

# Renewable Heat Incentive Emissions Certificate

for Particulate Matter and Oxides of Nitrogen

Issued by Kiwa Ltd t/a Kiwa GASTEC at CRE

|                            |                 |
|----------------------------|-----------------|
| <b>Certificate number</b>  | RHI 30338-12    |
| <b>Issue date</b>          | 08 October 2013 |
| <b>Test report numbers</b> | 6970            |
| <b>Boiler models</b>       | Greenflame 28   |

**Manufacturer name and address**

TR Engineering Ltd t/a Trianco  
Thorncliffe  
Chapelton  
Sheffield  
S35 2PH

Kiwa Ltd declares that the solid fuel boiler(s) detailed above meet(s) the emission limits of 30g/GJ for particulate matter and 150g/GJ for NO<sub>x</sub> as stated by Defra, and as such the emissions are within the acceptable limit for the appliance to be used in installations wishing to claim the Renewable Heat Incentive.

Signed on behalf of Kiwa Ltd



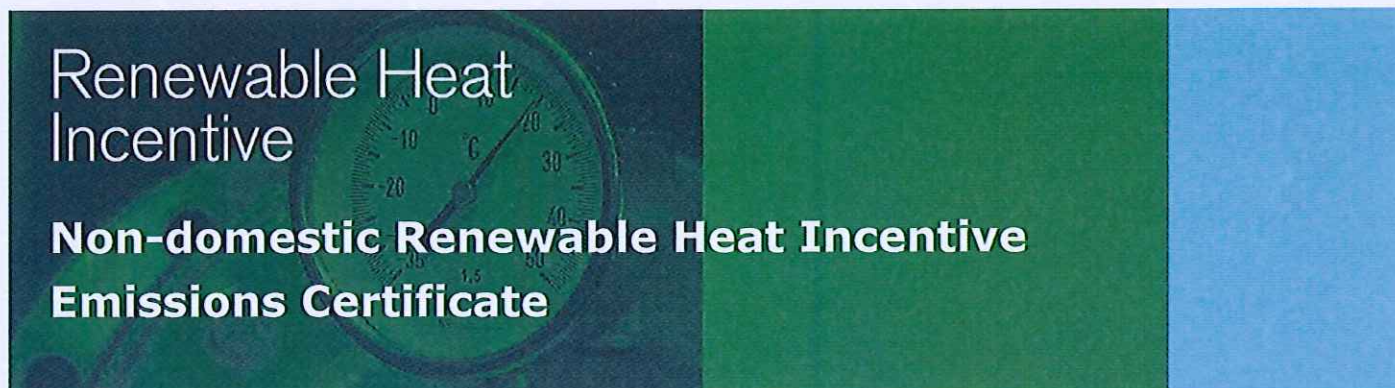
Mr A J Pittaway – Authorised Signatory  
08 October 2013

**GASTEC**  
at **CRE**

Kiwa GASTEC at CRE  
The Orchard Business Centre  
Stoke Orchard, Cheltenham  
GL52 7RZ, UK

Certificate





This certificate provides evidence that the tested boiler meets the air quality requirements of the non-domestic Renewable Heat Incentive (RHI). It must be issued by a testing laboratory. Applicants applying for the RHI with biomass boilers must submit a certificate with their application, or alternatively, an environmental permit.

