



Headquarters,
Johnstown Castle Estate,
County Wexford, Ireland

GREENHOUSE GAS EMISSIONS PERMIT

Permit Register Number: IE-GHG089-10392-3

Operator: Masonite Ireland Unlimited Company
6th Floor - South Bank House
Barrow Street
Dublin 4
Ireland

Installation Name: Masonite Ireland

Site Name: Masonite Ireland

Location: Derryoughter
Drumsna
Carrick on Shannon
Leitrim
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^o IE-GHG089-10392.

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 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):

IPC/IE Licence Register Number
P0021-02

Status Log

Current Permit

Permit number	Date application received	Date Permit issued	Comment
IE-GHG089-10392-3	05 October 2018	13 December 2018	<p>Include the source streams Resin and Wax and include monitoring methodology. Change the monitoring methodology for LPG.</p> <p>Update Operator name to Masonite Ireland Unlimited Company.</p>

Previous Permits

Permit number	Change Type	Date application received	Date Permit issued	Comment
IE-GHG089-10392-1	GHG Permit Application	24 September 2013	01 October 2013	
IE-GHG089-10392-2	GHG Variation	21 March 2014	23 July 2014	<p>1. Inclusion of omitted source stream; acetylene.</p> <p>2. Updating of uncertainty of measurement devices; changed from calibration certificate value to calibration certificate value multiplied by 4 in accordance with Guidance Document 4.</p> <p>3. Inclusion of sampling and analysis procedures for biomass fuel moisture.</p> <p>4. Separation of biomass source stream (F1) into individual streams (F1-1 to F1-5) for greater clarity.</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)	Masonite Ireland Unlimited Company
“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.

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:

Masonite Ireland Unlimited Company
6th Floor - South Bank House
Barrow Street
Dublin 4
Ireland

Company Registration Number: 229654

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)
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at the following installation(s):

Masonite Ireland **Installation number:** 69

located at

Derryoughter
Drumsna
Carrick on Shannon
Leitrim
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.: 69

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
(MVAR) Various Mobile Equipment
(S9) Wastewater Treatment Plant

- 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	Heat Energy Plant	44.5	MW
S2	Domestic Boiler	0.24	MW
S3	Various Canteen Cookers	0.1	MW
S4	Diesel Fire Pump	0.18	MW
S5	Emergency Generator	0.5	MW
S6	Pressure Washer	0.1	MW
S7	IR Ovens	4.5	MW

Emission Source Reference	Emission Source Description	Capacity	Capacity Units
S10	Maintenance Workshop Acetylene Cylinders	0.01	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 13 December 2018:

PRESENT when the seal of the Agency was affixed hereto:

Ms. Annette Prendergast
Inspector/ Authorised Person

Appendix 1 to Greenhouse Gas Emissions Permit Number IE-GHG089-10392

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

(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

Monitoring and Reporting in the EU ETS: 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

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	Masonite Ireland
Site name	Masonite Ireland
Address	Derryoughter Drumsna Carrick on Shannon Leitrim Ireland

Grid reference of site main entrance	E201029 N296302
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Licence held pursuant to the Environmental Protection Agency Act 1992, as amended.	Yes
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IPC/IE Licence Register Number	Licence holder	Competent body
P0021-02	Masonite Ireland	Environmental Protection Agency

Has the regulated activity commenced at the Installation? Yes

Date of Regulated Activity commencement	01 January 2008
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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 Masonite Ireland Unlimited Company

Company Registration Number 229654

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

Registered office address

Address Line 1	6th Floor - South Bank House
Address Line 2	Barrow Street
City/Town	Dublin 4
County	N/A
Postcode	Ireland

Principal office address

Is the principal office address different to the registered office address? Yes

Address Line 1	Derryoughter
Address Line 2	Drumsna
City/Town	Carrick-on-Shannon
County	Leitrim
Postcode	Ireland
Company registration number	N/A

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

Address	Derryoughter Drumsna Carrick-on-Shannon Ireland
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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.

Masonite produce (High Density Fibre) HDF panel board at its facility in Drumsna, Carrick-on-Shannon, Co. Leitrim. The installation is located on a 70 acre site. All parts of the installation are operated by the applicant.

Wood chips are softened with steam that is generated by the site Heat Energy Plant (HEP). The softened chips are ground into fibre by refiners and this water laden fibre is dried by a two stage drier system. Heat for the dryers is provided by the HEP.

The main on-site emission points are SO2A and SO2B which are the exhaust systems for the dryers. The HEP main emissions source with the fuel being wood biomass.

