tonnes of CO <sub>2</sub> |
| Total biomass used (energy content of pure biomass and biomass content of mixed fuels) in TJ                                                                  |           | Tera Joules               |

Note 1: Use 6 digit category number as listed in "European List of Wastes" (Commission Decision 2000/532/EC of May 2000), e.g. 16-01-03

< END OF SHEET B >

### Type of biomass/mixed fuel

Please provide a succinct description of the fuel used (e.g. *landfill gas*). You must complete one box and one table for each type of fuel used.

### Sources included

Please identify the emission source(s) that use the biomass fuel that you have identified above. You should use the same descriptors given within your emissions permit e.g. S1, S2 etc.

More than one source may be associated with a single fuel and these sources may be aggregated into a single box and table provided that the emission factor and oxidation factors are identical for each of the aggregated sources.

### Waste Catalogue Number

If wastes are used as fuels then the waste types must be reported using the classification of the 'European List of Wastes' (Commission Decision 2000/532/EC). The list of classifications can be found at [www://europa.eu.int/eur-lex/en/consleg/pdf/2000/en\\_2000D0532\\_do\\_001.pdf](http://www://europa.eu.int/eur-lex/en/consleg/pdf/2000/en_2000D0532_do_001.pdf). Select N/a if fuel is not a classified waste.

### Fraction of biomass

Please type in the percentage of biomass derived carbon content of the fuel identified above. For example, if the total % carbon content of the fuel is 100% and the carbon from the biomass content is 10% of the total fuel then biomass fraction of total carbon is 10% ( $100/100 \times 10 = 10$ ).

If the total carbon content of the fuel is 50%, and the carbon from the biomass is 10% of the total carbon then the biomass fraction of the total carbon is 20%. ( $100/50 \times 10 = 20$ )

### Activity data (mass/volume)

Note that gas volumes must be reported to MRG standard conditions as explained above (i.e. 0 deg C and 101325 Pa).

Please select the appropriate units for your activity data (the amount of fuel used) by clicking on "select" and choosing either tonnes or Nm<sup>3</sup> from the list; then insert in the adjacent box the total amount (i.e. including both the biomass and non-biomass fractions) of fuel used.

### NCV

Please select the appropriate units for the net calorific value of your fuel, including both biomass and non-biomass components, (i.e. Tera Joules per tonne or Tera Joules per Nm<sup>3</sup>) and insert the appropriate NCV value in the adjacent box. This information must be provided for all fuels.

### Emission factor

Unless a different methodology has been specifically approved by the Competent Authority, please select, for the non-biomass fraction of the fuel, the appropriate units for your emission factor by clicking on "select" and choosing from tCO<sub>2</sub>/TJ, tCO<sub>2</sub>/t (fuel), or tCO<sub>2</sub>/Nm<sup>3</sup> (fuel) from the list; then insert, in the adjacent box, the numerical value of the emission factor used. Unless contrary to the methodology approved by the Competent Authority, the emission factor used should be a weighted emission factor based on the proportion of fossil carbon in the fuels overall carbon content. **Note: for 100% biomass fuels and biomass fractions of fuels the emission factor will be zero.**

Please note that if an emission factor of tCO<sub>2</sub>/TJ is used then this should be in terms of **net** energy content.

### Oxidation factor

Please insert the numerical value of the oxidation factor to be applied to the whole fuel. The oxidation factor will be determined in accordance with your permitted tier methodology i.e. based on a given factor within the M&R Guidelines, a country-specific factor, or one derived by ISO 17025 underpinned analyses. Please note that if a national emission factor (from the latest UK inventory as submitted to the UNFCCC) is used, the oxidation factor should be entered as "1" where this factor is already accounted for within the national emission factor.

### Emissions

The emissions will be calculated automatically but it essential that the operator checks that these are correct. The calculation will be dependent on the selected EF units. If the EF units are tCO<sub>2</sub>/TJ then the calculation will be:-

$$CO_2 \text{ emissions} = \text{activity data(mass/volume)} \times NCV \times \text{emission factor} \times \text{oxidation factor}$$

If the EF units are tCO<sub>2</sub>/t or tCO<sub>2</sub>/Nm<sup>3</sup> then the calculation will be:-

$$CO_2 \text{ emissions} = \text{activity data(mass/volume)} \times \text{emission factor} \times \text{oxidation factor}$$

Please complete further tables, as described above, for additional fuels. If additional tables are required e.g. for additional activities, then please create additional rows using the buttons provided to the right of the tables in Rows 56 and 140.

## Section B1.3

In this section you are required to report the total carbon dioxide emissions from each activity. The CO<sub>2</sub> from each completed block in the Part B is automatically totalled in this section.

### Total emissions

The total emissions from the sheet will automatically be summed and inserted into this block

### Total biomass used

Please insert the total energy input, in terms of Tera Joules (TJ), of biomass combusted and associated with the activity being reported upon. This has to be entered manually.