| <b>1. TEST HOUSE</b>  |  |
|---|--|
| a) name and address of testing laboratory   | Kiwa Ltd t/a Kiwa GASTEC at CRE<br>Orchard Business Centre<br>Stoke Orchard<br>Cheltenham<br>Gloucestershire<br>GL52 7RZ |
| b) name and signature of the person authorised by the testing laboratory to issue the certificate   | Mr A J Pittaway  |
| c) date of issue of the certificate together with certificate reference number  | Date of issue: 08 October 2013<br>Certificate no: RHI 30338-12   |
| d) if testing laboratory is accredited to ISO 17025, date of accreditation and accreditation number<br><i>(note: if testing conducted after 24 September 2013, the testing laboratory must be ISO 17025 accredited)</i> | Accreditation date: 17 January 1991<br>Accreditation number: 0692  |
| <b>2. PLANT</b>   |  |
| a) name of the plant tested   | Greenflame   |
| b) model of the plant tested  | 28   |
| c) manufacturer of the plant tested   | TR Engineering Ltd t/a Trianco   |
| d) installation capacity of the plant in kilowatts (kW)   | 28   |
| e) is the plant a <u>manually stoked, natural draught</u> plant?<br>(that is, without a fan providing forced or induced draught)  | No   |
| f) the date the plant was tested  | 01 May 2012  |
| g) list of all the plants in the type-testing range of plants to which the certificate applies, if any  | N/A  |



Appendix to  
Renewable Heat Incentive Emissions Certificate

Certificate Number: RHI 30338-12

| 3. FUELS  |  |
|---|--|
| a) types of fuels used when testing   | Wood pellets   |
| b) based on the testing, list the range of fuels that can be used in compliance with the emission limits of 30 grams per gigajoule (g/GJ) net heat input for particulate matter (PM), and 150 g/GJ net heat input for oxides of nitrogen (NOx)<br><i>(based if relevant on classifications from EN14961 or EN303-5)</i> | Wood pellets<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i> |
| c) moisture content of the fuel used during testing   | 7.3%   |
| d) maximum moisture content of the fuel which can be used so as to ensure that the emission limits are not exceeded   | 12%<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i>          |

| 4. TESTS   |                                      |
|--|--------------------------------------|
| a) if the plant is 500kW or lower, and BS EN 303-5:1999 or EN 303-5:2012 applies to it, please confirm:<br>- tests were conducted to whichever standard was current at the time of testing.  | BS EN 303-5:1999: Yes                |
| b) if the plant is 500kW or lower, and BS EN 303-5:1999 or BS EN 303-5:2012 <u>do not apply to it</u> , please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of measurements made throughout the PM tests. | Not applicable<br><br>Not applicable |
| c) if the plant is 500kW or higher, please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of PM measurements made throughout the PM tests.  | Not applicable<br><br>Not applicable |
| d) please confirm the tests were conducted to:<br>- EN 14792:2005 in respect of NOx, and;<br>- EN 13284-1:2002 or ISO 9096:2003 in respect of PM   | Not applicable<br>Not applicable     |
| e) please confirm the plant tested at ≥85% of its rated output   | Yes                                  |
| f) please confirm the tests show that emissions were no greater than 30 g/GJ PM and 150 g/GJ NOx   | Yes                                  |
| g) measured emissions of PM in g/GJ net heat input   | 28.4                                 |
| h) measured emissions of NOx in g/GJ net heat input  | 78.0                                 |



# Renewable Heat Incentive Emissions Certificate

for Particulate Matter and Oxides of Nitrogen

Issued by Kiwa Ltd t/a Kiwa GASTEC at CRE

|                            |                 |
|----------------------------|-----------------|
| <b>Certificate number</b>  | RHI 30338-13    |
| <b>Issue date</b>          | 08 October 2013 |
| <b>Test report numbers</b> | 60104           |
| <b>Boiler models</b>       | Greenflame 55   |

