



Headquarters,  
Johnstown Castle Estate,  
County Wexford, Ireland

## GREENHOUSE GAS EMISSIONS PERMIT

|                                |   |
|--------------------------------|---|
| <b>Permit Register Number:</b> | IE-GHG049-10368-3   |
| <b>Operator:</b>               | BASF Ireland Limited<br>Inchera and Wallingstown<br>Little Island<br>Cork |
| <b>Installation Name:</b>      | BASF Ireland Limited  |
| <b>Site Name:</b>              | BASF Ireland Limited  |
| <b>Location:</b>               | Inchera<br>Wallingstown<br>Little Island<br>Cork<br>Ireland               |

## Introductory Note

***This introductory note does not form a part of the Greenhouse Gas Emissions Permit.***

This Greenhouse Gas Emissions Permit authorises the holder to undertake named activities resulting in emissions of Carbon Dioxide from the listed emission sources. It also contains requirements that must be met in respect of such emissions, including monitoring and reporting requirements. This Greenhouse Gas Emissions Permit places an obligation on the Operator to surrender allowances to the Agency equal to the annual reportable emissions of carbon dioxide equivalent from the installation in each calendar year, no later than four months after the end of each such year.

### Contact with Agency:

If you contact the Agency about this Greenhouse Gas Emissions Permit please quote the following reference: Greenhouse Gas Emissions Permit N<sup>o</sup> IE-GHG049-10368.

All correspondence in relation to this permit should be addressed to:

*Email:* help.ets@epa.ie

*By Post:* Climate Change Unit, Environmental Protection Agency  
P.O. Box 3000, Johnstown Castle Estate,  
Co. Wexford

### Updating of the permit:

This Greenhouse Gas Emissions Permit may be updated by the Agency, subject to compliance with Condition 2. The current Greenhouse Gas Emissions Permit will normally be available on the Agency's website at [www.epa.ie](http://www.epa.ie) and [ETSWAP](#).

### Surrender of the permit:

Before this Greenhouse Gas Emissions Permit can be wholly or partially surrendered, a written application must be made to the on-line ETS portal, and written permission received from, the Agency through [ETSWAP](#).

### Transfer of the permit or part of the permit:

Before this Greenhouse Gas Emissions Permit can be wholly or partially transferred to another Operator a joint written application to transfer this Greenhouse Gas Emissions Permit must be made (by both the existing and proposed Operators) to, and written permission received from, the Agency through the on-line ETS portal [ETSWAP](#).

**Licence held pursuant to the Environmental Protection Agency Act 1992, as amended.** (as of the date of this permit):

|                                       |
|---------------------------------------|
| <b>IPC/IE Licence Register Number</b> |
| P0052-02                              |

## Status Log

### Current Permit

| Permit number     | Date application received | Date Permit issued | Comment   |
|-------------------|---------------------------|--------------------|---|
| IE-GHG049-10368-3 | 19 November 2015          | 01 April 2016      | <p>Update of capacity of S6 and S7 from 1 MW to 0.7 and 1.3 MW respectively.</p> <p>In the installation activities section reference to the CHP plant has been removed as it was decommissioned in May 2015.</p> <p>Hot oil boiler A-101A has been replaced with a new Hot oil boiler. New reference number: Hot Oil boiler A-101B.</p> <p>Removal of the Electric Thermal oxidiser S 11 as a Directly Associated Activity.</p> |

### Previous Permits

| Permit number     | Change Type            | Date application received | Date Permit issued | Comment   |
|-------------------|------------------------|---------------------------|--------------------|---|
| IE-GHG049-10368-1 | GHG Permit Application | 21 June 2013              | 26 June 2013       |   |
| IE-GHG049-10368-2 | GHG Variation          | 24 June 2014              | 09 January 2015    | <p>Inclusion of the source stream Acetylene and associated emission source S12.</p> <p>Removal of the source stream TAED-001 and the emission source S8 (Hot Oil Boiler A302)</p> |

### End of Introductory Note



## Glossary of Terms

For the purposes of this permit the terms listed in the left hand column shall have the meaning given in the right hand column below:

|                             |  |
|-----------------------------|--|
| The Agency                  | Environmental Protection Agency.   |
| Agreement                   | Agreement in writing.  |
| Allowance                   | Permission to emit to the atmosphere one tonne of carbon dioxide equivalent during a specified period issued for the purposes of Directive 2003/87/EC by the Agency or by a designated national competent authority of a Member State of the European Union.   |
| Annual Reportable Emissions | Reportable Emissions of carbon dioxide made in any calendar year commencing from 1 January 2005 or the year of commencement of the activity, whichever is the later.   |
| A & V Regulation            | Commission Regulation (EU) No 600/2012 of 21 June 2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers pursuant to Directive 2003/87/EC of the European Parliament and of the Council and any amendments or revisions thereto.   |
| Category A Installation     | As defined in Article 19.2 (a) of the M&R Regulation.  |
| Category B Installation     | As defined in Article 19.2 (b) of the M&R Regulation.  |
| Category C Installation     | As defined in Article 19.2 (c) of the M&R Regulation.  |
| The Directive               | Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.  |
| Emissions                   | The release of greenhouse gases into the atmosphere from sources in an installation.   |
| EPA                         | Environmental Protection Agency.   |
| Fall-Back Methodology       | As defined in Article 22 of the M&R Regulation.  |
| GHG                         | Greenhouse gas.  |
| GHG Permit                  | Greenhouse gas emissions permit.   |
| Greenhouse Gas              | Any of the gases in Schedule 2 of the Regulations.   |
| IPC/IE                      | Integrated Pollution Control/Industrial Emissions.   |
| Installation                | Any stationary technical unit where one or more activities listed in Schedule 1 to the Regulations are carried out. Also any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution. References to an installation include references to part of an installation. |

|  |  |
|--|--|
| Installation with low emissions                | As defined in Article 47 of the M&R Regulation.  |
| Major Source Streams                           | As defined in Article 19.3 (c) of the M&R Regulation.  |
| M&R Regulation                                 | Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and any amendments or revisions thereto.   |
| Mis-statement                                  | An omission, misrepresentation or error in the Operators reported data, not considering the uncertainty permissible pursuant to Article 12(1)(a) of Regulation (EU) no 601/2012.   |
| N/A  | Not applicable.  |
| Monitoring Plan                                | The Plan submitted and approved in accordance with Condition 3.1 of this permit and attached at Appendix 1.  |
| Non-conformity                                 | Any act or omission by the Operator, either intentional or unintentional, that is contrary to the greenhouse gas emissions permit and the requirements of the Monitoring Plan.   |
| The National Administrator                     | The person so designated in accordance with the requirements of any Regulations adopted as provided for under Article 19.3 of Directive 2003/87/EC.  |
| The Operator (for the purposes of this permit) | BASF Ireland Limited   |
| “operator”                                     | Any person who operates or controls an installation or to whom decisive economic power over the functioning of the installation has been delegated.  |
| Person   | Any natural or legal person.   |
| Reportable emissions                           | The total releases to the atmosphere of carbon dioxide (expressed in tonnes of carbon dioxide equivalent) from the emission sources specified in Table 2 and arising from the Schedule 1 activities which are specified in Table 1.  |
| The Regulations                                | European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 (S.I. No 490 of 2012) and any amendments or revisions thereto.  |
| The Verifier                                   | A legal person or another legal entity carrying out verification activities pursuant to Regulation (EU) No 600/2012 and accredited by a national accreditation body pursuant to Regulation (EC) No 765/2008 and Regulation (EU) No 600/2012 or a natural person otherwise authorised, without prejudice to Article 5(2) of Regulation (EC) No 765/2008, at the time a verification report is issued. |
| The Registry                                   | The Registry as provided for under Article 19 of Directive 2003/87/EC.   |

Schedule 1

Schedule 1 to the Regulations.



# Reasons for the Decision

The Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this permit, the Operator is capable of monitoring and reporting emissions in accordance with the requirements of the Regulations.

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## Activities Permitted

Pursuant to the Regulations the Agency issues this Greenhouse Gas Emissions Permit, subject to any subsequent revisions, corrections or modifications it deems appropriate, to:

### The Operator:

BASF Ireland Limited  
Inchera and Wallingstown  
Little Island  
Cork

Company Registration Number: 42876

to carry out the following

### Categories of activity:

| Annex 1 Activity |
|------------------|
|------------------|

|  |
|--|
| Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
|--|

at the following installation(s):

BASF Ireland Limited **Installation number:** 39

located at

Inchera  
Wallingstown  
Little Island  
Cork  
Ireland

subject to the five conditions contained herein, with the reasons therefor and associated tables attached thereto.



# Conditions

## Condition 1. The Permitted Installation

- 1.1 This permit is being granted in substitution for the previous GHG permit granted to the Operator as listed in the Status Log of this GHG permit.
- 1.2 The Operator is authorised to undertake the activities and/or the directly associated activities specified in Table 1 below resulting in the emission of carbon dioxide:

**Table 1 - Activities which are listed in Schedule 1 of the Regulations and other directly associated activities carried out on the site:**

Installation No.: 39

| Activity Description   |
|--|
| Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |

| Directly Associated Activity Description |
|--|
| N/A                                      |

- 1.3 Carbon dioxide from Schedule 1 activities shall be emitted to atmosphere only from the emission sources as listed in Table 2 below:

**Table 2 Emission Sources and Capacities:**

| Emission Source Reference | Emission Source Description | Capacity | Capacity Units |
|---------------------------|-----------------------------|----------|----------------|
| S1                        | Boiler 1                    | 5        | MW             |
| S2                        | Boiler 2                    | 5        | MW             |
| S3                        | Boiler 3                    | 9.6      | MW             |
| S4                        | Boiler 4                    | 10.5     | MW             |
| S5                        | Boiler 5                    | 15.13    | MW             |
| S6                        | Hot Oil Boiler A-101        | 0.7      | MW             |
| S7                        | Hot Oil Boiler A-101B       | 1.3      | MW             |

| Emission Source Reference | Emission Source Description | Capacity | Capacity Units |
|---------------------------|-----------------------------|----------|----------------|
| S9                        | Fire Pump                   | 0.65     | MW             |
| S10                       | Fire Pump                   | 0.34     | MW             |
| S12                       | Welding Equipment           | 0        | MW             |

- 1.4 The activity shall be controlled, operated and maintained so that emissions of carbon dioxide shall take place only as set out in this GHG Emissions Permit. The permit does not control emissions of gases other than carbon dioxide. All agreed plans, programmes and methodologies required to be carried out under the terms of this permit, become part of this permit.
- 1.5 This GHG Permit is for the purposes of GHG emissions permitting under the European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 and any amendments to the same only and nothing in this permit shall be construed as negating the Operator’s statutory obligations or requirements under any other enactments or regulations unless specifically amended by the Regulations.
- 1.6 Any reference in this permit to ‘installation’ shall mean the installation as described in the Greenhouse Gas Emissions Permit application and any amendments approved by the Agency.

