

Confidential

**SMOKE EMISSION FROM THE
TST069S ECO STOVE**



Prepared By: Kiwa Gastec

Prepared For: Topcastings Enterprise Co Ltd

Project Number: 61384

Report Number: 61384-1/Smokes

Date: 19 April 2021

**Trust
Quality
Progress**

CONFIDENTIAL

SMOKE EMISSION FROM THE TST069S ECO STOVE

REPORT NUMBER: 61384-1/Smokes

COPY NUMBER: 1

Client:

**Topcastings Enterprise Co. Ltd
N0 7 Jianshe South Street
Changzhou
Hebei
China**

Testing Authority:



0692

**GASTEC a Trading division of Kiwa Ltd
Kiwa House
Malvern View Business Park
Stella Way
Bishops Cleeve
Cheltenham
Gloucestershire
GL52 7DQ**

Laboratory Job Number:

61384

Date of Issue:

19 April 2021

Issued under authority of:

A handwritten signature in blue ink, appearing to read "M E Crowther".

(Authorised Signatories:- M E Crowther, A J Pittaway)

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

CONTENTS

	Page No.
1. INTRODUCTION	3
2. DESCRIPTION OF APPLIANCE	3 - 4
3. TESTWORK	4
3.1 Test Appliance	4
3.2 Test Equipment	4
3.3 Test Wood	4
3.4 Test Procedures	4 - 5
3.4.1 High Output Tests	5
3.4.2 Low Output Tests	5 - 6
4. RESULTS AND DISCUSSION	6
4.1 Smoke Emission Test Results	6
4.1.1 High Output Test Results	6
4.1.2 Low Output Test Results	6
5. CONCLUSIONS	7
6. RECOMMENDATIONS	7
7. REFERENCES	7
8. DETAILED RESULTS	8
Tables 1 to 2	8
Figures 1 to 10	9 - 18
 Appendix A Performance Results from Gastec Report No.61384-1 Testing to BS EN 13240 + A2:2004	 19
 Appendix B Manufacturer's Installation and User Instructions	 21

All rights reserved. Publication of this report is allowed, provided nothing is added or omitted. For any deviation from these conditions and for publication in translated form written permission has to be obtained from Kiwa Ltd.

1 INTRODUCTION

Measurement of smoke emission from the TST 069S Eco stove burning wood logs has been carried out at the request of Topcastings Enterprise Co Ltd. The work was requested to enable submission for exemption for use of wood logs in smoke-controlled zones.

The smoke measurements were made in accordance with British Standards document PD 6434:1969¹. However, the amount of test work required by Defra for smoke approvals against this standard has been reduced. Therefore, test work carried out and reported herein is limited to low and high output tests only.

The manufacturer is also marketing the appliance as the TST069SN and the TST096 Eco Stoves. The differences between these variants are mainly the door design, primary air spin wheel and slightly different outer casings. The combustion chambers, air intakes and flue pathways are identical on all three appliances, therefore, results obtained on the TST069S Eco appliance, and reported herein, can be assigned to the TST069SN and TST096 Eco Stoves.

The maximum permitted smoke emission given in PD 6434 is related to the heat output of the appliance such that the mean smoke emission should not exceed $5.0 \text{ gh}^{-1} + 0.1 \text{ gh}^{-1}$ for each 0.3 kW of heat output. In order to make comparisons with the requirements of PD6434, the output during each test was calculated using an efficiency figure taken from the type testing to EN 13240:2001² carried out on the stove by Gastec (see Appendix A). The reported efficiency for tests carried out with the stove operating at nominal output of 4.2kW is 81.9% when burning wood logs.

The test work described in this report was conducted at two outputs ranging from operating at high output to operating at a lower air setting. Since we do not have the exact efficiency value for the various output settings, it is considered the efficiency at this setting would not be considerably different from the nominal output efficiency. Hence the latter has been used to calculate outputs and the permitted smoke emission values at the different air settings.

2 DESCRIPTION OF APPLIANCE

The TST069S Eco Stove is a freestanding room heater designed to burn wood logs and mineral smokeless fuel. The appliance tested at Kiwa Gastec was a pre-production model.

The appliance body is constructed from steel plate which incorporates a top and rear flue outlet as a means of connecting to a chimney.

The firebox chamber is lined at the sides with vermiculite panels and at the rear with a steel plate, which incorporates a series of tertiary air holes positioned approximately 150mm above grate level. A fire brick panel forms the top section of the firebox, which is supported in place by the rear and side panels.

The appliance has three means of air entry. Primary air enters the firebox from beneath grate level, control of which is achieved by a spin wheel located centrally within the bottom section of the firebox door. Secondary/air wash enters via four slots located above the door, control is achieved via a cover plate slider positioned centrally above

the door. Tertiary air enters the stove from beneath the stove and flows into the firebox via a series of equally spaced holes located within the rear firebox panel. Control of the tertiary air supply is achieved via a slide lever located centrally beneath the appliance.

Fuel is burnt on a slotted steel grate.

A copy of the manufacturer's installation instructions and directions for use are given in Appendix B.

3 TESTWORK

3.1 Test Appliance

The appliance tested was the TST069S Eco Stove in its top flue configuration.