**Manufacturer name and address**

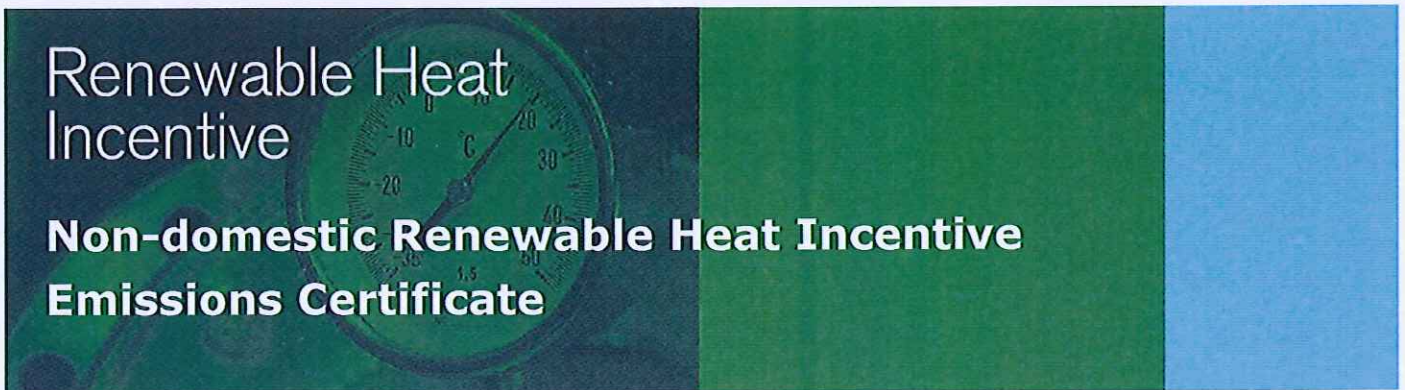
TR Engineering Ltd t/a Trianco  
Thornccliffe  
Chapelton  
Sheffield  
S35 2PH

Kiwa Ltd declares that the solid fuel boiler(s) detailed above meet(s) the emission limits of 30g/GJ for particulate matter and 150g/GJ for NO<sub>x</sub> as stated by Defra, and as such the emissions are within the acceptable limit for the appliance to be used in installations wishing to claim the Renewable Heat Incentive.

Signed on behalf of Kiwa Ltd

Mr A J Pittaway – Authorised Signatory  
08 October 2013





This certificate provides evidence that the tested boiler meets the air quality requirements of the non-domestic Renewable Heat Incentive (RHI). It must be issued by a testing laboratory. Applicants applying for the RHI with biomass boilers must submit a certificate with their application, or alternatively, an environmental permit.

| <b>1. TEST HOUSE</b>  |  |
|---|--|
| a) name and address of testing laboratory   | Kiwa Ltd t/a Kiwa GASTEC at CRE<br>Orchard Business Centre<br>Stoke Orchard<br>Cheltenham<br>Gloucestershire<br>GL52 7RZ |
| b) name and signature of the person authorised by the testing laboratory to issue the certificate   | Mr A J Pittaway  |
| c) date of issue of the certificate together with certificate reference number  | Date of issue: 08 October 2013<br>Certificate no: RHI 30338-13   |
| d) if testing laboratory is accredited to ISO 17025, date of accreditation and accreditation number<br><i>(note: if testing conducted after 24 September 2013, the testing laboratory must be ISO 17025 accredited)</i> | Accreditation date: 17 January 1991<br>Accreditation number: 0692  |
| <b>2. PLANT</b>   |  |
| a) name of the plant tested   | Greenflame   |
| b) model of the plant tested  | 55   |
| c) manufacturer of the plant tested   | TR Engineering Ltd t/a Trianco   |
| d) installation capacity of the plant in kilowatts (kW)   | 55   |
| e) is the plant a <u>manually stoked, natural draught</u> plant?<br>(that is, without a fan providing forced or induced draught)  | No   |
| f) the date the plant was tested  | 13 December 2012   |
| g) list of all the plants in the type-testing range of plants to which the certificate applies, if any  | N/A  |