*Reason: To describe the installation and clarify the scope of this permit.*

## Condition 2. Notification

- 2.1 No alteration to, or reconstruction in respect of, the activity or any part thereof which would, or is likely to, result in a change in:
  - 2.1.1 the nature or functioning of the installation;
  - 2.1.2 the capacity of the installation as detailed in this permit;
  - 2.1.3 the fuels used at the installation;
  - 2.1.4 the range of activities to be carried out at the installation
 that may require updating of the GHG permit shall be carried out or commenced without prior notice to and without the prior written agreement of the Agency.
- 2.2 The Operator shall notify the Agency in writing of the cessation of all or part of any activity listed in Table 1 of this permit no later than one month from the date of cessation or by 31 December of the year of cessation, whichever is sooner.
- 2.3 The Operator shall apply for an update of this GHG Permit where there is a change to the Operator name and/or registered address of the Operator, within seven days of the change.
- 2.4 For installations or parts of installations which have not come into operation when the application for this permit was made the Operator shall notify the Agency of the date of commencement of the activity within seven days of commencement.

- 2.5 The Operator shall notify the Agency in writing within three days of becoming aware of any factors which may prevent compliance with the conditions of this permit.
- 2.6 The Operator shall submit to the Agency by 21 January of each year a declaration of operability. The declaration submitted shall be in the format required by the Agency.
- 2.7 All notifications required under Condition 2 above shall be made to the address given in the Explanatory Note included with this permit.
- 2.8 The Operator shall submit to the Agency by 31 December of each year all relevant information about any planned or effective changes to the capacity, activity level and operation of an installation. The information submitted shall be in the format required by the Agency.

*Reason: To provide for the notification of updated information on the activity.*

### **Condition 3. Monitoring and Reporting**

- 3.1 The Operator shall monitor and record greenhouse gas emissions on site in accordance with the M&R Regulation and the approved Monitoring Plan attached at Appendix 1 to this GHG permit and in compliance with any other guidance approved by the Agency for the purposes of implementing the Directive and/or the Regulations.
- 3.2 The Operator shall modify the monitoring plan in any of the following situations:
  - 3.2.1 new emissions occur due to new activities carried out or due to the use of new fuels or materials not yet contained in the monitoring plan;
  - 3.2.2 the change of availability of data, due to the use of new measurement instrument types, sampling methods or analysis methods, or for other reasons, leads to higher accuracy in the determination of emissions;
  - 3.2.3 data resulting from the previously applied monitoring methodology has been found incorrect;
  - 3.2.4 changing the monitoring plan improves the accuracy of the reported data, unless this is technically not feasible or incurs unreasonable costs;
  - 3.2.5 the monitoring plan is not in conformity with the requirements of the M&R Regulation and the Agency requests a change;
  - 3.2.6 it is necessary to respond to the suggestions for improvement of the monitoring plan contained in the verification report.

The Operator shall notify any proposals for modification of the monitoring plan to the Agency without undue delay. Any significant modifications of the monitoring plan, as defined in Article 15 of the M&R Regulation, shall be subject to approval by the Agency. Where approved these changes shall be implemented within a timeframe agreed by the Agency.

- 3.3 Temporary changes to the monitoring methodology:
  - 3.3.1 Where it is for technical reasons temporarily not feasible to apply the tier in the monitoring plan for the activity data or each calculation factor of a fuel or material stream as approved by the Agency, the Operator shall apply the highest achievable tier until the conditions for application of the tier approved in the monitoring plan have been restored. The Operator shall take all necessary measures to allow the prompt restoration of the tier in the approved monitoring plan. The Operator shall notify the temporary change to the monitoring methodology without undue delay to the Agency specifying:
    - (i) The reasons for the deviation from the tier;

- (ii) in detail, the interim monitoring methodology applied by the Operator to determine the emissions until the conditions for the application of the tier in the monitoring plan have been restored;
  - (iii) the measures the Operator is taking to restore the conditions for the application of the tier in the approved monitoring plan;
  - (iv) the anticipated point in time when application of the approved tier will be resumed.
- 3.3.2 A record of all non-compliances with the approved monitoring plan shall be maintained on-site and shall be available on-site for inspection by authorised persons of the Agency and/or by the Verifier at all reasonable times.
- 3.4 The Operator shall appoint a Verifier to ensure that, before their submission, the reports required by Condition 3.5 below are verified in accordance with the criteria set out in Schedule 5 of the Regulations, the A&V Regulation and any more detailed requirements of the Agency.
- 3.5 The written report of the verified annual reportable emissions and the verification report in respect of each calendar year shall be submitted to the Agency by the Operator no later than 31 March of the following year. The reports shall be in the format required by the Agency and meet the criteria set out in the M&R and A&V Regulations.
- 3.6 The Operator shall enter the verified annual reportable emissions figure for the preceding year into the Registry no later than 31 March of the following year. This figure shall be electronically approved by the Verifier in the registry no later than 31 March of each year.
- 3.7 Where an Operator is applying the Fall-Back methodology, the Operator shall assess and quantify each year the uncertainties of all parameters used for the determination of the annual emissions in accordance with the ISO Guide to the Expression of Uncertainty in Measurement or another equivalent internationally accepted standard and include the verified results in the written report of the verified annual reportable emissions to be submitted to the Agency by 31 March each year.
- 3.8 An Operator shall submit to the Agency for approval a report containing the information detailed in (i) or (ii) below, where appropriate, by the following deadlines:
  - (a) for a category A installation, by 30 June every four years;
  - (b) for a category B installation, by 30 June every two years;
  - (c) for a category C installation, by 30 June every year.
  - (i) Where the Operator does not apply at least the tiers required pursuant to the first subparagraph of Article 26(1) and to Article 41(1) of the M&R Regulation, the Operator shall provide a justification as to why it is technically not feasible or would incur unreasonable costs to apply the required tiers. Where evidence is found that measures needed for reaching those tiers have become technically feasible and do not incur unreasonable costs, the Operator shall notify the Agency of appropriate modifications to the monitoring plan and submit proposals for implementing appropriate measures and its timing.
  - (ii) Where the Operator applies a fall-back monitoring methodology, the Operator shall provide a justification as to why it is technically not feasible or would incur unreasonable costs to apply at least tier 1 for one or more major or minor source streams. Where evidence is found that measures needed for reaching at least tier 1 for those source streams have become technically feasible and do not incur unreasonable costs, the Operator shall notify the Agency of appropriate modifications to the monitoring plan, submit proposals and a timeframe for implementing appropriate measures.
- 3.9 Where the verification report states outstanding non conformities, misstatements or recommendations for improvements the Operator shall submit a report to the Agency for approval

by 30 June of the year in which the verification report is issued. This requirement does not apply to the Operator of an installation with low emissions where the verification report contains recommendations for improvements only. The report shall describe how and when the Operator has rectified or plans to rectify the non-conformities identified and to implement recommended improvements. Where recommended improvements would not lead to an improvement of the monitoring methodology this must be justified by the Operator. Where the recommended improvements would incur unreasonable costs the Operator shall provide evidence of the unreasonable nature of the costs. The Operator shall implement the improvements specified by the Agency in response to the report submitted in accordance with this Condition in accordance with a timeframe set by the Agency.

- 3.10 The Operator shall make available to the Verifier and to the Agency any information and data relating to emissions of carbon dioxide which are required in order to verify the reports referred to in Condition 3.5 above or as required by the Agency to facilitate it in establishing benchmarks and/or best practice guidance.
- 3.11 Provision shall also be made for the transfer of environmental information, in relation to this permit, to the Agency's computer system, as may be requested by the Agency.
- 3.12 The Operator shall retain all information as specified in the M&R Regulation for a period of at least 10 years after the submission of the relevant annual report.
- 3.13 A record of independent confirmation of capacities listed in this permit shall be available on-site for inspection by authorised persons of the Agency at all reasonable times.
- 3.14 The Operator shall keep records of all modifications of the monitoring plan. The records shall include the information specified in Article 16.3 of the M&R Regulation.
- 3.15 The Operator shall ensure that members of the public can view a copy of this permit and any reports submitted to the Agency in accordance with this permit at all reasonable times. This requirement shall be integrated with the requirements of any public information programme approved by the Agency in relation to any other permit or licence held by the Operator for the site.

*Reason: To provide for monitoring and reporting in accordance with the Regulations.*

## Condition 4. Allowances

### 4.1 Surrender of Allowances

- 4.1.1 The Operator shall, by 30 April in each year, surrender to the Agency, or other appropriate body specified by the Agency, allowances equal to the annual reportable emissions in the preceding calendar year.
- 4.1.2 The number of allowances to be surrendered shall be the annual reportable emissions for the preceding calendar year plus such allowances as may be necessary to cover any earlier calendar year in respect of which allowances remain outstanding and due. This includes allowances to cover the amount of any annual reportable emissions in respect of which allowances were not surrendered in accordance with Condition 4.1.1 in the previous year, and the amount of any reportable emissions which were discovered during the previous year to have been unreported in reports submitted under Condition 3 in that or in earlier years.
- 4.1.3 In relation to activities or parts of activities which have ceased to take place and have been notified to the Agency in accordance with Condition 2.2 above, the Operator shall surrender to the Agency allowances equal to the annual reportable emissions from such activities in the preceding calendar year or part thereof, together with such allowances as

may be necessary to cover any earlier calendar year in respect of which allowances remain outstanding and due as described in Condition 4.1.2 above.