This biomass is carbon neutral with LPG used as a back-up to increase heat output where insufficient heat energy is available from biomass alone. A stand-by diesel generator is used for emergency power needs in the event of a power interruption along with some minor emission sources.

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:

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.

Emission Source Reference	Emission Source Description
S1	Heat Energy Plant
S2	Domestic Boiler
S3	Various Canteen Cookers
S4	Diesel Fire Pump
S5	Emergency Generator
S6	Pressure Washer
S7	IR Ovens
S8	Various Mobile Equipment
S9	Wastewater Treatment Plant
S10	Maintenance Workshop Acetylene Cylinders

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

Emission Source Reference	Emission Source Description
S1	Heat Energy Plant
S2	Domestic Boiler
S3	Various Canteen Cookers
S4	Diesel Fire Pump
S5	Emergency Generator
S6	Pressure Washer
S7	IR Ovens
S10	Maintenance Workshop Acetylene Cylinders

l. Emission Points

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

Emission Point Reference	Emission Point Description
SO2A	Line A Dryer Exhaust
SO2B	Line B Dryer Exhaust

Emission Point Reference	Emission Point Description
SO2C	Coating Ovens Exhaust
DB001	Domestic Boiler Flue
CAN001	Canteen Cookers Exhaust
DFP001	Diesel Fire Pump Exhaust
EG001	Emergency Generator Exhaust
PW001	Pressure Washer Exhaust
V1	Various Mobile Transport Equipment
WWTP	Wastewater Treatment Plant
ETVAR	Acetylene Cylinders

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
F1-1 (wood/waste wood)	Combustion: Solid fuels	Purchased Wood/Waste Wood
F2 (LPG)	Combustion: Other gaseous & liquid fuels	Liquefied Petroleum Gases
F3 (Gas Oil)	Combustion: Commercial standard fuels	Gas/Diesel Oil
F4 (Acetylene)	Combustion: Other gaseous & liquid fuels	Other Petroleum Products
F1-2 (Wood Trim Cull Board)	Combustion: Solid fuels	Wood Trim and Cull Board
F1-3 (Wood Fines)	Combustion: Solid fuels	Wood Fines from Shaker
F1-4 (Wet Wood Fines)	Combustion: Solid fuels	Wet Wood Fines from Chipwash and WWTP
F1-5 (Waste wood Fibre)	Combustion: Solid fuels	Waste Wood - Fibre
Resin	Combustion: Other gaseous & liquid fuels	Fossil Fraction of Biomass
Wax	Combustion: Other gaseous & liquid fuels	Fossil Fraction of Biomass

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
F1-1 (wood/waste wood)	S1	SO2A,SO2B	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)
F2 (LPG)	S1,S2,S3,S6,S7,S8	CAN001,DB001,SO2A,SO2B,SO2C,V1	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)
F3 (Gas Oil)	S4,S5	DFP001,EG001	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)
F4 (Acetylene)	S10	ETVAR	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)
F1-2 (Wood Trim Cull Board)	S1	SO2A,SO2B	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)
F1-3 (Wood Fines)	S1	SO2A,SO2B	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)
F1-4 (Wet Wood Fines)	S1	SO2A,SO2B	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)
F1-5 (Waste wood Fibre)	S1	SO2A,SO2B	Combustion of fuels in installations with a total

Source streams (Fuel / Material)	Emission Source Refs.	Emission Point Refs.	Annex 1 Activity
			rated thermal input exceeding 20 MW (except in installations for the incineration of hazardous or municipal waste)
Resin	S1	SO2A,SO2B	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)
Wax	S1	SO2A,SO2B	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)

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? Yes

Detail of these activities:

Source Stream Refs	Emission Source Ref	Emission Point Ref
F2 (LPG)	S8	V1
n/a	S9	WWTP

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_{2(e)} 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_{2(e)} per year.

Note: the above data shall include transferred CO₂ but exclude CO₂ stemming from biomass.

Does the installation satisfy the criteria for installations with low emissions (as defined by Article 47 of the MRR)? Yes

If the installation is an installation with low emissions as defined above there are a number of special provisions which may be applied to provide a simplified monitoring plan. These provisions are set out in Article 47 of the MRR.

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 ₂ O	No
Monitoring of PFC	No
Monitoring of transferred / inherent CO ₂	No

9. Calculation

r. Approach Description

The calculation approach including formulae used to determine annual CO₂ emissions:

The HEP uses LPG, process trim, fibre and reject panels and wood as fuel for combustion. The calculation approach is applied to LPG and to calculate wood biomass usage. The calculation approach is also used to calculate the fossil fraction (resin and wax) of process trim, process fibre and process reject panels.