**Appendix to  
Renewable Heat Incentive Emissions Certificate**

Certificate Number: RHI 30338-13

| <b>3. FUELS</b>   |  |
|---|--|
| a) types of fuels used when testing   | Wood pellets   |
| b) based on the testing, list the range of fuels that can be used in compliance with the emission limits of 30 grams per gigajoule (g/GJ) net heat input for particulate matter (PM), and 150 g/GJ net heat input for oxides of nitrogen (NOx)<br><i>(based if relevant on classifications from EN14961 or EN303-5)</i> | Wood pellets<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i> |
| c) moisture content of the fuel used during testing   | 6.4%   |
| d) maximum moisture content of the fuel which can be used so as to ensure that the emission limits are not exceeded   | 12%<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i>          |

| <b>4. TESTS</b>  |                                      |
|--|--------------------------------------|
| a) if the plant is 500kW or lower, and BS EN 303-5:1999 or EN 303-5:2012 applies to it, please confirm:<br>- tests were conducted to whichever standard was current at the time of testing.  | BS EN 303-5:2012: Yes                |
| b) if the plant is 500kW or lower, and BS EN 303-5:1999 or BS EN 303-5:2012 <u>do not apply to it</u> , please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of measurements made throughout the PM tests. | Not applicable<br><br>Not applicable |
| c) if the plant is 500kW or higher, please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of PM measurements made throughout the PM tests.  | Not applicable<br><br>Not applicable |
| d) please confirm the tests were conducted to:<br>- EN 14792:2005 in respect of NOx, and;<br>- EN 13284-1:2002 or ISO 9096:2003 in respect of PM   | Not applicable<br>Not applicable     |
| e) please confirm the plant tested at ≥85% of its rated output   | Yes                                  |
| f) please confirm the tests show that emissions were no greater than 30 g/GJ PM and 150 g/GJ NOx   | Yes                                  |
| g) measured emissions of PM in g/GJ net heat input   | 21.2                                 |
| h) measured emissions of NOx in g/GJ net heat input  | 73.8                                 |

# Renewable Heat Incentive Emissions Certificate

for Particulate Matter and Oxides of Nitrogen

Issued by Kiwa Ltd t/a Kiwa GASTEC at CRE

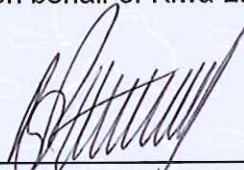
**Certificate number** RHI 30338-14  
**Issue date** 08 October 2013  
**Test report numbers** 6969, 6969, 60131  
**Boiler models** Greenflame 85  
Greenflame 125  
Greenflame 199

**Manufacturer name and address**

TR Engineering Ltd t/a Trianco  
Thornccliffe  
Chapelton  
Sheffield  
S35 2PH

Kiwa Ltd declares that the solid fuel boiler(s) detailed above meet(s) the emission limits of 30g/GJ for particulate matter and 150g/GJ for NO<sub>x</sub> as stated by Defra, and as such the emissions are within the acceptable limit for the appliance to be used in installations wishing to claim the Renewable Heat Incentive.