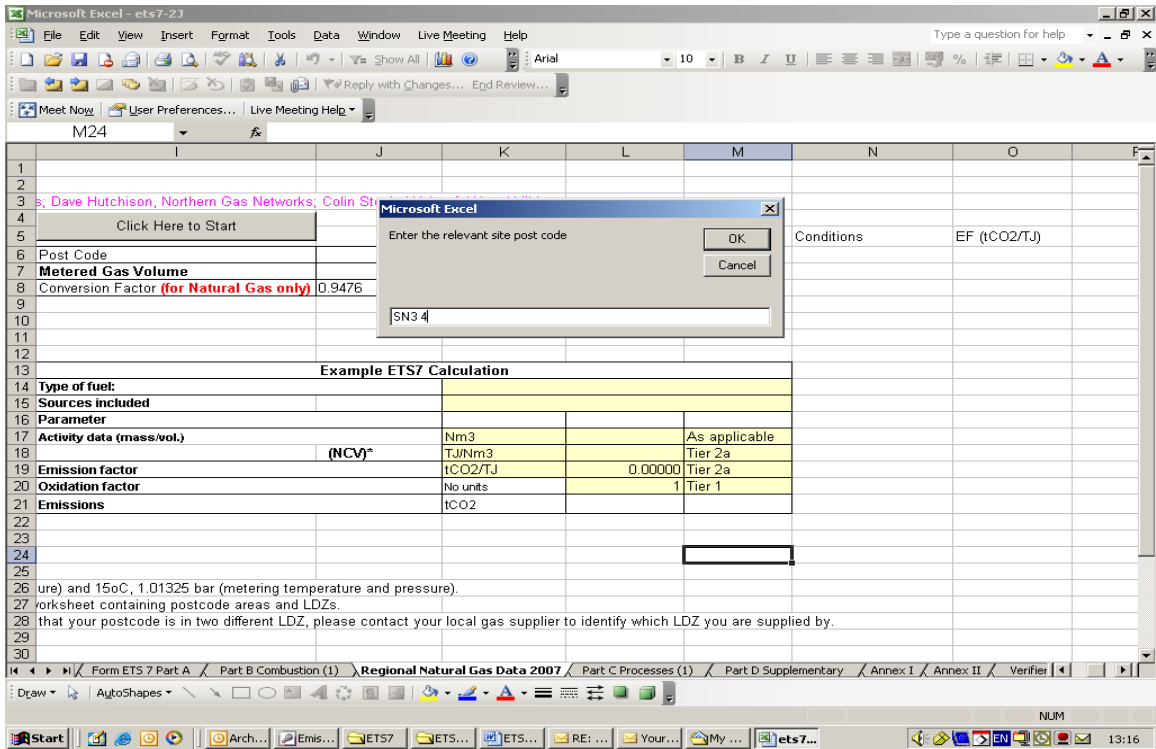
## Using the “Regional Natural Gas Data 2007” sheet

If you are using the National Inventory for Natural gas, you can use this sheet to find your regional values and convert the metered volume (volume normalised to metering conditions) to MRG standard conditions. The NCV in the National Inventories is also referenced to metering conditions so the NCV will also be converted to TJ/Nm<sup>3</sup>.

| Parameter                 | Unit     | Value         |
|---------------------------|----------|---------------|
| Type of fuel:             |          | (NCV)*        |
| Sources included          |          | (NCV)*        |
| Parameter                 |          | (NCV)*        |
| Activity data (mass/vol.) | Nm3      | As applicable |
|                           | TJ/Nm3   | Tier 2a       |
| Emission factor           | tCO2/TJ  | 0.00000       |
| Oxidation factor          | No units | 1             |
| Emissions                 | tCO2     | Tier 1        |

Screen Shot 1

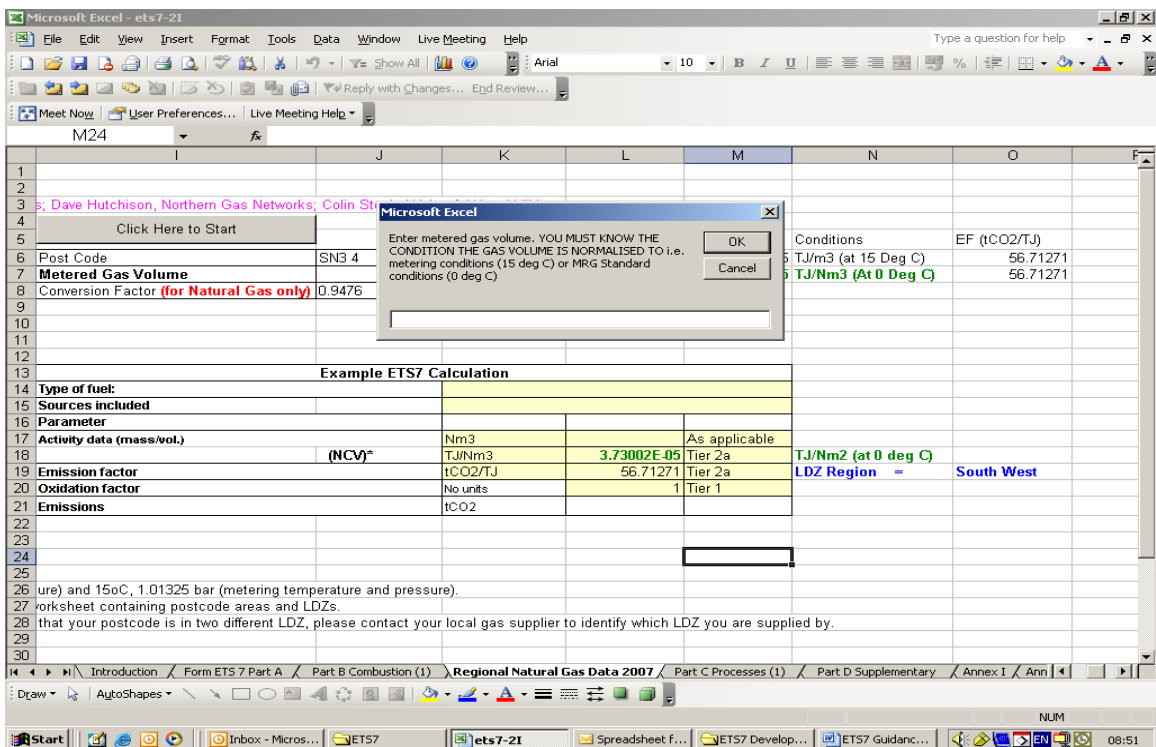
Click on the “Click Here to Start” button. You will be prompted to enter your Post Code. You only need to use the first digit in the second part of the post code i.e. AB1 2CD should be entered as AB1 2 (Screen Shot 2). For Northern Ireland please enter AB21 0 as we use the Scotland value.