- 4.1.4 The Operator may, from 2008 onwards, subject to the provisions of the Regulations and the relevant National Allocation Plan for that compliance year, surrender emission reduction units (ERUs) and certified emission reduction units (CERs) in place of allowances.
- 4.2 The holding, transfer, surrender and cancellation of allowances shall be in accordance with the requirements of any Regulations adopted as provided for under Article 19.3 of Directive 2003/87/EC, any amendment or revision to the same and any guidance issued by the Agency or the National Administrator.
- 4.3 The Operator shall provide the National Administrator with all the necessary information for the opening of an Operator holding account for the installation described in Condition 1 of this permit within twenty working days of the issue of this permit, unless such an account is already open.

*Reason: To provide for the surrendering, holding, transfer and cancellation of allowances in respect of reported emissions.*

## Condition 5. Penalties

5.1 Any Operator who fails to comply with Condition 4.1 above shall be subject to the provisions of the Regulations, including, but not limited to the payment of penalties.

*Reason: To provide for the payment of excess emissions penalties as required under the Regulations.*

Sealed by the seal of the Agency on this the 01 April 2016:

PRESENT when the seal of the Agency was affixed hereto:

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Ms. Annette Prendergast  
Inspector/ Authorised Person

# Appendix 1 to Greenhouse Gas Emissions Permit Number IE-GHG049-10368

## Monitoring Plan

### 1. Guidelines & Conditions

1. Directive 2003/87/EC as amended by Directive 2009/29/EC (hereinafter "the (revised) EU ETS Directive") requires operators of installations which are included in the European Greenhouse Gas Emission Trading Scheme (the EU ETS) to hold a valid GHG emission permit issued by the relevant Competent Authority and to monitor and report their emissions and have the reports verified by an independent and accredited verifier.

The Directive can be downloaded from:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2003L0087:20090625:EN:PDF>

2. The Monitoring and Reporting Regulation (Commission Regulation (EU) No 601/2012) (hereinafter the "MRR") defines further requirements for monitoring and reporting.

The MRR can be downloaded from:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:181:0030:0104:EN:PDF>

Article 12 of the MRR sets out specific requirements for the content and submission of the monitoring plan and its updates. Article 12 outlines the importance of the Monitoring plan as follows:

*The monitoring plan shall consist of a detailed complete and transparent documentation of the monitoring methodology of a specific installation [or aircraft operator] and shall contain at least the elements laid down in Annex I.*

Furthermore Article 74(1) states:

*Member States may require the operator and aircraft operator to use electronic templates or specific file formats for submission of monitoring plans and changes to the monitoring plan as well as for submission of annual emissions reports tonne-kilometre data reports verification reports and improvement reports. Those templates or file format specifications established by the Member States shall at least contain the information contained in electronic templates or file format specifications published by the Commission*

3. All Commission guidance documents on the Monitoring and Reporting Regulation will be published at the link below as they become available:

[http://ec.europa.eu/clima/policies/ets/monitoring/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm)

#### (a) Information sources:

##### EU Websites:

EU-Legislation: <http://eur-lex.europa.eu/en/index.htm>

EU ETS general: [http://ec.europa.eu/clima/policies/ets/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/index_en.htm)

Monitoring and Reporting in the EU ETS: [http://ec.europa.eu/clima/policies/ets/monitoring/index\\_en.htm](http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm)

**Environmental Protection Agency Website:**

<http://www.epa.ie>

**Environmental Protection Agency Contact:**

[GHGpermit@epa.ie](mailto:GHGpermit@epa.ie)

## 2. Application Details

The Installation Name, Site Name and the address of the site of the installation are detailed below. The Site Name and address can be updated from the Organisation Details Page on the ETSWAP website. The Installation Name can only be updated by your Competent Authority.

**Installation name** BASF Ireland Limited

**Site name** BASF Ireland Limited

**Address**  
Inchera  
Wallingstown  
Little Island  
Cork  
Ireland

**Grid reference of site main entrance** E 173911.6, N 71702

**Licence held pursuant to the Environmental Protection Agency Act 1992, as amended.** Yes

| IPC/IE Licence Register Number | Licence holder       | Competent body                  |
|--------------------------------|----------------------|---------------------------------|
| P0052-02                       | BASF Ireland Limited | Environmental Protection Agency |

Has the regulated activity commenced at the Installation? Yes

Date of Regulated Activity commencement 01 January 2008

This information is only required to identify the first relevant reporting year of an installation. If the installation was in operation from the beginning of 2008 and held a Greenhouse Gas Emissions Permit from this point, 1 January 2008 will be used where the actual date of commencement is not readily known.

### 3. About the Operator

The information about the "Operator" is listed below. The "Operator" is defined as the person who it is proposed will have control over the relevant Regulated Activities in the installation in respect of which this application is being made.

#### (b) Operator Details

The name of the operator and where applicable the company registration number are detailed below. These details can only be updated by the Environmental Protection Agency.

**Operator name** BASF Ireland Limited

**Company Registration Number** 42876

#### Operator Legal status

The legal status of the operator is: Company / Corporate Body

**(c) Company / Corporate Body**

Is the trading / business name different to the operator name? No

Details of the individual authorised to submit this application on behalf of the company / corporate body.

|          |                                 |
|----------|---------------------------------|
| Title    | █                               |
| Forename | █                               |
| Surname  | █                               |
| Position | Maintenance Engineering Manager |

**Registered office address**

|                |                          |
|----------------|--------------------------|
| Address Line 1 | Inchera and Wallingstown |
| Address Line 2 | N/A                      |
| City/Town      | Little Island            |
| County         | Cork                     |
| Postcode       | N/A                      |

**Principal office address**

Is the principal office address different to the registered office address? No

**Holding company**

Does the company belong to a holding company? No

**(d) Operator Authority**

Does the operator named above have the authority and ability to:

- |   |     |
|---|-----|
| a. manage site operations through having day-to-day control of plant operation including the manner and rate of operation | Yes |
| b. ensure that permit conditions are effectively complied with  | Yes |
| c. control monitor and report specified emissions   | Yes |
| d. be responsible for trading in Allowances so that at the  | Yes |

end of a reporting period allowances can be balanced against reported emissions.

#### 4. Service Contact

##### e. Service Contact

|                         |   |
|-------------------------|---|
| Name                    |   |
| Address / Email Address | BASF Ireland Limited<br>Inchera and Wallingstown<br>Little Island<br>Co.Cork<br>Ireland |

#### 5. Installation Activities

##### f. Installation Description

Below is a description of the installation and its activities, a brief outline description of the site and the installation and the location of the installation on the site. The description also includes a non-technical summary of the activities carried out at the installation briefly describing each activity performed and the technical units used within each activity.

BASF Ireland Limited manufactures specialty chemicals for the mining industry. Solutions are developed for metal recovery through solvent extraction technologies. These solutions are for the energy-saving, efficient and environment-friendly recovery of metals from ores such as copper, nickel, uranium and vanadium. BASF Ireland is located in Wallingstown, Little Island, Co. Cork. The site is supplied by five steam boilers and two hot oil boilers. The fuels burned on site include HFO, Diesel, Ketox, Toulene Distillate, Propane and a mix of HFO and Aldox. Analysis of the fuels is carried out throughout the year to give the carbon content and NCV values. A small amount of Acetylene is used by welding equipment.

##### g. Annex 1 Activities

The table below lists the technical details for each Annex 1 activity carried out at the installation.

Note that 'capacity' in this context means:

- Rated thermal input (for combustion installations) which is defined as the rate at which fuel can be burned at the maximum continuous rating of the installation multiplied by the calorific value of the fuel and expressed as megawatts thermal.



should relate to a single installation. It includes any activities carried out by the operator and does not include related activities carried out by other operators.

**k. Emission Sources**

The table below lists all the emission sources at the installation, which may include directly associated activities/excluded activities.

| <b>Emission Source Reference</b> | <b>Emission Source Description</b> |
|----------------------------------|------------------------------------|
| S1                               | Boiler 1                           |
| S2                               | Boiler 2                           |
| S3                               | Boiler 3                           |
| S4                               | Boiler 4                           |
| S5                               | Boiler 5                           |
| S6                               | Hot Oil Boiler A-101               |
| S7                               | Hot Oil Boiler A-101B              |
| S9                               | Fire Pump                          |
| S10                              | Fire Pump                          |
| S12                              | Welding Equipment                  |

The table below lists the emission sources which are linked to the Regulated Activities at the installation.

| <b>Emission Source Reference</b> | <b>Emission Source Description</b> |
|----------------------------------|------------------------------------|
| S1                               | Boiler 1                           |
| S2                               | Boiler 2                           |
| S3                               | Boiler 3                           |
| S4                               | Boiler 4                           |
| S5                               | Boiler 5                           |
| S6                               | Hot Oil Boiler A-101               |
| S7                               | Hot Oil Boiler A-101B              |
| S9                               | Fire Pump                          |
| S10                              | Fire Pump                          |
| S12                              | Welding Equipment                  |

**l. Emission Points**

The table below lists all the emission points at the installation, which may include directly associated activities/excluded activities.

| <b>Emission Point Reference</b> | <b>Emission Point Description</b> |
|---------------------------------|-----------------------------------|
|---------------------------------|-----------------------------------|

| Emission Point Reference | Emission Point Description |
|--------------------------|----------------------------|
| EP 1/4                   | Boiler 3                   |
| EP 1/6                   | Boiler 1 and Boiler 2      |
| EP 1/8                   | Boiler 4 and Boiler 5      |
| EP 1/10                  | Hot Oil Boiler A-101       |
| EP 1/10A                 | Hot Oil Boiler A-101B      |
| EP 3/50A                 | Fire Pump                  |
| EP 3/50B                 | Fire Pump                  |
| EP 1/11                  | Electric Thermal Oxidiser  |
| EP 1/12                  | Welding Equipment          |