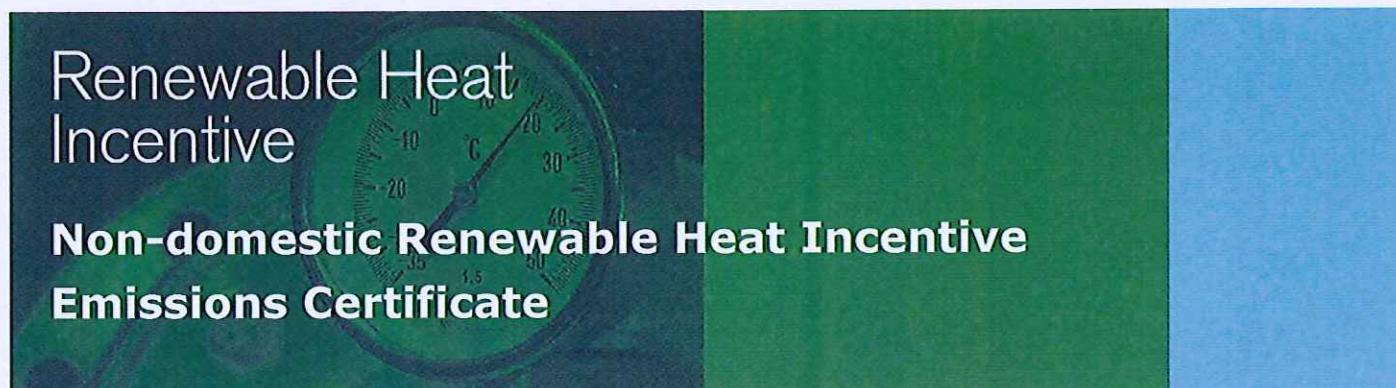
Signed on behalf of Kiwa Ltd



Mr A J Pittaway – Authorised Signatory  
08 October 2013

Certificate





This certificate provides evidence that the tested boiler meets the air quality requirements of the non-domestic Renewable Heat Incentive (RHI). It must be issued by a testing laboratory. Applicants applying for the RHI with biomass boilers must submit a certificate with their application, or alternatively, an environmental permit.

| 1. TEST HOUSE   |  |             |              |
|---|--|-------------|--------------|
| a) name and address of testing laboratory   | Kiwa Ltd t/a Kiwa GASTEC at CRE<br>Orchard Business Centre<br>Stoke Orchard<br>Cheltenham<br>Gloucestershire<br>GL52 7RZ |             |              |
| b) name and signature of the person authorised by the testing laboratory to issue the certificate   | Mr A J Pittaway  |             |              |
| c) date of issue of the certificate together with certificate reference number  | Date of issue: 08 October 2013<br>Certificate no: RHI 30338-14   |             |              |
| d) if testing laboratory is accredited to ISO 17025, date of accreditation and accreditation number<br><i>(note: if testing conducted after 24 September 2013, the testing laboratory must be ISO 17025 accredited)</i> | Accreditation date: 17 January 1991<br>Accreditation number: 0692  |             |              |
| 2. PLANT  |  |             |              |
| a) name of the plant tested   | Greenflame   |             |              |
| b) model of the plant tested  | 85   | 125         | 199          |
| c) manufacturer of the plant tested   | TR Engineering Ltd t/a Trianco   |             |              |
| d) installation capacity of the plant in kilowatts (kW)   | 90   | 126         | 199          |
| e) is the plant a <u>manually stoked, natural draught</u> plant?<br>(that is, without a fan providing forced or induced draught)  | No   |             |              |
| f) the date the plant was tested  | 9 May 2012   | 11 May 2012 | 6 March 2013 |
| g) list of all the plants in the type-testing range of plants to which the certificate applies, if any  | Greenflame 85, Greenflame 100, Greenflame 125, Greenflame 150, Greenflame 199  |             |              |



Appendix to  
Renewable Heat Incentive Emissions Certificate

Certificate Number: RHI 30338-14

| 3. FUELS  |  |      |      |
|---|--|------|------|
| a) types of fuels used when testing   | Wood pellets   |      |      |
| b) based on the testing, list the range of fuels that can be used in compliance with the emission limits of 30 grams per gigajoule (g/GJ) net heat input for particulate matter (PM), and 150 g/GJ net heat input for oxides of nitrogen (NOx) (based if relevant on classifications from EN14961 or EN303-5) | Wood pellets<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i> |      |      |
| c) moisture content of the fuel used during testing   | 7.3%   | 7.3% | 6.4% |
| d) maximum moisture content of the fuel which can be used so as to ensure that the emission limits are not exceeded   | 12%<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i>          |      |      |