Screen Shot 2

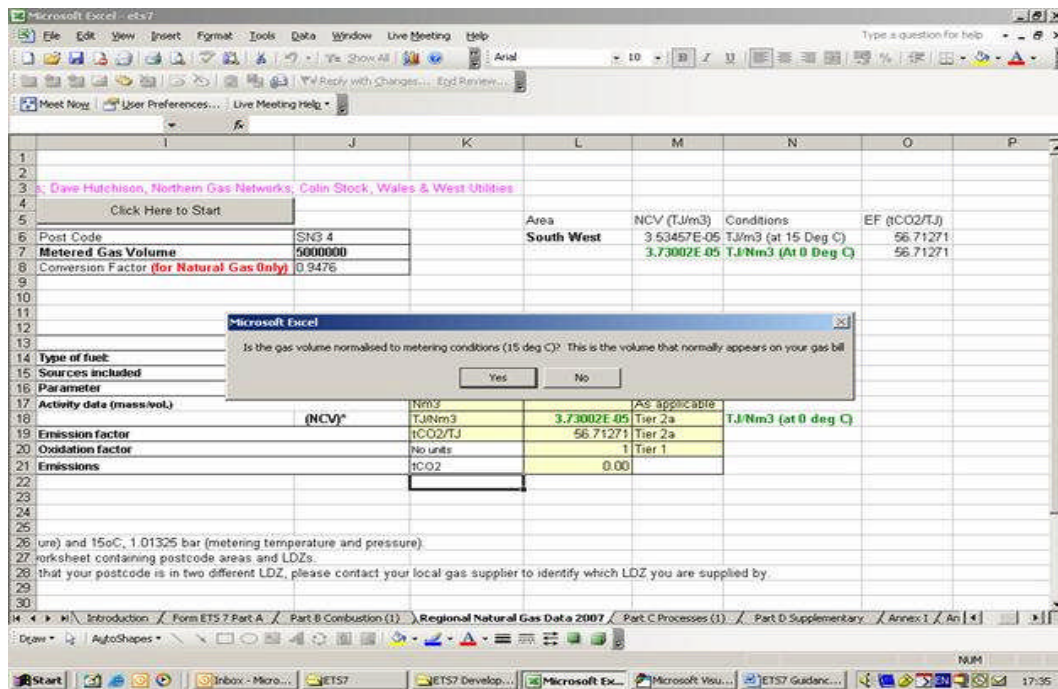
If there is only one LDZ for your post code, the relevant factors will be automatically selected. The NCV will be converted to reference MRG conditions and the converted NCV and relevant EF will be transferred to the example ETS7 calculation shown on the sheet. If your post code is covered by more than 1 LDZ, you will be offered the relevant selections (See Screen Shot 7). Choose the correct LDZ for your installation as directed by your fuel supplier. The converted NCV and relevant EF from your selected LDZ will then be transferred to the example ETS7 calculation.

You will then be prompted to enter the metered gas volume. You must know the normalised condition of the volume you are inputting. It may be at metering conditions or already converted to MRG conditions. (Screen Shot 3).