#### m. Source Streams (fuels and/or materials)

The table below lists the source streams which are used in Schedule 1 Activities at the installation.

| Source Stream Reference | Source Stream Type                       | Source Stream Description |
|-------------------------|--|---------------------------|
| DSL-001                 | Combustion: Commercial standard fuels    | Gas/Diesel Oil            |
| HFO-001                 | Combustion: Other gaseous & liquid fuels | Heavy Fuel Oil            |
| HFO/Aldox-001           | Combustion: Other gaseous & liquid fuels | HFO/Aldox                 |
| Tol-001                 | Combustion: Other gaseous & liquid fuels | Toulene                   |
| Ketox-001               | Combustion: Other gaseous & liquid fuels | Ketox                     |
| LPG-001                 | Combustion: Other gaseous & liquid fuels | Liquefied Petroleum Gases |
| DSL-002                 | Combustion: Commercial standard fuels    | Gas/Diesel Oil            |
| Not Applicable          | Other                                    | Not Applicable            |
| Acet-001                | Combustion: Other gaseous & liquid fuels | Acetylene                 |

#### n. Emissions Summary

The table below provides a summary of the emission source and source stream details in the installation.

| Source streams ( Fuel / Material ) | Emission Source Refs. | Emission Point Refs. | Annex 1 Activity |
|------------------------------------|-----------------------|----------------------|------------------|
|------------------------------------|-----------------------|----------------------|------------------|

| Source streams ( Fuel / Material ) | Emission Source Refs. | Emission Point Refs.           | Annex 1 Activity   |
|------------------------------------|-----------------------|--------------------------------|--|
| DSL-001                            | S1,S2,S3,S6,S7        | EP 1/10,EP 1/10A,EP 1/4,EP 1/6 | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| LPG-001                            | S1,S2,S3,S4,S5        | EP 1/4,EP 1/6,EP 1/8           | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| HFO-001                            | S4,S5                 | EP 1/8                         | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| HFO/Aldox-001                      | S4,S5                 | EP 1/8                         | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| Tol-001                            | S5                    | EP 1/8                         | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| Ketox-001                          | S5                    | EP 1/8                         | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| DSL-002                            | S10,S9                | EP 3/50A,EP 3/50B              | Combustion of fuels in installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |
| Acet-001                           | S12                   | EP 1/12                        | Combustion of fuels in   |

| Source streams ( Fuel / Material ) | Emission Source Refs. | Emission Point Refs. | Annex 1 Activity  |
|------------------------------------|-----------------------|----------------------|---|
|                                    |                       |                      | installations with a total rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste) |

**o. Excluded Activities**

Certain activities that result in greenhouse gas emissions may be excluded under the EU ETS Directive for example truly mobile sources such as vehicle emissions.

Do you have any excluded activities which need to be identified in your monitoring plan? No

**7. Low Emissions Eligibility**

**p. Low Emissions Eligibility**

The operator may submit a simplified monitoring plan for an installation where no nitrous oxide activities are carried out and it can be demonstrated that:

- (a) the average verified annual emissions of the installation during the previous trading period was less than 25 000 tonnes CO<sub>2(e)</sub> per year or;
- (b) where this data is not available or inappropriate a conservative estimate shows that emissions for the next 5 years will be less than 25 000 tonnes CO<sub>2(e)</sub> per year.

Note: the above data shall include transferred CO<sub>2</sub> but exclude CO<sub>2</sub> stemming from biomass.

Does the installation satisfy the criteria for installations with low emissions (as defined by Article 47 of the MRR)? No

**8. Monitoring Approaches**

**q. Monitoring Approaches**

Emissions may be determined using either a calculation based methodology ("calculation") or measurement based methodology ("measurement") except where the use of a specific methodology is mandatory according to the provisions of the MRR. [MRR Article 21].

Note: the operator may subject to competent authority approval combine measurement and calculation for different sources. The operator is required to ensure and demonstrate that neither gaps nor double counting of reportable emissions occurs.

Please specify whether or not you propose to apply the following monitoring approaches. Select all monitoring approaches that are applicable to you. The consecutive sections will become mandatory based on the selected approaches.

|  |     |
|--|-----|
| Calculation  | Yes |
| Measurement  | No  |
| Fall-back approach                                   | No  |
| Monitoring of N <sub>2</sub> O                       | No  |
| Monitoring of PFC                                    | No  |
| Monitoring of transferred / inherent CO <sub>2</sub> | No  |

## 9. Calculation

### r. Approach Description

The calculation approach including formulae used to determine annual CO<sub>2</sub> emissions:

The HFO/Aldox, Ketox & Tolune fuels are metered as they enter the boilers. These meter readings are recorded and saved on an M&T server. HFO/Aldox, Ketox & Toulene are analysed 4 times throughout the year for C,H, N and NCV.

LPG and Acetylene are deminimis source streams and so we simply count the bottles used in a year.

Diesel Oil Consumption will be calculated using delivery dockets and tank level data.

Diesel Oil consumption will be checked against metered consumption into 1,2 & 3 Steam Boilers, and A-101 & A101B Hot Oil Boilers. Diesel consumption for Fire Engines (Emission Points EP 3/50A & EP 3/50B) is a de minimis source so a fixed CO<sub>2</sub> Emission of 2T per annum will be used.

For HFO we use national factors for NCV, EF & OF together with the metered consumptions to calculate the total CO<sub>2</sub> generated from these fuels. For Diesel we use national factors for NCV, EF & OF together with the calculated consumption from delivery dockets & tank levels to calculate the total CO<sub>2</sub> generated from this fuel. For Propane we use national factors for NCV, Fuel Factor & OF together with the bottles used to calculate the total CO<sub>2</sub> generated from this fuels. For Acetylene tier 1 country specific factors are applied for NCV and EF and tier 1 for oxidation factor.

TCO<sub>2</sub> Calculated as follows: TCO<sub>2</sub> = Activity Data \* NCV \* Oxidation Factor \* Emission Factor

### s. Measurement Devices

Below is a description of the specification and location of the measurement systems used for each source stream where emissions are determined by calculation

Also a description of all measurement devices including sub-meters and meters used to deduct non-Annex I activities to be used for each source and source stream.

| Source Stream Refs.             | Emission Source Refs. | Measurement Device Ref. | Type of Measurement Device                     | Measurement Range | Metering Range Units | Specified Uncertainty (+/- %) | Location          |
|---------------------------------|-----------------------|-------------------------|--|-------------------|----------------------|-------------------------------|-------------------|
| DSL-001                         | S1,S2,S3,S6,S7        | LT-9101                 | Electronic volume conversion instrument (EVCI) | 0 - 100           | Cubic Metres         | 0.16                          | Diesel Tank T-053 |
| DSL-001                         | S1,S2,S3,S6,S7        | Suppliers Meter         | Positive Displacement Meter                    | 285 - 2850        | l/min                | 0.06                          | Whitegate         |
| HFO-001,HFO/Aldox-001           | S4                    | FT-211                  | Coriolis meter                                 | 0 - 1000          | kgs/hr               | 0.7                           | Boiler House 2    |
| HFO-001,HFO/Aldox-001,Ketox-001 | S5                    | FT-202                  | Coriolis meter                                 | 0 - 1380          | kgs/hr               | 0.7                           | Boiler House 2    |
| Tol-001                         | S5                    | FT-9801                 | Coriolis meter                                 | 0 - 600           | kgs/hr               | 0.7                           | Boiler House 2    |
| DSL-002                         | S9,S10                | Estimate                | Estimate                                       | N/A               | N/A                  | N/A                           | N/A               |
| LPG-001                         | S1,S2,S3,S4,S5        | Bottles used            | Estimate                                       | N/A               | N/A                  | N/A                           | N/A               |
| Acet-001                        | S12                   | Bottle Count            | Estimate                                       | N/A               | N/A                  | N/A                           | N/A               |

| Source Stream Refs. | Measurement Device Ref. | Determination Method | Instrument Control Of | Under | Conditions Of Article 29(1) Satisfied | Invoices Used To Determine Amount Of Fuel Or Material | Trade Partner And Operator Independent |
|---------------------|-------------------------|----------------------|-----------------------|-------|---------------------------------------|---|--|
| DSL-001             | LT-9101                 | Batch                | Operator              |       | N/A                                   | N/A   | N/A                                    |

| Source Stream Refs.             | Measurement Device Ref. | Determination Method | Instrument Under Control Of | Conditions Of Article 29(1) Satisfied | Invoices Used To Determine Amount Of Fuel Or Material | Trade Partner And Operator Independent |
|---------------------------------|-------------------------|----------------------|-----------------------------|---------------------------------------|---|--|
| DSL-001                         | Suppliers Meter         | Batch                | Trade partner               | Yes                                   | Yes   | Yes                                    |
| HFO-001,HFO/Aldox-001           | FT-211                  | Continual            | Operator                    | N/A                                   | N/A   | N/A                                    |
| HFO-001,HFO/Aldox-001,Ketox-001 | FT-202                  | Continual            | Operator                    | N/A                                   | N/A   | N/A                                    |
| Tol-001                         | FT-9801                 | Continual            | Operator                    | N/A                                   | N/A   | N/A                                    |
| DSL-002                         | Estimate                | Batch                | Operator                    | N/A                                   | N/A   | N/A                                    |
| LPG-001                         | Bottles used            | Batch                | Operator                    | N/A                                   | N/A   | N/A                                    |
| Acet-001                        | Bottle Count            | Batch                | Operator                    | N/A                                   | N/A   | N/A                                    |

#### t. Applied Tiers

The table below identifies the tiers applied against the relevant input data for each source stream and confirms whether a standard (MRR Article 24) or mass balance (MRR Article 25) approach is applied.

(i) The highest tiers as defined in Annex II of the MRR should be used by Category B and C installations to determine the activity data and each calculation factor (except the oxidation factor and conversion factor) for each major source stream. Category A installations should apply as a minimum the tiers listed in Annex V.