LPG (F2) is purchased in bulk from Flogas and the activity data is based on month start stock take, month end stock take and deliveries. In-house stock takes are taken from GIL003. The delivery quantity is taken from the Flogas invoice who use a calibrated weighbridge as detailed below (GIL002). The Stores Manager carries out monthly stock counts to allow the monthly usage of LPG to be calculated. In addition the Stores Manager takes monthly meter readings from the

mobile equipment fill point (GIL001) to allow LPG used for mobile equipment to be deducted from the total monthly usage. From August 2018 LPG for mobile equipment is supplied separately to bulk LPG so this deduct is no longer used in the calculation from this date. LPG is used by the HEP, CAN, PW and DB and IR 1 2 and 3.

The following formulae is then used to calculate the monthly CO₂ emissions:

CO₂ Emissions = LPG Fixed Plant Usage x NCV x emission factor x oxidation factor.

The NCV, emission factor and oxidation factors are taken from the most up to date National Greenhouse Gas Inventory issued factors for LPG.

Wood biomass (F1-1) consists of purchased wood biomass and is used as the main fuel for the HEP. Usage is based on monthly stock counts in conjunction with monthly deliveries which are weighed at the facility weighbridge. Wet wood fines from waste water are weighed internally on the facility weighbridge. Usage for minor source streams (F1-2 to F1-5) are based on mass balance estimation methodology. Biomass trim is made up of Primary Trim, Cut/Coat Trim, Primary Cull Boards, Cut/Cull Boards. Each source is calculated using specific logged data including volume produced and percentage culls etc. Biomass fibre is calculated using a mass balance calculation. The calculation assumes total fibre loss of 5%, 50% of this from start-up fibre (which does not contain wax and resin) and 50% from fire dump fibre.

Each biomass tonnage for the month is input into a spreadsheet and the CO₂ emissions calculated as follows:

CO₂ Emissions = Biomass tonnage x NCV x emission factor x oxidation factor.

NCV for biomass used is calculated from a standard wood GCV (dry basis) of 18.6 TJ/T and converted to NCV (wet basis) based on measured moisture content. To determine an accurate NCV value for biomass daily testing of purchased wood fuel and process trim is conducted. Minor biomass sources including shaker fines, chipwash fines and waste water fines are tested monthly for moisture content. Moisture analysis of waste water wood sludge is conducted twice yearly and is very consistent.

Using the average annual moisture content of the biomass streams the NCV is calculated using the following formula:

$$\text{NCV} = \text{GCV} (1-w/100) - 2.444(w/100) - 2.444(h/100) \times 8.936(1-w/100) = \text{MJ} / \text{kg}$$

where,

NCV: net calorific value in MJ/kg fuel (wet basis)

GCV: gross calorific value in MJ/kg fuel (dry basis)

w: water content of fuel as percentage of weight

h: concentration of hydrogen as percentage of weight (dry basis)

Emission factor of 0 used for biomass.

Oxidation factor of 1 used.

For the biomass calculation the first term simply converts the gross calorific value to the wet basis. The second term is due to the latent heat of vaporization of the water contained in the wood. The specific latent heat of vaporization of water at 25c and constant pressure is 2.444MJ/Kg. The third term is due to the vaporization of the water produced when the hydrogen in the wood is combusted. The concentration of hydrogen in wood is typically 6.1-6.2% (dry basis).

Reference: Handbook of Biomass Combustion and Co-Firing, Sjaak van Loo and Jaap Koppejan, 2008. IS EN 14961 Solid Biofuels - Fuel specification and classes; IS EN 14918 Solid Biofuels - Method of determination of calorific value.

Therefore:

The annualised Terajoules of energy from the wood biomass is calculated as follows:

1. The annual tonnages of wood biomass multiplied by the NCV (GJ/Tonne) of the individual fractions resulting in GJ of energy and
2. The individual energy values are added together to give the total energy value (GJ). All values are converted to TJ by dividing by 1000.
3. For F1-2 and F1-5 the proportion of wax and resin is backed out of the total tonnage first to give a biomass energy calculation above for these source streams.

F1-2 (Trim and Culled Board) and F1-5 (Drying and Forming Fibre) contain resin and wax which are fossil fractions of these biomass streams. The resin and wax components of the mixed fuel are reported as separate source streams. The biomass fraction of the mixed fuel is greater than 97% and “no tier” methodologies are applied to determine activity data and calculation factors for the fossil fraction. It will be checked annually that the biomass fraction is greater than 97%. This confirmation and detailed calculations will be attached to the AEM annually. Activity data for resin and wax is calculated from the proportion of resin and wax in trim, culled board and fibre.