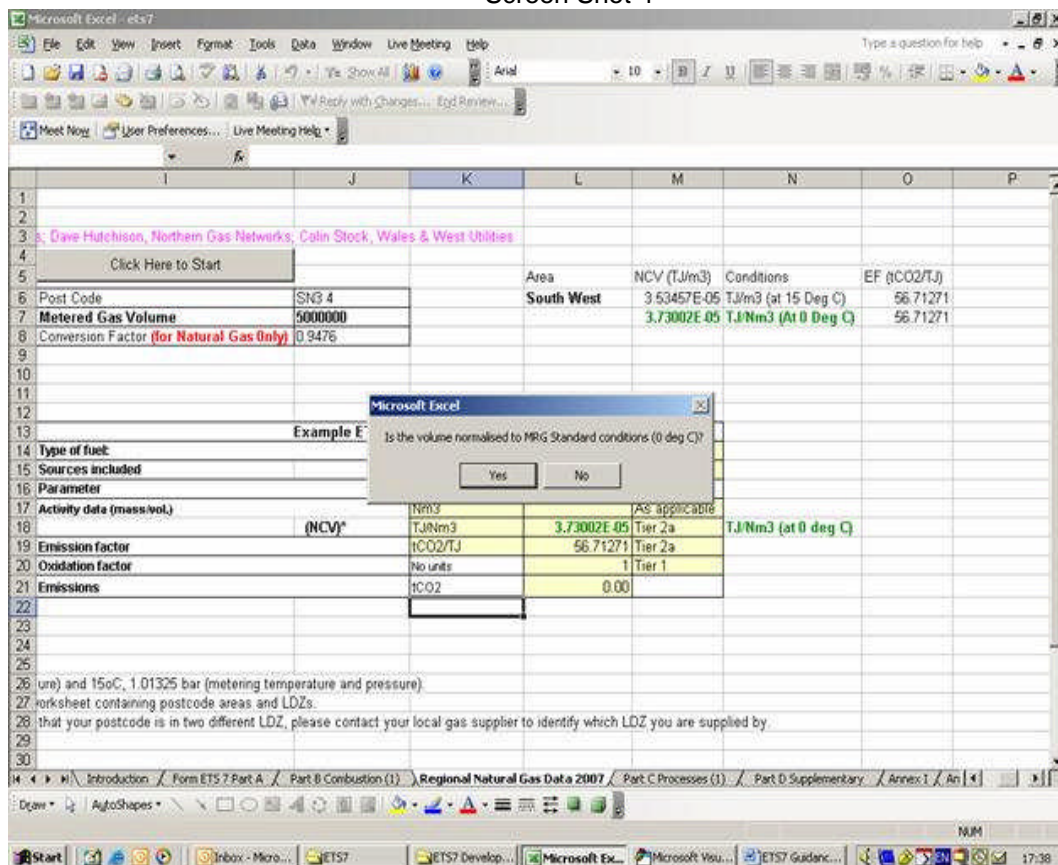


Screen Shot 3

If the Gas Volume is normalised to metering conditions, then select “Yes” when prompted (Screen Shot 4). The gas volume will then be normalised to MRG Standard Conditions. If you select “No” you will be prompted to select if the gas is already normalised to MRG Standard Conditions (Screen Shot 5). If you select “Yes” to this prompt the gas volume will not be converted as it is already normalised to the MRG Standard conditions. If you select “No” to this prompt, it means that you have not confirmed that the Gas Volume is at Metering conditions or MRG Standard conditions so you will be asked to ensure it is normalised to one of the 2 conditions then start again.