| 4. TESTS   |                                      |                       |                       |
|--|--------------------------------------|-----------------------|-----------------------|
| a) if the plant is 500kW or lower, and BS EN 303-5:1999 or EN 303-5:2012 applies to it, please confirm:<br>- tests were conducted to whichever standard was current at the time of testing.  | BS EN 303-5:1999: Yes                | BS EN 303-5:1999: Yes | BS EN 303-5:2012: Yes |
| b) if the plant is 500kW or lower, and BS EN 303-5:1999 or BS EN 303-5:2012 <u>do not apply to it</u> , please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of measurements made throughout the PM tests. | Not applicable<br><br>Not applicable |                       |                       |
| c) if the plant is 500kW or higher, please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of PM measurements made throughout the PM tests.  | Not applicable<br><br>Not applicable |                       |                       |
| d) please confirm the tests were conducted to:<br>- EN 14792:2005 in respect of NOx, and;<br>- EN 13284-1:2002 or ISO 9096:2003 in respect of PM   | Not applicable<br>Not applicable     |                       |                       |
| e) please confirm the plant tested at ≥85% of its rated output   | Yes                                  |                       |                       |
| f) please confirm the tests show that emissions were no greater than 30 g/GJ PM and 150 g/GJ NOx   | Yes                                  |                       |                       |
| g) measured emissions of PM in g/GJ net heat input   | 26.5                                 | 25.5                  | 18.7                  |
| h) measured emissions of NOx in g/GJ net heat input  | 77.0                                 | 78.5                  | 71.8                  |



# Renewable Heat Incentive Emissions Certificate

for Particulate Matter and Oxides of Nitrogen

Issued by Kiwa Ltd t/a Kiwa GASTEC at CRE

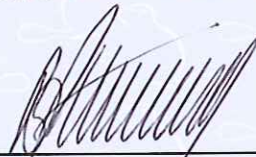
**Certificate number** RHI 30338-15  
**Issue date** 08 October 2013  
**Test report numbers** 60265  
**Boiler models** Greenflame 18

**Manufacturer name and address**

TR Engineering Ltd t/a Trianco  
Thorncliffe  
Chapelton  
Sheffield  
S35 2PH

Kiwa Ltd declares that the solid fuel boiler(s) detailed above meet(s) the emission limits of 30g/GJ for particulate matter and 150g/GJ for NO<sub>x</sub> as stated by Defra, and as such the emissions are within the acceptable limit for the appliance to be used in installations wishing to claim the Renewable Heat Incentive.

Signed on behalf of Kiwa Ltd



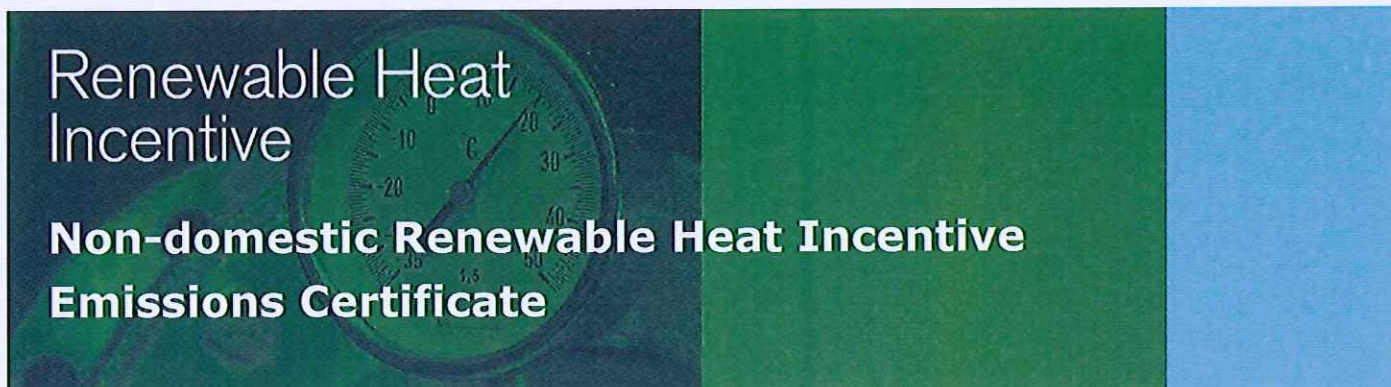
Mr A J Pittaway – Authorised Signatory  
08 October 2013

**GASTEC**  
at **CRE**

Kiwa GASTEC at CRE  
The Orchard Business Centre  
Stoke Orchard, Cheltenham  
GL52 7RZ, UK