Resin Emissions

Process trim is made up of 9.9% resin. Process Fibre is made up of 50% fire dump fibre containing 9.9% resin and 50 % start up fibre containing no resin therefore resin content of total process fibre is 4.95%. The carbon content of resin is 21.7% and the NCV is 25.48TJ/ktonnes as per manufacturers data. CO₂ emissions are determined by summing total resin CO₂ emissions in trim and fibre.

Total Annual Trim (Tonnes) x .0.099 x 0.217 x 3.664 = Tonnes Resin CO₂ emission from trim.

0.099 = Resin content / 100

0.217 = Carbon content / 100 – From Supplier

3.664 = Conversion for combustion of carbon to carbon dioxide.

Total Annual Fibre (Tonnes) x .0.0495 x 0.217 x 3.664 = Tonnes Resin CO₂ emission from the fibre.

0.0495 = Resin content / 100

0.217 = Carbon content / 100 – From Supplier

3.664 = Conversion for combustion of carbon to carbon dioxide.

Resin Energy content (TJ) is determined as follows: Total Annual Trim (Tonnes) x .0.099 x 0.02548 TJ/t Plus Total annual Fibre (Tonnes) x .0.0495 x 0.02548 TJ/t

Wax Emissions

Process trim is made up of 0.6% wax. Process Fibre is made up of 50% fire dump fibre containing 0.6% wax and 50 % start up fibre containing no wax therefore wax content of total process fibre is 0.3%. The carbon content of wax is 74% and the NCV is 42.53TJ/ktonnes as per manufacturers data. The carbon content and NCV of resin and wax will be reconfirmed annually. CO₂ emissions are determined by summing total wax CO₂ emissions in trim and fibre.

Total Annual Trim (Tonnes) x .0.006 x 0.74 x 3.664 = Tonnes Wax CO₂ emission from trim.

0.006 = Wax content / 100

0.74 = Carbon content / 100 – From Supplier

3.664 = Conversion for combustion of carbon to carbon dioxide.

Total Annual Fibre (Tonnes) x .0.003 x 0.74 x 3.664 = Tonnes Wax CO2 emission from the fibre.

0.003 = Wax content / 100

0.74 = Carbon content / 100 – From Supplier

3.664 = Conversion for combustion of carbon to carbon dioxide.

Wax Energy content (TJ) is determined as follows: Total Annual Trim (Tonnes) x .0.006 x 0.04253 TJ/t Plus Total annual Fibre (Tonnes) x .0.003 x 0.04253 TJ/t

Diesel (F3) is used for EG and DFP. Both are de-minimis. Usage is based on supplier invoice who keep the tanks full always. The invoice shows the delivery quantity and usage as it replaces used diesel for the Emergency Generator and Diesel Fire Pump.

Acetylene (F4) is used in the workshop for cutting and welding purposes. Acetylene consumption will be based on purchasing records. This source contributes to much less than 1% to overall carbon dioxide emissions and are considered to be a de-minimis source.

CO2 emissions are calculated by the product of activity data*EF*NCV*OF for LPG, Diesel and Acetylene. Emission factor and NCV data will be taken from National inventory figures published on the EPA website. Oxidation Factor used is 1.0 as per guidelines for propane.