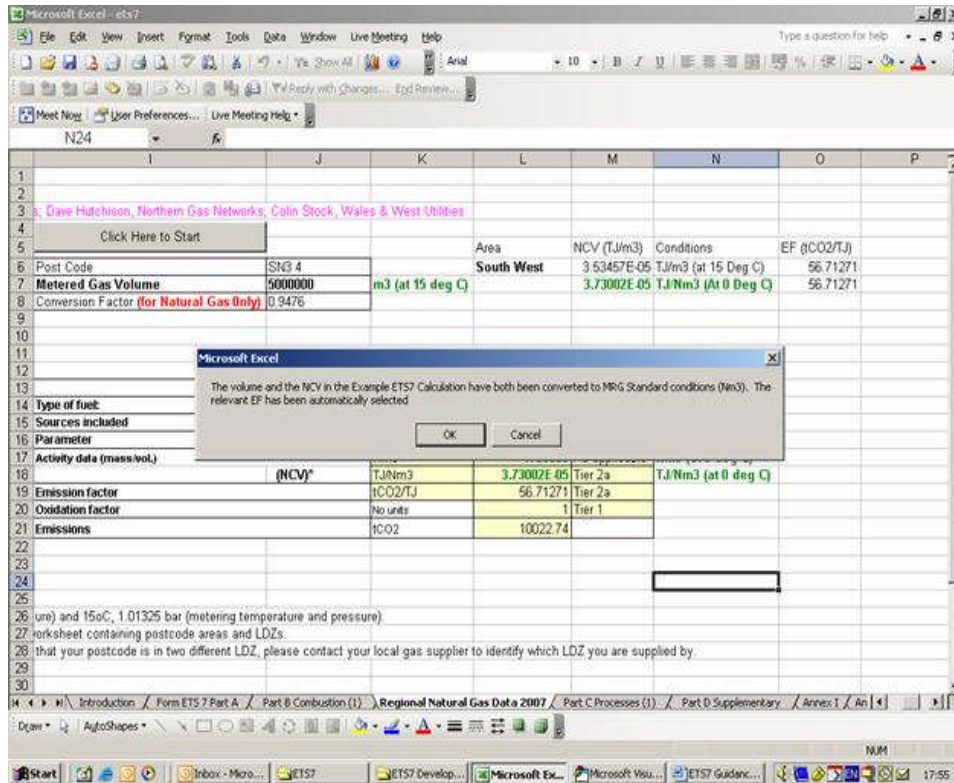


Screen Shot 4

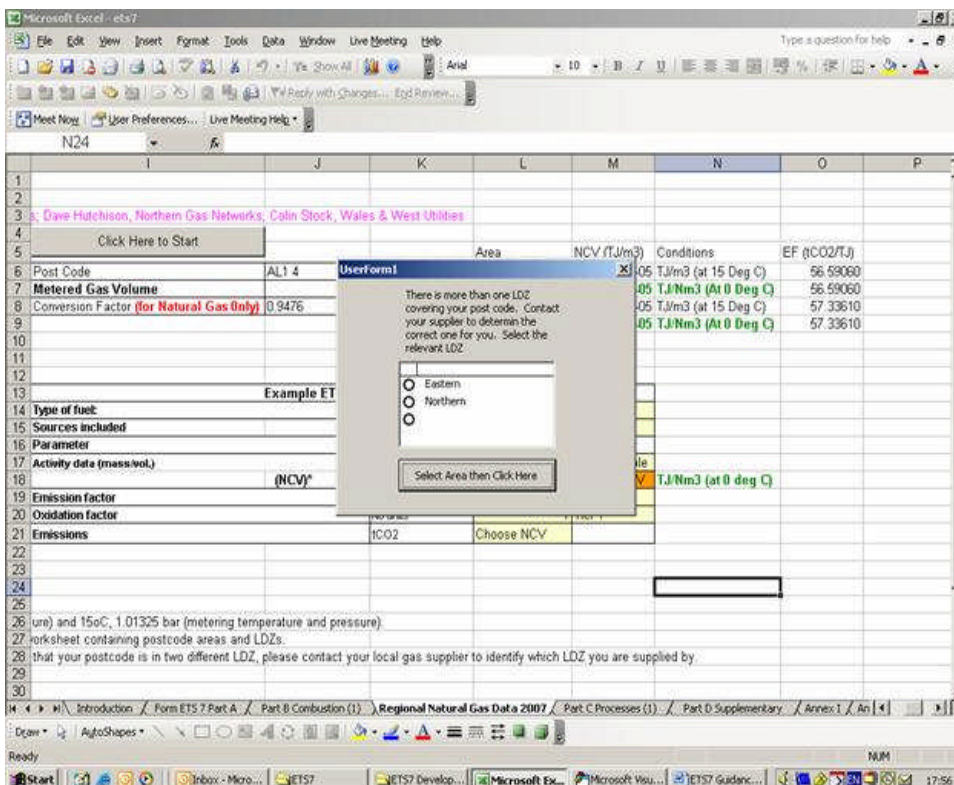


Screen Shot 5

Once you have completed the process, the message box will tell you what has been done based on your selections (example Screen Shot 6). Once you click "OK" you will be asked if you want to transfer the Volume, NCV, EF and OF to the ETS7. If you select "Yes" you will be prompted to enter the sheet number you want the data to be transferred to (1 for "Part B Combustion (1)"). You will then be prompted to enter the Block you want the data to be transferred to. There are a possible 16 blocks on each combustion sheet. Enter the required block number. The data will be then transferred to the ETS7 form.



Screen Shot 6



Screen Shot 7

## PART C

Part C is to be completed by operators reporting process CO<sub>2</sub> emissions from Schedule 1 activities within their installation. This form should also be used for reporting carbon dioxide emissions resulting from the use of carbonate to scrub sulphur dioxide from combustion gas.

### C1 Process Emissions Data (M&RG section 11.4)

*If a mass balance approach has been used to calculate carbon dioxide emissions from a process then in addition to completion of this section, the mass flows of relevant materials into and out of the installation must also be reported in Part D together with their carbon content.*

#### Section C1.1

In this section the activity data, emission factors, conversion factors and emissions are to be reported for each type of material used in processes within an installation. Data may be reported in an aggregated manner where a certain material is used in a number of emission sources with identical conversion and emission factors.

##### Relevant Row ID in table A 2.1

Is pre selected and cannot be changed. It is unique to each Part C Process Sheet.

##### Type of Schedule 1 activity

Please select, the appropriate activity category (e.g. E1 Combustion) by clicking on “select” and choosing the appropriate category from those listed.

If more than one Schedule 1 process type is carried out at your installation you will need to click on the ‘Add another Part C sheet’ button at the top of Table A2.1 (in Part A) to create additional Process pages.

##### Description of activity

Please provide a succinct description of the activity e.g. ‘clinker manufacture’

##### Type of Process

Please provide a succinct description of the type of process employed e.g. cement kiln – dry process.

##### Sources included

Please identify the source(s) that use the material that you have identified above. You should use the same descriptors given in your emissions permit e.g. S1, S2 etc.

More than one source may be associated with a single material and these sources may be aggregated into a single box and table provided that the emission factor and conversion factors are identical for each of the aggregated sources. However, if a monitoring tier (e.g. for activity data or emission factor) has changed during the reporting period then separate boxes must be used to report the emissions from the process for the respective parts of the reporting period.

##### Type of material

Please describe the materials to which your activity data relates. e.g. limestone feedstock.

##### Waste Catalogue Number

If wastes are used as fuels then the waste types must be reported using the classification of the ‘European List of Wastes’ (Commission Decision 2000/532/EC). The list of classifications can be found at [www://europa.eu.int/eur-lex/en/consleg/pdf/2000/en\\_2000D0532\\_do\\_001.pdf](http://europa.eu.int/eur-lex/en/consleg/pdf/2000/en_2000D0532_do_001.pdf). Select N/a if fuel is not a classified waste.

##### Calculation method applied

Please identify the calculation method applied if more than one method is specified in the appropriate Annex of the M&R Guidelines. For example, for the production of cement clinker either ‘Calculation method A’ (kiln input based) or ‘Calculation method B’ (clinker output based) could be applied.

**Activity data (mass/volume)**

Please select the appropriate units for your activity data by clicking on "select" and choosing either tonnes or Nm<sup>3</sup> from the list and then insert, in the adjacent box, the amount of material used.