(ii) Operators may apply a tier one level lower than those referred to in sub paragraph (i) above for Category C installations and up to two levels lower for Category A and B installations with a minimum of tier 1 if the operator can demonstrate to the satisfaction of the competent authority that this is not technically feasible or would lead to unreasonable cost to apply the higher tier. The justification for not applying the higher tier should be recorded when completing the tier table.

(iii) The competent authority may allow an operator to apply even lower tiers than those referred to in the sub paragraph (ii) with a minimum of tier 1 for a transition period of up to three years if the operator can demonstrate to the satisfaction of the competent authority that this is not technically feasible or would lead to unreasonable cost to apply the higher tier and provides an improvement plan detailing how and by when at least the tier referred to in sub paragraph (ii) will be achieved. The improvement plan should be referenced in subsequent table and provided to the competent authority at the time of submission of this plan.

(iv) For minor source streams operators shall apply the highest tier which is technically feasible and will not lead to unreasonable costs with a minimum of tier 1 for activity data and each calculation factor. For de-minimis source streams operators may use conservative estimations rather than tiers unless a defined tier can be achieved without additional effort (MRR Article 26(2)).

(v) Installations with low emissions as identified in section 6(d) may apply as a minimum tier 1 for determining activity data and calculation factors for all source streams unless higher accuracy is achievable without additional effort.

\* Note 1: For commercial standard fuels the minimum tiers listed in Annex V of the MRR may be applied for all activities in all installations.

\* Note 2: If you are intending to apply a fall-back approach please complete the table below and select "n/a" for the tiers to be applied for each source stream where a fall-back approach is used. Section 10 "Fall-back" must also be completed for these source streams.

\* Note 3: For biomass or mixed fuels the emission factor is the preliminary emission factor as defined in Definition 35 Article 3 of the MRR.

| Source Stream Refs. | Emission Source Refs. | Measurement Device Refs. | Overall Metering Uncertainty (less than +/- %) | Applied Monitoring Approach | Activity Data Tier Applied | Net Calorific Value Tier Applied | Emission Factor Tier Applied | Carbon Content Tier Applied | Oxidation Factor Tier Applied | Conversion Factor Tier Applied | Biomass Fraction Tier Applied | Estimated Emissions tCO <sub>2(e)</sub> | % of Total Estimated Emissions | Source Category | Highest Tiers Applied | Justification for not applying the highest tiers | Improvement Plan Reference (where applicable) |
|---------------------|-----------------------|--------------------------|--|-----------------------------|----------------------------|----------------------------------|------------------------------|-----------------------------|-------------------------------|--------------------------------|-------------------------------|---|--------------------------------|-----------------|-----------------------|--|---|
| DSL-001             | S1,S2,S3,S6,S7        | LT-9101,Suppliers Meter  | <5.0%  | Standard                    | 2                          | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           | 4000                                    | 19.51                          | Major           | Yes                   | n/a  | n/a   |
| HFO-001             | S4,S5                 | FT-202,FT-211            | <1.5%  | Standard                    | 4                          | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           | 5500                                    | 26.82                          | Major           | Yes                   | n/a  | n/a   |
| HFO/Aldox-001       | S4,S5                 | FT-211,FT-202            | <1.5%  | Standard                    | 4                          | 3                                | 3                            | N/A                         | 1                             | N/A                            | N/A                           | 8000                                    | 39.02                          | Major           | Yes                   | n/a  | n/a   |
| Ketox-001           | S5                    | FT-202                   | <1.5%  | Standard                    | 4                          | 3                                | 3                            | N/A                         | 1                             | N/A                            | N/A                           | 1500                                    | 7.32                           | Major           | N/A                   | n/a  | n/a   |
| Tol-001             | S5                    | FT-9801                  | <1.5%  | Standard                    | 4                          | 3                                | 3                            | N/A                         | 1                             | N/A                            | N/A                           | 1500                                    | 7.32                           | Minor           | N/A                   | n/a  | n/a   |

| Source Stream Refs. | Emission Source Refs. | Measurement Device Refs. | Overall Metering Uncertainty (less than +/- %) | Applied Monitoring Approach | Activity Data Tier Applied | Net Calorific Value Tier Applied | Emission Factor Tier Applied | Carbon Content Tier Applied | Oxidation Factor Tier Applied | Conversion Factor Tier Applied | Biomass Fraction Tier Applied | Estimated Emissions tCO <sub>2(e)</sub> | % of Total Estimated Emissions | Source Category | Highest Tiers Applied | Justification for not applying the highest tiers | Improvement Plan Reference (where applicable) |
|---------------------|-----------------------|--------------------------|--|-----------------------------|----------------------------|----------------------------------|------------------------------|-----------------------------|-------------------------------|--------------------------------|-------------------------------|---|--------------------------------|-----------------|-----------------------|--|---|
| DSL-002             | S9,S10                | Estimate                 | N/A  | Standard                    | No tier                    | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           | 2                                       | 0.01                           | De-minimis      | N/A                   | n/a  | n/a   |
| LPG-001             | S1,S2,S3,S4,S5        | Bottles used             | N/A  | Standard                    | No tier                    | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           | 2                                       | 0.01                           | De-minimis      | N/A                   | n/a  | n/a   |
| Acet-001            | S12                   | Bottle Count             | N/A  | Standard                    | No tier                    | 1                                | 1                            | N/A                         | 1                             | N/A                            | N/A                           | 0.001                                   | 0                              | De-minimis      | N/A                   | n/a  | n/a   |

Total Estimated Emissions for Calculation (tonnes CO<sub>2(e)</sub>)

20504.001

**u. Uncertainty Calculations**

The table below lists evidence attached to the application that demonstrates compliance with the applied tiers in accordance with Article 12 of the MRR.

| <b>Attachment</b>     | <b>Description</b>       |
|-----------------------|--------------------------|
| Uncertainty Calcs.xls | Uncertainty calculations |

**v. Applied tiers**

Applied tiers for each source stream

| Source Stream Ref. | Emission Source Refs. | Activity Data Tier Applied | Net Calorific Value Tier Applied | Emission Factor Tier Applied | Carbon Content Tier Applied | Oxidation Factor Tier Applied | Conversion Factor Tier Applied | Biomass Fraction Tier Applied |
|--------------------|-----------------------|----------------------------|----------------------------------|------------------------------|-----------------------------|-------------------------------|--------------------------------|-------------------------------|
| DSL-001            | S1,S2,S3,S6,S7        | 2                          | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           |
| HFO-001            | S4,S5                 | 4                          | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           |
| HFO/Aldox-001      | S4,S5                 | 4                          | 3                                | 3                            | N/A                         | 1                             | N/A                            | N/A                           |
| Ketox-001          | S5                    | 4                          | 3                                | 3                            | N/A                         | 1                             | N/A                            | N/A                           |
| Tol-001            | S5                    | 4                          | 3                                | 3                            | N/A                         | 1                             | N/A                            | N/A                           |
| DSL-002            | S9,S10                | No tier                    | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           |
| LPG-001            | S1,S2,S3,S4,S5        | No tier                    | 2a                               | 2a                           | N/A                         | 1                             | N/A                            | N/A                           |
| Acet-001           | S12                   | No tier                    | 1                                | 1                            | N/A                         | 1                             | N/A                            | N/A                           |

**w. Justification for Applied tiers**

Justifications for the applied tiers for each major source stream where highest tiers are not currently achieved.

| <b>Source Stream Ref.</b> | <b>Emission Source Refs.</b> | <b>Justification for the applied tier</b> | <b>Improvement Plan Reference (where applicable)</b> |
|---------------------------|------------------------------|---|--|
| N/A                       | N/A                          | N/A                                       | N/A  |

## 10. Calculation Factors

### x. Default Values

The table below lists, for each parameter, where default values are to be used for calculation factors.

| Source Stream Refs. | Emission Source Refs. | Parameter                 | Reference Source                                       | Default Value applied (where appropriate) |
|---------------------|-----------------------|---------------------------|--|---|
| DSL-001             | S1,S2,S3,S6,S7        | NCV, EF, Oxidation Factor | Ireland's Annual Specific NCV and CO2 Emission Factors | n/a                                       |
| LPG-001             | S1,S2,S3,S4,S5        | NCV, EF, Oxidation Factor | Ireland's Annual Specific NCV and CO2 Emission Factors | n/a                                       |
| DSL-002             | S9,S10                | NCV, EF, Oxidation Factor | Ireland's Annual Specific NCV and CO2 Emission Factors | n/a                                       |
| HFO-001             | S4,S5                 | NCV, EF, Oxidation Factor | Ireland's Annual Specific NCV and CO2 Emission Factors | n/a                                       |
| Acet-001            | S12                   | NCV, EF, Oxidation Factor | Ireland's Annual Specific NCV and CO2 Emission Factors | n/a                                       |

### Sampling and Analysis

Do you undertake sampling and analysis of any of the parameters used in the calculation of your CO<sub>2</sub> emissions? Yes

### y. Analysis

The table below lists, for each source stream, where calculation factors are to be determined by analysis.

| Source Stream Refs. | Emission Source Refs. | Parameter | Method of Analysis | Frequency | Laboratory Name | Laboratory ISO17025 Accredited | Evidence Reference |
|---------------------|-----------------------|-----------|--------------------|-----------|-----------------|--------------------------------|--------------------|
|---------------------|-----------------------|-----------|--------------------|-----------|-----------------|--------------------------------|--------------------|

| Source Stream Refs. | Emission Source Refs. | Parameter | Method of Analysis | Frequency | Laboratory Name        | Laboratory ISO17025 Accredited | Evidence Reference |
|---------------------|-----------------------|-----------|--------------------|-----------|------------------------|--------------------------------|--------------------|
| HFO/Aldox-001       | S4,S5                 | NCV       | IP 12 (ASTM D240)  | Quarterly | SGS United Kingdom Ltd | Yes                            | n/a                |
| HFO/Aldox-001       | S4,S5                 | EF        | ASTM D5291         | Quarterly | SGS United Kingdom Ltd | Yes                            | n/a                |
| Ketox-001           | S5                    | NCV       | IP 12 (ASTM D240)  | Quarterly | SGS United Kingdom Ltd | Yes                            | n/a                |
| Ketox-001           | S5                    | EF        | ASTM D5291         | Quarterly | SGS United Kingdom Ltd | Yes                            | n/a                |
| Tol-001             | S5                    | NCV       | IP 12 (ASTM D240)  | Quarterly | SGS United Kingdom Ltd | Yes                            | n/a                |
| Tol-001             | S5                    | EF        | ASTM D5291         | Quarterly | SGS United Kingdom Ltd | Yes                            | n/a                |

Detail about the written procedures for the above analysis.