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
F2 (LPG)	S1,S2,S3,S6,S7	GIL002	Weighbridge	0 - 60,000	Kg	0.8	Flogas Exit
F1-1 (wood/waste wood)	S1	ABL-115	Weighbridge	0 - 60,000	Kg	0.8	Masonite Entrance
F3 (Gas Oil)	S4,S5	M71	Electro-count meter	0-20	Liters	0.025	Jones Oil
F2 (LPG)	S1,S2,S3,S6,S7	GIL003	Level gauge	0 - 100	NA	N/A	LPG Tank
F1-2 (Wood Trim Cull Board)	S1	BM-002	Estimation	0 - 1500	Tonnes	N/A	N/A
F4 (Acetylene)	S10	Invoices	Supplier Invoice	N/A	N/A	N/A	N/A
F1-5 (Waste wood Fibre)	S1	BM-005	Estimation	0-500	N/A	N/A	N/A
F1-4 (Wet Wood Fines)	S1	BM-004	Estimation	0-400	N/A	N/A	N/A
F1-3 (Wood Fines)	S1	BM-003	Estimation	0-100	N/A	N/A	N/A
Resin	S1	Resin	Estimation	0-500	N/A	N/A	N/A
Wax	S1	Wax	Estimation	0-100	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
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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
F2 (LPG)	GIL002	Batch	Trade partner	Yes	Yes	Yes
F1-1 (wood/waste wood)	ABL-115	Batch	Operator	N/A	N/A	N/A
F3 (Gas Oil)	M71	Batch	Trade partner	Yes	Yes	Yes
F2 (LPG)	GIL003	Batch	Operator	N/A	N/A	N/A
F1-2 (Wood Trim Cull Board)	BM-002	Batch	Operator	N/A	N/A	N/A
F4 (Acetylene)	Invoices	Batch	Trade partner	Yes	Yes	Yes
F1-5 (Waste wood Fibre)	BM-005	Batch	Operator	N/A	N/A	N/A
F1-4 (Wet Wood Fines)	BM-004	Batch	Operator	N/A	N/A	N/A
F1-3 (Wood Fines)	BM-003	Batch	Operator	N/A	N/A	N/A
Resin	Resin	Batch	Operator	N/A	N/A	N/A
Wax	Wax	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 _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
F2 (LPG)	S1,S2,S3,S6,S7	GIL002	<1.5%	Standard	4	2a	2a	N/A	1	N/A	N/A	367	16.18	Major	Yes	n/a	n/a
F1-1 (wood/waste wood)	S1	ABL-115	<1.5%	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	0	0	De-minimis	Yes	n/a	n/a
F3 (Gas Oil)	S4,S5	M71	<1.5%	Standard	4	2a	2a	N/A	1	N/A	N/A	2	0.09	De-minimis	Yes	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 _{2(e)}	% of Total Estimated Emissions	Source Category	Highest Tiers Applied	Justification for not applying the highest tiers	Improvement Plan Reference (where applicable)
F4 (Acetylene)	S10	Invoices	N/A	Standard	No tier	1	1	N/A	1	N/A	N/A	0.1	0	De-minimis	Yes	n/a	n/a
F1-2 (Wood Trim Cull Board)	S1	BM-002	N/A	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	0	0	De-minimis	Yes	n/a	n/a
F1-3 (Wood Fines)	S1	BM-003	N/A	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	0	0	De-minimis	Yes	n/a	n/a
F1-4 (Wet Wood Fines)	S1	BM-004	N/A	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	0	0	De-minimis	Yes	n/a	n/a
F1-5 (Waste wood Fibre)	S1	BM-005	N/A	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	0	0	De-minimis	Yes	n/a	n/a
Resin	S1	Resin	N/A	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	1574	69.4	Minor	N/A	n/a	n/a
Wax	S1	Wax	N/A	Standard	No tier	No tier	No tier	N/A	1	N/A	N/A	325	14.33	De-minimis	N/A	n/a	n/a

Total Estimated Emissions for Calculation (tonnes CO_{2(e)})

2268.1

u. 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
F2 (LPG)	S1,S2,S3,S6,S7	4	2a	2a	N/A	1	N/A	N/A
F1-1 (wood/waste wood)	S1	No tier	No tier	No tier	N/A	1	N/A	N/A
F3 (Gas Oil)	S4,S5	4	2a	2a	N/A	1	N/A	N/A
F4 (Acetylene)	S10	No tier	1	1	N/A	1	N/A	N/A
F1-2 (Wood Trim Cull Board)	S1	No tier	No tier	No tier	N/A	1	N/A	N/A
F1-3 (Wood Fines)	S1	No tier	No tier	No tier	N/A	1	N/A	N/A
F1-4 (Wet Wood Fines)	S1	No tier	No tier	No tier	N/A	1	N/A	N/A
F1-5 (Waste wood Fibre)	S1	No tier	No tier	No tier	N/A	1	N/A	N/A
Resin	S1	No tier	No tier	No tier	N/A	1	N/A	N/A
Wax	S1	No tier	No tier	No tier	N/A	1	N/A	N/A

v. Justification for Applied tiers

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

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

10. Calculation Factors

w. 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)
F2 (LPG)	S1,S2,S3,S6,S7	NCV, EF & OxF	Ireland`s National Greenhouse Gas Inventory	n/a
F3 (Gas Oil)	S4,S5	NCV, EF & OxF	Ireland`s National Greenhouse Gas Inventory	n/a
F4 (Acetylene)	S10	NCV, EF and Oxf	Ireland`s National Greenhouse Gas Inventory	n/a
Resin	S1	NCV, Carbon Content	Supplier Technical data information	n/a
Wax	S1	NCV, Carbon Content	Supplier technical data information	n/a