**Emission factor**

Please select, the appropriate units for your emission factor by clicking on "select" and choosing from tCO<sub>2</sub>/t, or tCO<sub>2</sub>/m<sup>3</sup> from the list and then insert, in the adjacent box, the numerical value of the emission factor used. For some processes the parameter may be defined as carbon content or composition in the permit/M&RG, where this is the case this factor should be reported in the emission factor boxes.

**Conversion factor**

Please insert the numerical value of the conversion factor to be applied. The conversion factor will be determined in accordance with your permitted tier methodology. For processes where a conversion factor is not required by the M&RG, please input a factor of 1 to allow the automatic calculation to be completed (it is not necessary to select a tier in this case).

**Tiers**

Please ensure you have selected the tier applied for each of the reported parameters (activity data, emission and conversion factors).

**Emissions**

The emissions will be calculated automatically. The calculation will be:-

$$CO_2 \text{ emissions} = \text{activity data} \times \text{emission factor} \times \text{conversion factor}$$

Please complete further tables, as described above, for additional fuels. If additional pages are required, e.g. for additional activities, then please create additional rows using the buttons provided to the right of the tables in Rows 34 and 90.

**Section C1.2**

Operators need only complete this section if biomass or materials containing biomass are converted to carbon dioxide in a Schedule 1 process within their installation.

**Type of biomass/mixed material**

Please provide a succinct description of the material used. You must complete one box and one table for each type of material used.

**Sources included**

Please identify the source(s) that use the biomass containing materials that you have identified above. You should use the same descriptors given within your emissions permit e.g. S1, S2 etc.

More than one source may be associated with a single material and these sources may be aggregated into a single box and table provided that the emission factor and conversion factors are identical for each of the aggregated sources.

You must complete one box and one table for each type of material used.

**Waste Catalogue Number**

If wastes are used as fuels then the waste types must be reported using the classification of the 'European List of Wastes' (Commission Decision 2000/532/EC). The list of classifications can be found at [www://europa.eu.int/eur-lex/en/consleg/pdf/2000/en\\_2000D0532\\_do\\_001.pdf](http://www://europa.eu.int/eur-lex/en/consleg/pdf/2000/en_2000D0532_do_001.pdf). Select N/a if fuel is not a classified waste.

**Fraction of biomass**

Please type in the percentage of biomass derived carbon content of the material identified above.

**Activity data (mass/volume)**

Please select, the appropriate units for your activity data (the amount of material used) by clicking on "select" and choosing either tonnes or m<sup>3</sup> from the list. Once selected, insert in the adjacent box the amount of material used (including both the both the biomass and non-biomass fractions).

**Emission factor**

Please select, for the non-biomass fraction of the material, the appropriate units for your emission factor by clicking on "select" and choosing from either tCO<sub>2</sub>/t or tCO<sub>2</sub>/m<sup>3</sup> from the list and then insert, in the adjacent box, the numerical value of the emission factor used. The emission factor used should be a weighted emission factor based on the proportion of fossil carbon in the materials overall carbon content.

**Note: for 100% biomass materials and biomass fractions of materials the emission factor will be zero.**

**Conversion factor**

Please insert the numerical value of the conversion factor to be applied to the whole material. The conversion factor will be determined in accordance with your permitted tier methodology i.e. based on a given factor within the M&R Guidelines or derived by ISO17025 accredited analyses.

**Emissions**

The emissions will be calculated automatically. The calculation will be:-

$$CO_2 \text{ emissions} = \text{activity data(mass/volume)} \times \text{emission factor} \times \text{conversion factor}$$

**Section C1.3**

In this section you are required to report the total carbon dioxide emissions from each activity.

**Total emissions**

The total tCO<sub>2</sub> will be automatically summed from the completed boxes in the Part C sheet.

**Total biomass used**

Please insert the total mass or volume of biomass used and associated with the activity being reported upon.

## PART D

Part D is to be completed by operators that have applied a mass balance approach to the calculation of their installation's emissions. This section should be completed in addition to completion of Part B and/or Part C of this form.

### D1 Supplementary data for mass balance approaches (M&RG Section 5)

#### Fuel/material

Please list the fuels and materials to which a mass balance approach has been applied for determining carbon dioxide emissions. Each fuel and material must be listed on a separate line and described as given in Part B or C as appropriate.

#### Mass Flow

In this section of the table you are asked to specify the amount of fuel/material stocks at the beginning and end of the reporting period together with the amounts of fuel/material brought into the installation and transferred out of the installation during the reporting period. All the figures given must be in consistent units, for example, in tonnes.

#### Stock (Beginning of reporting period)

Please enter the amount of fuel/material held in stock at the beginning of the reporting period (e.g. as of 01-01-05).

#### Stock (End of reporting period)

Please enter the amount of fuel/material held in stock at the end of the reporting period (e.g. as of 31-12-05).

#### Fuel/material movement

##### Purchased during reporting period

Please enter the amount of fuel or material purchased or brought into the installation during the reporting period. This should be entered in the same units as used to express the amounts of fuel/material reported in stock.

##### Sold or transported off site during reporting period

Please enter the amount of fuel or material transported off the site during the reporting period. This should be entered in the same units as used to express the amounts of fuel/material reported in stock and purchased.