Where a number of procedures are used details of an overarching procedure which covers the quality assurance of analyses methods and links together individual analytical methods is listed.

|  |  |
|--|--|
| Title of procedure   | Fuel Analysis  |
| Reference for procedure  | Emissions Trading Manual Section 14  |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | The procedure for carrying out fuel sampling is included in the engineering standard operating procedures. The procedure describes how to take the fuel samples from each of the non-standard fuels. The fuel samples are sent to an accredited laboratory to be analysed four times a year. Carbon content is determined by the standard method ASTM D5291. NCV is determined by the standard method IP 12 (ASTM D240). |
| Post or department responsible for the procedure and for any data generated                                    | Maintenance Specialist   |
| Location where records are kept  | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X   |
| Name of IT system used   | N/A  |
| List of EN or other standards applied  | Relevant Standard Specifications:<br><br>Carbon:       ASTM D5291<br><br>NCV:           IP 12 (ASTM D240)  |

**z. Sampling Plan**

Details about the procedure covering the sampling plan for the analysis table above.

The procedure below covers the elements of a sampling plan as required by Article 33 of the MRR. Where a number of procedures are used, details of an overarching procedure which covers the sampling methods and links together individual sampling methods are listed.

| Attachment            | Description        |
|-----------------------|--------------------|
| 15 Sampling Plan.docx | Fuel Sampling Plan |

|  |  |
|--|--|
| Title of procedure   | Sampling Plan  |
| Reference for procedure  | Emissions Trading Manual Section 15  |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | Sampling Procedures. Sampling in accordance with ENG-SOP-011.<br><br>Sampling Schedule<br><br>Fuel Sampling will take place 4 times a year for Ketox and |

HFO/Aldox as per Article 35 of the MRR. Annex VII states that the fuels must be analysed every 10,000 tonnes and at least 4 times a year. Toluene Distillate will be sampled every week and a composite sample sent for analysis each quarter. Verification of Results. Laboratory Results which return values greater than 10% difference from the average of the previous three results will be treated as follows:-

- The result will be compared with other results for the year, if within 3% then the result will be accepted, if not then the average of the other 3 results will be used.
- Results from the samples are fairly consistent so any faulty results are easily identified.

Post or department responsible for the procedure and for any data generated

Maintenance Specialist

Location where records are kept

C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X  
N/A

Name of IT system used

List of EN or other standards applied

Relevant Standard Specifications:

Carbon: ASTM 5291

NCV: IP 12 (ASTM D240)

**aa. Sampling Plan Appropriateness**

The procedure to be used to revise the appropriateness of the sampling plan.

Title of procedure

Sampling Plan Appropriateness

Reference for procedure

Emissions Trading Manual Section 16

Diagram reference

N/A

Brief description of procedure. The description should cover the essential parameters and operations performed

The sampling plan will be revised if:

- The consumption of any of the Non-Standard fuels increases above 10,000 tonnes per annum.
- The consistency of the fuel analysis results begins to change.
- If any of the fuels stop being used on site. The EPA will be notified and the sampling plan will be updated to exclude this fuel from the annual analysis.
- If the accredited laboratory carrying out the sampling is changed to another accredited laboratory. The EPA must be notified. Proof of accreditation of new lab will be sent

to the EPA

|   |  |
|---|--|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |
| Name of IT system used  | N/A  |
| List of EN or other standards applied                                       | N/A  |

Are stock estimates carried out as part of the emission calculations? Yes

**bb. Year-end reconciliations**

The procedure to be used to estimate stocks at the beginning/end of a reporting period where applicable. This should include any source streams monitored using batch metering e.g. where invoices are used.

|                                 |   |
|---------------------------------|---|
| Title of procedure              | Year End Reconciliations  |
| Reference for procedure         | Emissions Trading Manual Section 17   |
| Diagram reference               | N/A   |
| Brief description of procedure. | For the fuels requiring stock takes the following procedures are carried out: |

1. The Fuels on site which require stock takes and year end reconciliation are HFO and Diesel Oil. The HFO stock take is carried out as a check for the metered usage values.
2. At the end of each month a stock take is taken from the tanks for HFO and Diesel Oil.
3. This figure will then be the used as the opening stock take for the next month.
4. Therefore the closing stock for 2011 will be the opening stock for 2012.
5. These values are recorded in the Delivery and Stock take sheets for each of the fuels above by the Procurement officer.
6. The figures are then transferred from these sheets into the CO2 calculation workbook, where the stock take figures are compared to the metered values.
7. HFO – Metered values are used (stock take used as check)
8. Diesel Oil – Stock take figures used (metered values)

as check)

|   |  |
|---|--|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |
| Name of IT system used  | N/A  |
| List of EN or other standards applied                                       | N/A  |

**cc. Tracking Instruments**

The procedure used to keep track of instruments installed in the installation used for determining activity data.

|                                 |   |
|---------------------------------|---|
| Title of procedure              | Quality Assurance of Metering / Measuring Equipment                 |
| Reference for procedure         | Emissions Trading Manual Section 8                                  |
| Diagram reference               | N/A   |
| Brief description of procedure. | Calibration details are recorded in the “Metering Device Register”. |

This sheet is updated when meters are calibrated, repaired or replaced.

The following details are included:

- Fuel/Material Code
- Unique ID of Meter
- Description of Meter
- Manufacturer
- Units of Measurement
- Sensor Reference
- Meter Range
- Recent Calibration Date
- Testing Authority
- Planned Calibration Frequency
- Date Replaced/Repaired

|   |                                |
|---|--------------------------------|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist         |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My |

|                                       |  |
|---------------------------------------|--|
| Name of IT system used                | Documents\Energy\Environmental\GHG<br>Emissions\Emissions Trading Manual\Version X.X |
| List of EN or other standards applied | N/A  |

## 11. Management

### dd. Monitoring and Reporting Responsibilities

Responsibilities for monitoring and reporting emissions from the installation are listed below:

Relevant job titles/posts and provide a succinct summary of their role relevant to monitoring and reporting are listed below.

| Job Title / Post       | Responsibilities   |
|------------------------|--|
| Maintenance Specialist | Contact Person & Principal Officer<br><br>Ensuring site compliance with the GHG Permit<br><br>Ensuring site compliance with the Directive<br><br>Compiling AIER and submitting to EPA<br><br>Surrendering of Allowances<br><br>Overall Responsibility for CO2 Emissions Monitoring and Reporting |

| Attachment | Description |
|------------|-------------|
| N/A        | N/A         |

**ee. Assignment of Responsibilities**

Details of the procedure used for managing the assignment of responsibilities for monitoring and reporting within the installation and for managing the competencies of responsible personnel in accordance with Article 58(3)(c) of the MRR:

This procedure identifies how the monitoring and reporting responsibilities for the roles identified above are assigned and how training and reviews are undertaken.

|  |  |
|--|--|
| Title of procedure   | Assignment of Responsibilities   |
| Reference for procedure  | Emissions Trading Manual Section 3   |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | This procedure assigns the responsibilities of the personnel involved in the emissions trading scheme. It lists the officers, their responsibility, their position in the company and their function regarding the emissions trading on site.<br><br>The procedure also list the competency which the Contact person & principle officer must have in order to understand and meet the requirements under the EU Emissions Trading Scheme. The procedure outlines how training and reviews are undertaken. |
| Post or department responsible for the procedure and for any data generated                                    | Maintenance Specialist   |
| Location where records are kept  | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X   |
| Name of IT system used   | N/A  |
| List of EN or other standards applied  | N/A  |

**ff. Monitoring Plan Appropriateness**

Details of the procedure used for regular evaluation of the monitoring plan's appropriateness covering in particular any potential measures for the improvement of the monitoring methodology:

|  |  |
|--|--|
| Title of procedure   | Monitoring Plan Appropriateness  |
| Reference for procedure  | Emissions Trading Manual Section 4   |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | The monitoring plan should be checked to see if any of the following require updating:<br><br>Emission sources<br><br>Source streams |

|   |  |
|---|--|
|   | Function of the Installation   |
|   | Metering devices   |
|   | Metering Uncertainties   |
|   | Applied tiers  |
|   | If possible the monitoring Methodology should be improved  |
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |
| Name of IT system used  | N/A  |
| List of EN or other standards applied                                       | N/A  |

**gg. Data Flow Activities**

Details of the procedures used to manage data flow activities in accordance with Article 57 of the MRR:

|  |  |
|--|--|
| Title of procedure   | Data Flow Activities   |
| Reference for procedure  | Emissions Trading Manual Section 6   |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | Data Flow  |
|  | Each meter is connected to a Data Logger. Each Data Logger has the capacity to store up to 60 days readings for each meter.  |
|  | Every two hours the data stored in the Data Loggers sent to a server. The data is then available on an online M&T system.  |
|  | This M&T system is used for routine reports on site, and it is also used as the source of the GHG verification data.   |
|  | The GHG calculation spread sheet is completed by extracting relevant data from the energy monitoring system when requested. The GHG spreadsheet will also collate other relevant data from various sources, so as to allow generation of tables and reports to assist with final verification. |
|  | CO2 Report Make Up   |
|  | Boilers 4 & 5 fuel consumption (metered) figures are recorded on the M&T system, these are reconciled with the   |

Utilities Database figures which are based on Tank Levels and Deliveries / Purchases. The metered figures are the figures used for the basis of the carbon calculations. Gas Oil consumption is based on Deliveries and Tank Levels, and these are compared to local meter readings for reconciliation purposes. Deliveries and tank levels are used as the basis for the carbon calculations.