Sampling and Analysis

Do you undertake sampling and analysis of any of the parameters used in the calculation of your CO₂ emissions? Yes

x. 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
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Source Stream Refs.	Emission Source Refs.	Parameter	Method of Analysis	Frequency	Laboratory Name	Laboratory ISO17025 Accredited	Evidence Reference
F1-1,F1-2,F1-3,F1-4,F1-5	S1	Moisture Content	Weight Change from Drying	Weekly to bi-annually	In-House Technical Laboratory	No	In-House Test Method

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	Screening and Moisture Analysis of Woodchips, Fuel and Bark
Reference for procedure	QC0018
Diagram reference	NA
Brief description of procedure. The description should cover the essential parameters and operations performed	Procedure details the analysis method for determining the moisture content of the fuels used in the HEP.
Post or department responsible for the procedure and for any data generated	Technical
Location where records are kept	Technical Laboratory
Name of IT system used	Q-Pulse and Minitab
List of EN or other standards applied	na

y. 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
QC0018.doc	Moisture Analysis SOP

Title of procedure	Screening and Moisture Analysis of Woodchips, Fuel and Bark
Reference for procedure	QC0018
Diagram reference	NA
Brief description of procedure. The description should cover the essential parameters and operations performed	Procedure details sampling system for delivered fuel.
Post or department responsible for the procedure and for any data generated	Technical
Location where records are kept	Technical Laboratory
Name of IT system used	Q-Pulse and Minitab
List of EN or other standards applied	NA

z. Sampling Plan Appropriateness

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

Title of procedure	NA
Reference for procedure	NA
Diagram reference	NA
Brief description of procedure. The description should	NA

cover the essential parameters and operations performed
 Post or department responsible for the procedure and for any data generated NA
 Location where records are kept NA
 Name of IT system used NA
 List of EN or other standards applied NA

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

aa. 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	CO2 Emissions Monitoring and Reporting
Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure.	The stores department record the month end stock level of LPG by reading the level gauges at the end of each LPG tank and supply the corresponding volume in litres (or %) figure to finance for inclusion in the ETS CO2 M&R Report. Copies of all stock counts are maintained by Finance and are supplied to the external verifier for final verification annually.
Post or department responsible for the procedure and for any data generated	Stores Department
Location where records are kept	Finance Department
Name of IT system used	NA
List of EN or other standards applied	NA

bb. Tracking Instruments

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

Title of procedure	N/A
Reference for procedure	N/A
Diagram reference	N/A
Brief description of procedure.	N/A
Post or department responsible for the procedure and for any data generated	N/A
Location where records are kept	N/A
Name of IT system used	N/A
List of EN or other standards applied	N/A

11. Management

cc. 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
Environmental Manager	Position is responsible for dealing with all aspects of GHG permitting, reporting, auditing and data management. The position is the Primary contact for EPA
Accounts Payable Technician	Management of all data inputs, from stock takes, invoices and weighbridge dockets and update of reporting spreadsheets.
Purchasing and Stores Manager	Completion of monthly stock takes and LPG mobile equipment meter readings. Liasing with LPG supplier for calibration certificates and meter calibration
Quality Technician	Moisture analysis of biomass streams

Attachment	Description
CO2 MR SOP Flowchart.doc	Department Responsibilities for Reporting

dd. 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.

<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>CO2 Emissions Monitoring and Reporting</p> <p>MN0028</p> <p>See flowchart above</p> <p>Procedure MN0028 is a master SOP designed to cover all aspects of reporting requirements. The procedure documents who is responsible for all aspects of the reporting of emissions as well as auditing, data management and equipment calibration.</p> <p>The procedure also includes sample spreadsheets to show where key data is input. The SOP has to be reviewed and signed off electronically by all personnel to manage 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.</p>
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<p>Post or department responsible for the procedure and for any data generated</p> <p>Location where records are kept</p> <p>Name of IT system used</p> <p>List of EN or other standards applied</p>	<p>Environmental Manager</p> <p>Electronic Register</p> <p>Q-Pulse</p> <p>N/A</p>
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ee. 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:

<p>Title of procedure</p>	<p>CO2 Emissions Monitoring and Reporting</p>
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Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	<p>Procedure MN0028 now has a section included to review the appropriateness of the monitoring plan procedure itself. Specifically this procedure requires that all emission points are reviewed annually for correct labelling.</p> <p>In addition contact will be made with LPG supplier to assess potential to improve accuracy of measurement instrument instrumentation. Verifier improvement opportunity will be reviewed and the plan updated to reflect required changes.</p>
Post or department responsible for the procedure and for any data generated	Environmental Manager
Location where records are kept	Electronic Register
Name of IT system used	Q-Pulse
List of EN or other standards applied	N/A

ff. Data Flow Activities

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

Title of procedure	CO2 Emissions Monitoring and Reporting
Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	<p>The attached Monitoring and Reporting Flowchart is used to manage data flow activities in accordance with Article 57 of the MRR. The purchasing and stores departments conduct LPG and wood fuel stock takes on a monthly basis. This information is sent to Finance. Finance reconcile the month start and month end stock content as well as all delivery invoices to calculate the monthly LPG and Wood fuel usage. Finance then input the data into the EU ETS Emissions Monitoring Report for LPG and wood fuel.</p> <p>The spreadsheet is populated with the most up to date default calculations which generates a monthly CO2 emissions tonnage and TJ energy for fossil and biomass fuels. The Environmental Manager conduct a cross check of all data and includes the average annual moisture content for the biomass streams and this data is again cross checked annually by the external independent verifier.</p>

<p>Post or department responsible for the procedure and for any data generated</p> <p>Location where records are kept</p> <p>Name of IT system used</p> <p>List of EN or other standards applied</p> <p>List of primary data sources</p>	<p>Environmental Manager, Stores Manager, and Financial Controller</p> <p>Finance</p> <p>IFS and Excel</p> <p>N/A</p> <p>Fuel Supplier Invoices and Weighbridge dockets</p> <p>LPG Supplier invoices</p>
<p>Description of the relevant processing steps for each specific data flow activity.</p>	<p>Monthly Fuel stock take</p> <p>The monthly LPG usage for ETS monitoring is generated as detailed above. This figure is used in the following calculation:</p>
<p>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</p>	<p>$CO_2 \text{ Emissions LPG} = \text{LPG usage (litres)} \times \text{conversion factors (litres to tonnes)} \times \text{NCV (TJ/tonne)} \times \text{emission factor (CO}_2\text{/TJ)} \times \text{oxidation factor.}$</p> <p>$CO_2 \text{ Emissions Biomass} = \text{Biomass usage} \times \text{NCV (TJ/tonne)} \times \text{emission factor (CO}_2\text{/TJ)} \times \text{oxidation factor.}$</p> <p>$CO_2 \text{ Emissions Resin} = \text{Resin Usage} \times \text{proportion carbon content} \times \text{NCV} \times 3.664.$</p> <p>$CO_2 \text{ Emissions Wax} = \text{Wax Usage} \times \text{proportion carbon content} \times \text{NCV} \times 3.664.$</p>

Submit relevant documents to record data flow activities

Attachment	Description
CO2 MR SOP Flowchart Data.doc	Flowchart for Information Flow

gg. Assessing and Controlling Risks

Details of the procedures used to assess inherent risks and control risks in accordance with Article 58 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>CO2 Emissions Monitoring and Reporting</p> <p>MN0028</p> <p>N/A</p> <p>A specific section of MN0028 deal with inherent risks. These risks focus on failure of responsible personnel to collect accurate data or not collecting the required data.</p>
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The procedure outlines controls for assessing where the trend in emissions changes and the check to be implemented to assess integrity of data. Elevated or unusually low usage will be checked with the Manufacturing Manager for any operational changes. The finance department are required to request information in the event of it not being collected for month end. Where a measurement instrument fails the Stores Manager will estimate usage and this has to be reviewed by the Environmental Manager and signed off. The requirements for temporary changes to the monitoring methodology as set out in condition 3 of the permit will be complied with. This procedure assess inherent risks and control risks in accordance with Article 58 of the MRR.

Post or department responsible for the procedure and for any data generated	Financial Controller, Environmental Manager and Manufacturing Manager
Location where records are kept	Environmental Managers Office
Name of IT system used	N/A
List of EN or other standards applied	N/A

hh. 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	CO2 Emissions Monitoring and Reporting
Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	MN0028 provide for the calibration of all on-site and independent meters used for the CO2 Emissions programme. All meters are calibrated annually and certificates will be maintained on site for inspection by the verifier. Where calibrations are found to have drifted from guidance on any correction to usage will be obtained from the calibration company. GIL002 and M71 are meters controlled by independent supplier and are not controlled by Masonite to ensure quality assurance of measuring equipment in accordance with Article 58 and 59 of the MRR.