##### Net Fuel/material used

This is automatically calculated from the data entered in the preceding columns. The calculation is given by:

##### ***Fuel/material used during reporting period =***

*Fuel/material purchased during reporting period + (Stock at beginning – stock at end) – fuel transported off site/sold/used for other purposes.*

##### Units

Please enter the appropriate units for the data presented in the preceding columns e.g. tonnes.

##### Carbon content

Please report the carbon content of each fuel or material as a percentage of the mass or volume reported in the preceding column. Please note that the laboratory used to determine the carbon content of fuels and materials must be as approved under the permit and accredited to ISO 17025 or equivalent (se M&RG Section 13.5).

##### NCV

Please report the NCV of the fuel or fuels concerned.

##### Energy

Please enter the total energy from the fuel (Mass/Volume consumed x NCV)

## Annex I - Extract from the common reporting format (CRF)

### 1. Sectoral report for energy

#### A. Fuel combustion activities (sectoral approach)

1. Energy industries
  - a. Public electricity and heat production
  - b. Petroleum refining
  - c. Manufacture of solid fuels and other energy industries
  
2. Manufacturing industries and construction
  - a. Iron and steel
  - b. Non-ferrous metals
  - c. Chemicals
  - d. Pulp, paper and print
  - e. Food processing, beverages and tobacco
  - f. Other (please specify)
  
4. Other sectors
  - a. Commercial/institutional
  - b. Residential
  - c. Agriculture/forestry/fisheries
  
5. Other (please specify)
  - a. Stationary
  - b. Mobile

#### B. Fugitive emissions from fuels

1. Solid fuels
  - a. Coal mining
  - b. Solid fuel transformation
  - c. Other (please specify)
  
2. Oil and natural gas
  - a. Oil
  - b. Natural gas
  - c. Venting and flaring  
Venting  
Flaring
  - d. Other (please specify)

### 2. Sectoral report for industrial processes

#### A. Mineral products

1. Cement production
2. Lime production
3. Limestone and dolomite use
4. Soda ash production and use
5. Asphalt roofing
6. Road paving with asphalt
7. Other (please specify)

#### B. Chemical industry

1. Ammonia production
2. Nitric acid production
3. Adipic acid production
4. Carbide production
5. Other (please specify)

#### C. Metal production

1. Iron and steel production
2. Ferroalloys production
3. Aluminium production
4. SF6 used in aluminium and magnesium foundries
5. Other (please specify)

**Annex II Source category code of EPRTR Decision**

| <b>No</b> |       | <b>Activity</b>                                                                                                                                        |
|-----------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>  |       | <b>Energy sector</b>                                                                                                                                   |
|           | (a)   | Mineral oil and gas refineries                                                                                                                         |
|           | (b)   | Installations for gasification and liquefaction                                                                                                        |
|           | (c)   | Thermal power stations and other combustion installations                                                                                              |
|           | (d)   | Coke ovens                                                                                                                                             |
|           | (e)   | Coal rolling mills                                                                                                                                     |
|           | (f)   | Installations for the manufacture of coal products and solid smokeless fuel                                                                            |
| <b>2</b>  |       | <b>Production and processing of metals</b>                                                                                                             |
|           | (a)   | Metal ore (including sulphide ore) roasting or sintering installations                                                                                 |
|           | (b)   | Installations for the production of pig iron or steel (primary or secondary melting) including continuous casting                                      |
|           | (c)   | Installations for the processing of ferrous metals:                                                                                                    |
|           | (i)   | hot-rolling mills;                                                                                                                                     |
|           | (ii)  | smitheries with hammers;                                                                                                                               |
|           | (iii) | application of protective fused metal coats.                                                                                                           |
|           | (d)   | Ferrous metal foundries                                                                                                                                |
|           | (e)   | Installations:                                                                                                                                         |
|           | (i)   | for the production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes; |
|           | (ii)  | for the smelting, including the alloying, of non-ferrous metals, including recovered products (refining, foundry casting, etc.).                       |
|           | (f)   | Installations for surface treatment of metals and plastic materials using an electrolytic or chemical process                                          |
| <b>3</b>  |       | <b>Mineral industry</b>                                                                                                                                |
|           | (a)   | Underground mining and related operations                                                                                                              |
|           | (b)   | Opencast mining                                                                                                                                        |
|           | (c)   | Installations for the production of:                                                                                                                   |
|           | (c)   | — cement clinker in rotary kilns;                                                                                                                      |
|           | (c)   | — lime in rotary kilns;                                                                                                                                |
|           | (c)   | — cement clinker or lime in other furnaces.                                                                                                            |
|           | (d)   | Installations for the production of asbestos and the manufacture of asbestos-based products                                                            |
|           | (e)   | Installations for the manufacture of glass, including glass fibre                                                                                      |