Certificate





This certificate provides evidence that the tested boiler meets the air quality requirements of the non-domestic Renewable Heat Incentive (RHI). It must be issued by a testing laboratory. Applicants applying for the RHI with biomass boilers must submit a certificate with their application, or alternatively, an environmental permit.

| <b>1. TEST HOUSE</b>  |  |
|---|--|
| a) name and address of testing laboratory   | Kiwa Ltd t/a Kiwa GASTEC at CRE<br>Orchard Business Centre<br>Stoke Orchard<br>Cheltenham<br>Gloucestershire<br>GL52 7RZ |
| b) name and signature of the person authorised by the testing laboratory to issue the certificate   | Mr A J Pittaway  |
| c) date of issue of the certificate together with certificate reference number  | Date of issue: 08 October 2013<br>Certificate no: RHI 30338-15   |
| d) if testing laboratory is accredited to ISO 17025, date of accreditation and accreditation number<br><i>(note: if testing conducted after 24 September 2013, the testing laboratory must be ISO 17025 accredited)</i> | Accreditation date: 17 January 1991<br>Accreditation number: 0692  |
| <b>2. PLANT</b>   |  |
| a) name of the plant tested   | Greenflame   |
| b) model of the plant tested  | 18   |
| c) manufacturer of the plant tested   | TR Engineering Ltd t/a Trianco   |
| d) installation capacity of the plant in kilowatts (kW)   | 18   |
| e) is the plant a <u>manually stoked, natural draught</u> plant?<br>(that is, without a fan providing forced or induced draught)  | No   |
| f) the date the plant was tested  | 06 September 2013  |
| g) list of all the plants in the type-testing range of plants to which the certificate applies, if any  | N/A  |



**Appendix to  
Renewable Heat Incentive Emissions Certificate**

Certificate Number: RHI 30338-15

| <b>3. FUELS</b>   |  |
|---|--|
| a) types of fuels used when testing   | Wood pellets   |
| b) based on the testing, list the range of fuels that can be used in compliance with the emission limits of 30 grams per gigajoule (g/GJ) net heat input for particulate matter (PM), and 150 g/GJ net heat input for oxides of nitrogen (NOx)<br><i>(based if relevant on classifications from EN14961 or EN303-5)</i> | Wood pellets<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i> |
| c) moisture content of the fuel used during testing   | 6.4%   |
| d) maximum moisture content of the fuel which can be used so as to ensure that the emission limits are not exceeded   | 12%<br><i>Based on compressed wood (category C) classification from BS EN 303-5</i>          |

| <b>4. TESTS</b>  |                                      |
|--|--------------------------------------|
| a) if the plant is 500kW or lower, and BS EN 303-5:1999 or EN 303-5:2012 applies to it, please confirm:<br>- tests were conducted to whichever standard was current at the time of testing.  | BS EN 303-5:2012: Yes                |
| b) if the plant is 500kW or lower, and BS EN 303-5:1999 or BS EN 303-5:2012 <u>do not apply to it</u> , please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of measurements made throughout the PM tests. | Not applicable<br><br>Not applicable |
| c) if the plant is 500kW or higher, please confirm:<br><br>- emissions of PM represent the average of at least three measurements, each of at least 30 minutes duration and;<br><br>- the value for NOx emissions is derived from the mean of PM measurements made throughout the PM tests.  | Not applicable<br><br>Not applicable |
| d) please confirm the tests were conducted to:<br>- EN 14792:2005 in respect of NOx, and;<br>- EN 13284-1:2002 or ISO 9096:2003 in respect of PM   | Not applicable<br>Not applicable     |
| e) please confirm the plant tested at ≥85% of its rated output   | Yes                                  |
| f) please confirm the tests show that emissions were no greater than 30 g/GJ PM and 150 g/GJ NOx   | Yes                                  |
| g) measured emissions of PM in g/GJ net heat input   | 17.2                                 |
| h) measured emissions of NOx in g/GJ net heat input  | 89.0                                 |