Post or department responsible for the procedure and for any data generated	Stores Manager
Location where records are kept	Environmental Managers Office
Name of IT system used	N/A
List of EN or other standards applied	N/A

ii. 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:

Title of procedure	CO2 Emissions Monitoring and Reporting
Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	Procedure MN0028 requires that the excel spreadsheet used for all data is locked and can only be accessed in "Read Only" format. Finance and the Environmental Manager shall be the only personnel with access to this file. Q-pulse is used as the facility procedure management system to ensure quality assurance of information technology used for data flow activities in accordance with Article 58 and 60 of the MRR.
Post or department responsible for the procedure and for any data generated	Financial Controller
Location where records are kept	IT system on Finance Drive. Q-Pulse
Name of IT system used	N/A
List of EN or other standards applied	N/A

jj. 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	CO2 Emissions Monitoring and Reporting
Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	As detailed in the attached flowcharts above data is reviewed monthly by the Environmental Manager. MN0028 has been updated to formalise this review. The Environmental Manager cross-checks all raw data from supplier invoices, weighbridge dockets, meter readings, LPG stock takes and wood fuel stock takes against the spreadsheet input data. This data is also cross checked annually by the external verifier, to ensure regular internal reviews and validation of data in accordance with Articles 58 and 62 of the MRR.

Post or department responsible for the procedure and for any data generated	Environmental Manager
Location where records are kept	Finance
Name of IT system used	N/A
List of EN or other standards applied	N/A

kk. 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	CO2 Emissions Monitoring and Reporting
Reference for procedure	MN0028
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	MN0028 provide for the annual review of all formulae used in the calculation spreadsheets. In addition where there is a concern at any time over the validity of the data a full investigation into the cause of the error can be initiated. Where an error is identified it will be documented and corrective actions put in place to prevent re-occurrence and to handle corrections and corrective actions in accordance with Articles 58 and 63 of the MRR.

Post or department responsible for the procedure and for any data generated	Environmental Manager
Location where records are kept	Environmental Manager Office
Name of IT system used	N/A
List of EN or other standards applied	N/A

ll. 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	NA
Reference for procedure	NA
Diagram reference	N/A
Brief description of procedure. The description should cover the essential parameters and operations performed	No processes will be outsourced however we will keep this under regular review in accordance with Articles 59 and 64 of the MRR. Metering and calibration is controlled under Quality Assurance of Metering.
Post or department responsible for the procedure and for any data generated	NA

Location where records are kept NA
 Name of IT system used N/A
 List of EN or other standards applied N/A

mm. Record Keeping and Documentation

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

Title of procedure CO2 Emission Monitoring and Reporting
 Reference for procedure MN0028
 Diagram reference N/A
 Brief description of procedure. The description should cover the essential parameters and operations performed Section on Records and Documentation management in MN0028 requiring filing of monitoring plan, monitoring plan updates, all written procedures, verified annual emissions report in Environmental Managers office for 10 years. All raw data supplied to finance maintained on file in Finance for period of 10 years.
 Post or department responsible for the procedure and for any data generated Environmental Manager, Financial Controller
 Location where records are kept Environmental Managers Office and Finance Archive
 Name of IT system used N/A
 List of EN or other standards applied N/A

nn. Risk Assessment

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

Attachment	Description
N/A	N/A

oo. 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

pp. 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</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>ETS Phase III Changes in Operation</p> <p>MN0128</p> <p>N/A</p> <p>This procedure covers the installation requirements for partial cessation, its definition and how to assess changes to activity level. This assessment will be conducted in October of each year and will assess the activity level of the HEP-001 based on the site production plan. This assessment is then cross checked against the HEP PI Trending system which details the number of operational days of the HEP.</p> <p>The procedure also details the requirements to assess the impacts of "Start of normal and changed operation" for any 90 day period where a significant change in activity level occurs due to increased or decreased production activity. All changes will be assessed against the original activity data submitted to the EPA in 2011.</p> <p>Finally the procedure provide for significant capacity change that may result in change in free allocation. Where this occurs there is always significant foresight due to the requirement for capital investment and this assessment will be carried out with the facility Technical Manager.</p>
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The procedure also has a link to the EPA template for reporting changes on activity level, capacity change and partial cessation which also provides guidance on when such changes are considered significant. This is to ensure such information is submitted to the competent authority by 31 December of each year.

Post or department responsible for the procedure and for any data generated Environmental Manager
 Location where records are kept Electronic Register
 Name of IT system used Q-Pulse

13. Abbreviations

qq. Abbreviations Acronyms or definitions

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

Abbreviation	Definition
HEP	Heat Energy Plant

14. Additional Information

Any other information:

Attachment	Description
2017 ETS CO2 MR Report BM.xls	CO2 Emissions Spreadsheet

15. Confidentiality

rr. 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.