|          |        |                                                                                                                                                                                        |
|----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | (f)    | Installations for melting mineral substances, including the production of mineral fibres                                                                                               |
|          | (g)    | Installations for the manufacture of ceramic products by firing, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain                                 |
| <b>4</b> |        | <b>Chemical industry</b>                                                                                                                                                               |
|          | (a)    | Chemical installations for the production on an industrial scale of basic organic chemicals, such as:                                                                                  |
|          | (i)    | simple hydrocarbons (linear or cyclic, saturated or unsaturated, aliphatic or aromatic);                                                                                               |
|          | (ii)   | oxygen-containing hydrocarbons such as alcohols, aldehydes, ketones, carboxylic acids, esters, acetates, ethers, peroxides, epoxy resins;                                              |
|          | (iii)  | sulphurous hydrocarbons;                                                                                                                                                               |
|          | (iv)   | nitrogenous hydrocarbons such as amines, amides, nitrous compounds, nitro compounds or nitrate compounds, nitriles, cyanates, isocyanates;                                             |
|          | (v)    | phosphorus-containing hydrocarbons;                                                                                                                                                    |
|          | (vi)   | halogenic hydrocarbons;                                                                                                                                                                |
|          | (vii)  | organometallic compounds;                                                                                                                                                              |
|          | (viii) | basic plastic materials (polymers, synthetic fibres and cellulose-based fibres);                                                                                                       |
|          | (ix)   | synthetic rubbers;                                                                                                                                                                     |
|          | (x)    | dyes and pigments;                                                                                                                                                                     |
|          | (xi)   | surface-active agents and surfactants.                                                                                                                                                 |
|          | (b)    | Chemical installations for the production on an industrial scale of basic inorganic chemicals, such as:                                                                                |
|          | (i)    | gases, such as ammonia, chlorine or hydrogen chloride, fluorine or hydrogen fluoride, carbon oxides, sulphur compounds, nitrogen oxides, hydrogen, sulphur dioxide, carbonyl chloride; |
|          | (ii)   | acids, such as chromic acid, hydrofluoric acid, phosphoric acid, nitric acid, hydrochloric acid, sulphuric acid, oleum, sulphurous acids;                                              |
|          | (iii)  | bases, such as ammonium hydroxide, potassium hydroxide, sodium hydroxide;                                                                                                              |
|          | (iv)   | salts, such as ammonium chloride, potassium chlorate, potassium carbonate, sodium carbonate, perborate, silver nitrate;                                                                |
|          | (v)    | non-metals, metal oxides or other inorganic compounds such as calcium carbide, silicon, silicon carbide.                                                                               |
|          | (c)    | Chemical installations for the production on an industrial scale of phosphorous-, nitrogen- or potassium-based fertilizers (simple or compound fertilizers)                            |
|          | (d)    | Chemical installations for the production on an industrial scale of basic plant health products and of biocides                                                                        |
|          | (e)    | Installations using a chemical or biological process for the production on an industrial scale of basic pharmaceutical products                                                        |

|          |     |                                                                                                                                                                                                                         |
|----------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | (f) | Installations for the production on an industrial scale of explosives and pyrotechnic products                                                                                                                          |
| <b>5</b> |     | <b>Waste and waste-water management</b>                                                                                                                                                                                 |
|          | (a) | Installations for the incineration, pyrolysis, recovery, chemical treatment or landfilling of hazardous waste                                                                                                           |
|          | (b) | Installations for the incineration of municipal waste                                                                                                                                                                   |
|          | (c) | Installations for the disposal of non-hazardous waste                                                                                                                                                                   |
|          | (d) | Landfills (excluding landfills of inert waste)                                                                                                                                                                          |
|          | (e) | Installations for the disposal or recycling of animal carcasses and animal waste                                                                                                                                        |
|          | (f) | Municipal waste-water treatment plants                                                                                                                                                                                  |
|          | (g) | Independently operated industrial waste-water treatment plants which serve one or more activities of this Annex                                                                                                         |
| <b>6</b> |     | <b>Paper and wood production and processing</b>                                                                                                                                                                         |
|          | (a) | Industrial plants for the production of pulp from timber or similar fibrous materials                                                                                                                                   |
|          | (b) | Industrial plants for the production of paper and board and other primary wood products (such as chipboard, fibreboard and plywood)                                                                                     |
|          | (c) | Industrial plants for the preservation of wood and wood products with chemicals                                                                                                                                         |
| <b>7</b> |     | <b>Intensive livestock production and aquaculture</b>                                                                                                                                                                   |
|          | (a) | Installations for the intensive rearing of poultry or pigs                                                                                                                                                              |
|          | (b) | Intensive aquaculture                                                                                                                                                                                                   |
| <b>8</b> |     | <b>Animal and vegetable products from the food and beverage sector</b>                                                                                                                                                  |
|          | (a) | Slaughterhouses                                                                                                                                                                                                         |
|          | (b) | Treatment and processing intended for the production of food and beverage products from:                                                                                                                                |
|          |     | — Animal raw materials (other than milk)                                                                                                                                                                                |
|          |     | — Vegetable raw materials                                                                                                                                                                                               |
|          | (c) | Treatment and processing of milk                                                                                                                                                                                        |
| <b>9</b> |     | <b>Other activities</b>                                                                                                                                                                                                 |
|          | (a) | Plants for the pretreatment (operations such as washing, bleaching, mercerization) or dyeing of fibres or textiles                                                                                                      |
|          | (b) | Plants for the tanning of hides and skins                                                                                                                                                                               |
|          | (c) | Installations for the surface treatment of substances, objects or products using organic solvents, in particular for dressing, printing, coating, degreasing, waterproofing, sizing, painting, cleaning or impregnating |
|          | (d) | Installations for the production of carbon (hard-burnt coal) or electrographite by means of incineration or graphitization                                                                                              |
|          | (e) | Installations for the building of, and painting or removal of paint from ships                                                                                                                                          |