The Carbon Emissions for these fuels are calculated based on National Figures for standard fuels and Certified Lab Analysis figures for the remaining fuels. Where Lab Analysis Results are used, these figures are applied to relevant quarter's consumption figures only. The National Figures used are NCV, EF and OF, the analysis figures used are the Carbon content figures for each fuel. The Fire Pump engines are de-minimis users and a fixed amount of 2t CO2 per annum is used for them. These consumption figures and factors are then combined to generate a final Carbon Emission figure.

Post or department responsible for the procedure and for any data generated  
Location where records are kept

Maintenance Specialist

Name of IT system used  
List of EN or other standards applied  
List of primary data sources

C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X  
N/A  
N/A  
Gas Oil Invoices and Stock Takes

Metering data from energy monitoring system

Number of bottles of propane

Number of bottles of Acetylene

Fuel Analysis results

Description of the relevant processing steps for each specific data flow activity.

Country Specific NCV and EF value document  
The HFO/Aldox, Ketox & Toluene fuels are metered as they enter the boilers. These meter readings are recorded and saved on an M&T system. HFO/Aldox, Ketox & Toulene are analysed 4 times throughout the year for C,H, N and NCV. LPG is a deminimis source and so we simply count the bottles used in a year, each bottle containing 34 Kg. Diesel Oil Consumption will be calculated using delivery dockets and tank level data. Diesel Oil consumption will be checked against metered consumption into 1,2 & 3 Steam Boilers, and A-101, A-101B Hot Oil Boilers. Diesel consumption for Fire Engines (Emission Points EP 3/50A & EP 3/50B) is a de minimis source so a fixed CO2 Emission of 2T per annum will be used. For HFO we use national factors for NCV, EF &

Identify each step in the data flow and include the formulas and data used to determine emissions from the primary data. Include details of any relevant electronic data processing and storage systems and other inputs (including manual inputs) and confirm how outputs of data flow activities are recorded

OF together with the metered consumptions to calculate the total CO2 generated from these fuels. For Diesel we use national factors for NCV, EF & OF together with the calculated consumption from delivery dockets & tank levels to calculate the total CO2 generated from this fuel. For Propane we use national factors for NCV, Fuel Factor & OF together with the bottles used to calculate the total CO2 generated from this fuels. Acetylene is a de-minimis source stream and we count the bottles used in a year. Tier 1 country specific factors are applied for NCV and EF and tier 1 for oxidation factor.

TCO2 Calculated as follows:

$$TCO2 = \text{Activity Data} * \text{NCV} * \text{Oxidation Factor} * \text{Emission Factor}$$

Submit relevant documents to record data flow activities

| Attachment                  | Description          |
|-----------------------------|----------------------|
| 6 Data Flow Activities.docx | Data Flow Activities |

**hh. Assessing and Controlling Risks**

Details of the procedures used to assess inherent risks and control risks in accordance with Article 58 of the MRR:

|  |  |
|--|--|
| Title of procedure   | Assessing and Controlling Risks  |
| Reference for procedure  | Emissions Trading Manual Section 7   |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | This procedure lists the hazards associated with the EU ETS. The hazards identified include: Meter failure, Loss of metered data, incorrect invoicing by supplier, Fuel analysis frequency is adhered to, Fuel analysis results invalid, incorrect factors used in calculations and corrupted formula used in the calculation workbook. Each of the hazards risks are rated as high, medium or low depending on the how likely it is that this hazard could happen. For each of the hazards there are controls in place to reduce the risk of losses/errors in the data. |
| Post or department responsible for the procedure and for any data generated                                    | Maintenance Specialist   |
| Location where records are kept  | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG  |

|                                       |  |
|---------------------------------------|--|
| Name of IT system used                | Emissions\Emissions Trading Manual\Version X.X |
| List of EN or other standards applied | N/A  |

**ii. Quality Assurance of Metering / Measuring Equipment**

Details of the procedures used to ensure quality assurance of measuring equipment in accordance with Article 58 and 59 of the MRR.

|  |   |
|--|---|
| Title of procedure   | Quality Assurance of Metering / Measuring Equipment                 |
| Reference for procedure  | Emissions Trading Manual Section 8                                  |
| Diagram reference  | N/A   |
| Brief description of procedure. The description should cover the essential parameters and operations performed | Calibration details are recorded in the “Metering Device Register”. |

This sheet is updated when meters are calibrated, repaired or replaced.

The following details are included:

- Fuel/Material Code
- Unique ID of Meter
- Description of Meter
- Manufacturer
- Units of Measurement
- Sensor Reference
- Meter Range
- Recent Calibration Date
- Testing Authority
- Planned Calibration Frequency
- Date Replaced/Repaired

|   |  |
|---|--|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |

|                                       |     |
|---------------------------------------|-----|
| Name of IT system used                | N/A |
| List of EN or other standards applied | N/A |

**jj. Quality Assurance of Information Technology used for Data Flow Activities**

Details of the procedures used to ensure quality assurance of information technology used for data flow activities in accordance with Article 58 and 60 of the MRR:

|   |  |
|---|--|
| <p>Title of procedure</p> <p>Reference for procedure</p> <p>Diagram reference</p> <p>Brief description of procedure. The description should cover the essential parameters and operations performed</p> | <p>Quality Assurance of Information Technology used for data flow activities</p> <p>Emissions Trading Manual Section 9</p> <p>N/A</p> <p>The Meters on site are verified against the readings on the M&amp;T system to ensure that the information being reported is accurate and correct.</p> <p><b>Data Loggers</b></p> <p><b>Access Control:</b> Access to the Data loggers is only available to the Engineering Department.</p> <p><b>Back-Up:</b> The Loggers have a Redundancy of 60 days. The data is downloaded every two hours to a server. This server is backed up continuously.</p> <p><b>Recovery:</b> Should the logger connection fail, there is a redundancy in the logger which will record data for 60 days. This issue will be identified as data will be missing from the M&amp;T system; once connection to the logger is fixed all the data can be downloaded up to date.</p> <p><b>Security:</b> The Loggers are only accessed by the Engineering Department.</p> <p><b>M&amp;T System Database</b></p> <p><b>Access Control:</b> Adjustments to M&amp;T system data can only be accessed by the Engineering Department.</p> <p><b>Back-Up:</b> The energy monitoring system server is backed up continuously.</p> <p><b>Recovery:</b> The Data can be recovered from the back-up servers when required.</p> <p><b>Security:</b> Adjustments to M&amp;T system data can only be accessed by the Engineering Department.</p> |
|---|--|

GHG Calculation Spread Sheet

Access Control: The calculation spread sheet is only accessible by the Engineering Maintenance Manager. Access to this document is available to personnel with access to the BASF internal network.

Back-Up: The Documents on the BASF internal network are backed up continuously.

Recovery: The Data can be recovered from the back-up servers when required.

Security: These documents are locked and filed in the Annual GHG folders.

Post or department responsible for the procedure and for any data generated  
Location where records are kept

Maintenance Specialist

Name of IT system used  
List of EN or other standards applied

C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X  
N/A  
N/A

**kk. Review and Validation of Data**

Details of the procedures used to ensure regular internal reviews and validation of data in accordance with Articles 58 and 62 of the MRR.

Title of procedure  
Reference for procedure  
Diagram reference  
Brief description of procedure. The description should cover the essential parameters and operations performed

Review and Validation of Data  
Emissions Trading Manual Section 10  
N/A  
The following procedure ensures validation of data in accordance with Articles 58 & 62 of the MRR.

Data Validation & Verification. For each fuel concerned, the following processes will be carried out:

- Meter Readings for relevant period will be extracted from the M&T System and totalled.
- HFO and Diesel Oil Tank levels and Delivery details for the relevant period will be extracted from the Utilities Database.
- Total consumptions for each stream will be compared.

- If difference between both methods for overall fuel consumption < 5% then no further action is required.
- If difference between both methods for overall fuel consumption > 5% then an investigation as the cause of the

discrepancy must be carried out and documented as per 'Investigation Procedures'

#### HFO supporting Documentation

- Documentation required to support HFO consumption calculations includes: •Tank Level readings at beginning of relevant period. (For Annual figures, there must be a signed off document, confirming HFO stock at end of previous year.) This will be maintained in the Annual file. •HFO delivery details – as per HFO Delivery Details spreadsheet. Relevant sections of this spreadsheet will be printed off and file in the Annual file. •HFO Invoices will be available for inspection by verifier. •M&T System 30 min data will be exported to excel and recorded in the Annual File.

Diesel Oil Supporting Documentation. •Documentation required to support Diesel Oil consumption calculations includes:

- Tank Level readings at beginning of relevant period. (For Annual figures, there will be a signed off document, confirming Diesel Oil stock at end of previous year.) This will be maintained in the Annual file. •Diesel Oil delivery details – as per Diesel Oil Delivery Details spreadsheet. Relevant sections of this spreadsheet will be printed off and filed in the Annual file. •Diesel Oil Invoices will be available for inspection by verifier. •M&T System 30 min data will be exported to excel and recorded in the Annual File

#### Manual Inputs.

- After the CO2 calculations have been completed the AEM Report is filled out on ETSWAP. •Verification takes place to ensure all calculations are correct and procedures updated. •The AEM Report is submitted on ETSWAP. •The Verifier will verify AEM Report.

- AEM Report will be submitted to the EPA on ETSWAP. •The total emissions are entered into the registry. •Once entered in the registry, this is verified by the Verifier before 31st March. •In the registry, allowances must be surrendered before 30th April.

#### Review and Validation of Fuel Analysis

- All fuel analysis results will be checked when received from testing laboratory. The results will be added to the "BASF Fuel Analysis Check" workbook to compare with previous results. •Any results out of line with previous sample results will be identified. •A new sample of the fuel

will be sent to the testing laboratory. •Results from this sample will be added to calculation spread sheet should the results be in line with expected values.

Review and Validation of CO2 Emissions per Fuel

•CO2 Emissions per fuel will be reviewed by the verifier to ensure no error in calculations has been made. •The CO2 produced per fuel will be compared to the previous year’s data.

|   |  |
|---|--|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |
| Name of IT system used  | N/A  |
| List of EN or other standards applied                                       | N/A  |

**II. Corrections and Corrective Actions**

Details of the procedures used to handle corrections and corrective actions in accordance with Articles 58 and 63 of the MRR:

|  |   |
|--|---|
| Title of procedure   | Corrections and Corrective Actions  |
| Reference for procedure  | Emissions Trading Manual Section 11   |
| Diagram reference  | N/A   |
| Brief description of procedure. The description should cover the essential parameters and operations performed | Corrective and Preventative action  |
|  | <ol style="list-style-type: none"> <li>1. Monthly data will be compiled using both stock takes and metering.</li> <li>2. The cumulative variance over three months will be calculated and if found to be outside tolerance levels an investigation will be instigated.</li> <li>3. An audit will be carried out every 6 months with the aim of verifying compliance with the permit and monitoring and reporting plan.</li> </ol> |
|  | This Audit will check that the following the following:   |
|  | <ul style="list-style-type: none"> <li>• The procedure is up to date in the following areas: Officers and responsibilities, fuels being used and instrument failure procedures.</li> </ul>  |

- The monitoring and reporting plan is up to date in the following areas: description of calculation approach, fuels used and the correct tiers are applied.
- Compliance with the permit.

Investigation Procedure

Calculated Methods

- Stocks will be taken and physically checked.
- Purchases will be checked against both deliveries and statements
- Consumption calculations will be checked and verified.
- Metered Data
- Consumption patterns will be checked over short periods of time.
- Outputs from each cell will be related to inputs and indicators calculated and checked.
- Notes will be taken of outputs from each of the fuels to check relative CV values.

Following the above checks corrective action will be taken

|   |  |
|---|--|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |
| Name of IT system used  | N/A  |
| List of EN or other standards applied                                       | N/A  |

**mm. Control of Outsourced Activities**

Details of the procedures used to control outsourced processes in accordance with Articles 59 and 64 of the MRR.

|                         |                                    |
|-------------------------|------------------------------------|
| Title of procedure      | Control of Outsourced Activities   |
| Reference for procedure | Emissions Trading Manual Section 9 |
| Diagram reference       | N/A                                |

Brief description of procedure. The description should cover the essential parameters and operations performed

Outsourced Processes

- Fuel Analysis Laboratory
- Meter Calibration
- Energy Consultant
- Verifier

Fuel Analysis

The analysis of fuel is carried out by an accredited test laboratory. When results of fuel analysis are received they are compared to Laboratory Results which return values greater than 10% difference from the average of the previous three results will be treated as follows:-

- The result will be compared with our other unaccredited sampling company, if within 3% then the result will be accepted, if not then the average will be used.

Meter Calibrations

Meter calibrations are carried out by a certified calibration company. A works order is in place so that all fuel meters are calibrated and maintained once a year. The work takes place around November and December each year. A certificate of calibration is available for the meters. This certificate is available for inspection during the EU ETS verification.

Energy Consultant

Our Energy Consultant carries out quarterly updates of the CO2 calculations. At the end of the year the consultant completes the calculations. These are compared to ongoing calculations carried out by the Engineering Maintenance Manager. If there is more than a 5% difference an investigation is carried out. Our verifier will also check the CO2 calculations carried out during the verification audit. This ensures that all data has been checked several times and verified before being submitted to the EPA in the AEM.

Verifier: Our Verifier is fully accredited to provide verification for installations.

Post or department responsible for the procedure and for any data generated

Maintenance Specialist

Location where records are kept

C:\Users\PURCELTO\Documents\My

|                                       |   |
|---------------------------------------|---|
| Name of IT system used                | Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |
| List of EN or other standards applied | N/A   |

**nn. Record Keeping and Documentation**

Details of the procedures used to manage record keeping and documentation:

|  |  |
|--|--|
| Title of procedure   | Record Keeping and Documentation   |
| Reference for procedure  | Emissions Trading Manual Section 9   |
| Diagram reference  | N/A  |
| Brief description of procedure. The description should cover the essential parameters and operations performed | Details of the location for all documentation to be kept for the EU ETS. The manual is recorded at the address below. When the manual is updated the version number will be changed. This will ensure that the most recent Manual is being used. Each year a new folder to record the documentation is created called 20XX. A list of the documentation to be kept in the folder is listed in the procedure. |

The documents to be archived are:

- GHG Permit
- Metering data (30 min figures) and Gas Oil Fuel Invoices/Delivery Dockets
- Calibration certificates for the meters
- Fuel Analysis certificates
- CO2 Calculation workbook
- EPA Correspondence for the year
- Verifier Correspondence for the year
- Verifier reports, AEM Reports.

In Accordance with Article 66 of the M&R Regulation the operator shall keep records of all relevant data and information, including information as listed in Annex IX, for at least 10 years.

|   |  |
|---|--|
| Post or department responsible for the procedure and for any data generated | Maintenance Specialist   |
| Location where records are kept   | C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X |

Name of IT system used N/A  
 List of EN or other standards applied N/A

**oo. Risk Assessment**

The results of a risk assessment that demonstrates that the control activities and procedures are commensurate with the risks identified:

| Attachment                             | Description     |
|--|-----------------|
| 7 Assessing and Controlling Risks.docx | Risk Assessment |

**pp. Environmental Management System**

Does your organisation have a documented Environmental Management System? Yes

Is the Environmental Management System certified by an accredited organisation? No

**12. Changes in Operation**

**qq. Changes in Operation**

Article 24(1) of Commission Decision 2011/278/EC requires that Member States must ensure that all relevant information about any planned or effective changes to the capacity activity level and operation of an installation is submitted by the operator to the competent authority by 31 December each year. Article 12(3) of the MRR further provides that Member States may require information to be included in the monitoring plan of an installation for the purposes of meeting these requirements.

Details of the procedure used to ensure regular reviews are carried out to identify any planned or effective changes to the capacity activity level and operation of the installation that have an impact on the installation's allocation:

The procedure specified below cover the following:

- planning and carrying out regular checks to determine whether any planned or effective changes to the capacity activity level and operation of an installation are relevant under Commission Decision 2011/278/EC; and
- Procedures to ensure such information is submitted to the competent authority by 31 December of each year.

|   |  |
|---|--|
| <p>Title of procedure<br/>                 Reference for procedure<br/>                 Diagram reference<br/>                 Brief description of procedure. The description should cover the essential parameters and operations performed</p> | <p>Changes in Operation<br/>                 Emissions Trading Manual Section 18<br/>                 N/A<br/>                 Article 24(1) of Commission Decision 2011/278/EC requires that Member States must ensure that all relevant information about any planned or effective changes to the capacity, activity level and operation of an installation is submitted by the operator to the competent authority by 31st December each year.</p> <p>Throughout the year reviews will be carried out to identify any planned or effective changes to the capacity, activity level and operation of the installation that have will an impact on the installation's allocation.</p> <p>The following should be considered in the event of a proposed change:</p> <ul style="list-style-type: none"> <li>• Will there be a change in the Installed capacity on site?</li> <li>• Will there be a large increase/decrease in activity level?</li> <li>• Is the activity of the installation changing?</li> </ul> <p>If yes, is the answer to any of the above, the EPA should be notified and subsequently any information which the EPA request from the installation should be passed on as soon as possible. The application form for amending amounts allocated free of charge will be completed where required and submitted to the EPA by 31 December.</p> |
| <p>Post or department responsible for the procedure and for any data generated<br/>                 Location where records are kept</p>   | <p>Maintenance Specialist<br/><br/>                 C:\Users\PURCELTO\Documents\My Documents\Energy\Environmental\GHG Emissions\Emissions Trading Manual\Version X.X</p>   |
| <p>Name of IT system used</p>   | <p>N/A</p>   |

### 13. Abbreviations

**rr. Abbreviations Acronyms or definitions**

Abbreviations acronyms or definitions that have been used in this monitoring plan:

| Abbreviation | Definition |
|--------------|------------|
|--------------|------------|

| Abbreviation | Definition |
|--------------|------------|
| N/A          | N/A        |

## 14. Additional Information

Any other information:

| Attachment   | Description                                 |
|--|---|
| SGS Accreditation.pdf  | SGS Latest Accreditation Certificate        |
| SGS Schedule of Accreditation.pdf                                      | SGS Schedule of Accreditation               |
| 9 Quality Assurance of Information Technology Used for Data Flows.docx | Quality Assurance of Information Technology |
| FT-201.pdf   | FT-201 Meter Calibration Cert               |
| FT-202.pdf   | FT-202 Meter Calibration Cert               |
| FT-211.pdf   | FT-211 Meter Calibration Cert               |
| FT-241.pdf   | FT-241 Meter Calibration Cert               |
| FT9801.pdf   | FT9801 Meter Calibration Cert               |
| Gas oil Supplier Meter Certificates.pdf                                | Gas oil supplier meter certificates         |
| IDC Closure.pdf  | IDC Closure confirmation date               |
| 01 Datasheet A101B.pdf   | Hot Oil Boiler Technical Details            |

## 15. Confidentiality

### ss. Confidentiality Statement

It is the Environmental Protection Agency's policy to make information received by it in the course of its work open to inspection by any person on request. This is in accordance with the provisions of the European Communities (Access to Information on the Environment) Regulations 2007 to 2011.

In the event that you considered that some of the information being submitted of a confidential nature, then the nature of this information and the reasons why it should be considered confidential, with reference to the European Communities (Access to Information on the Environment) Regulations 2007 to 2011 and any amendments must be explicitly requested using the facility below. The Board of the Environmental Protection Agency will consider the requests and if the information can be deemed as confidential and necessary.

Notwithstanding any request for confidentiality, the Environmental Protection Agency explicitly reserves the right to release data to the Commission, including emissions and allocations to the public, on the basis that the data will be used for the purposes foreseen in Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

Please tick this box if you consider that any part of your form should be treated as commercially confidential/sensitive:  false

**END of Appendix I.**