3.2 Test Equipment

For the smoke emission measurement work the appliance was installed in a brick chimney fitted with an electrostatic precipitator housing.

Smoke emission was measured using the electrostatic precipitator method described in BS 3841: Part 2:1994³. Optical density measurements of the smoke emission were also made, using the GASTEC optical smoke meter.

3.3 Test Wood

The test fuel used was test wood logs conforming to the specification given in BS EN 13240:2001 for thermal performance test work on room heaters burning wood logs.

3.4 Test Procedures

Smoke emissions from the appliance were measured over two secondary/air wash control settings, viz. fully open (high output setting) and a low setting (air control slots open 3mm from the fully closed position). The low setting used was not the minimum setting for the control. Based on the travel of the secondary/air wash control slots, a position of 3mm open from the fully closed position was determined and then used as the low output setting.

Throughout the test programme the primary air remained closed, whilst the tertiary air inlet slot (located beneath the stove) was fixed at 2mm open.

When refuelling for both the high and low output tests it was necessary to allow the newly charged fuel to burn with the door ajar for a period of approximately 3 minutes in order to blacken the wood logs and establish sustainable flames on the newly charged fuel load.

The mass of fuel used as the refuel charge for each test was approximately 0.98kg comprising of 2 logs.

Continuous burning capability was not claimed for the appliance and so smoke emission during overnight burning was not measured.

As stated above the smoke emission in all tests was measured using the electrostatic precipitator method described in detail in BS3841. The precipitators were conditioned using the hot room method.

In addition to the gravimetric determination of smoke emission the optical density of the smoke emission was also measured using the Kiwa Gastec optical smoke meter. PD6434 requires that "in addition to the average rate of smoke emission being within acceptable limits, the emission over short periods, for example at the times of refuelling or deashing, does not reach objectionably high levels." Guideline values of 0.2 optical density and 6 minutes have been taken in the past to interpret these requirements.

In the tests reported herein, attention was paid to the manufacturer's recommended operating procedures regarding use of the stove.

3.4.1 High Output Tests (Secondary/Air Wash Inlet Control Slots – Fully Open)

The high output tests consisted of an ignition and pre-test period to establish a suitable fire bed followed by successive test periods. The actual test duration was not fixed, the fire was allowed to burn back to the initial level of embers established at the start of the test.

Following the operation of the stove described in 3.4 above the secondary/air wash control was positioned fully open.

Each test was started by refuelling with a fuel load of approximately 0.98kg. A series of five tests was carried out. The duration of the high output tests ranged from 36 to 40 minutes.

Approximately five minutes before the end of the pre-test period a weighed, clean and conditioned precipitator was placed in position on the chimney. Immediately after the refuel charge was added and the fire door closed the power supply to the precipitator was turned on and maintained throughout the test. At the end of the test the precipitator was removed from the chimney and placed in the conditioning room overnight before being re-weighed to determine its increase in mass.

For each test the total mass of smoke collected was determined and was averaged over the smoke collection period. A graph of optical density of the smoke emission was also produced.

3.4.2 Low Output Tests (Secondary/Air Wash Inlet Control Slots – 3mm Open)

These tests consisted of an ignition and pre-test period to establish a suitable fire bed followed by successive test periods. The actual test duration was not fixed, the fire was allowed to burn back to the initial fire bed level established at the start of the test period.

Each test was started by refuelling with a fuel load of approximately 0.98kg. A series of five tests was carried out. The duration of the low output tests ranged from 55 to 58 minutes.

Approximately five minutes before the end of the pre-test period a weighed, clean and conditioned precipitator was placed in position on the chimney. Immediately after the refuel charge was added and the fire door closed the power supply to the precipitator

was turned on and maintained throughout the test. At the end of the test the precipitator was removed from the chimney and placed in the conditioning room overnight before being re-weighed to determine its increase in mass.

For each test the total mass of smoke collected was determined and was averaged over the smoke collection period. A graph of optical density of the smoke emission was also produced.

4 RESULTS AND DISCUSSION

4.1 Smoke Emission Test Results

The results of the smoke emission tests are summarised in Tables 1 and 2.

As stated in section 1 the maximum permitted smoke emission given in PD 6434 is related to the heat output of the appliance. The permitted smoke emission has been calculated for each individual test and is given in the summary tables. PD 6434 also recommends that no individual smoke emission level in a set of results should be more than 50% greater than the mean of the permitted emission level for that set.

Optical density data is also given in the tables in the form of times exceeding 0.1, 0.2, 0.4 and 0.7 optical density. An optical density of 0.2 is taken as the level above which the smoke emission is obtrusive when the chimney of a dwelling is viewed from outside. In addition, the optical density graphs are given in Figures 1 to 10.

4.1.1 High Output Test Results (Secondary/Air Wash Inlet Control Slots – Fully Open)

High output smoke emission results are summarised in Table 1 and the optical density graphs are illustrated in Figures 1 to 5.

A mean smoke emission level of 2.5gh^{-1} was obtained which was below the mean permitted level of 6.7gh^{-1} .

The optical density results show that the emissions were satisfactory. An optical density of 0.2 was exceeded in four of the five tests undertaken, for periods ranging from 0.8 to 3.9 minutes. The mean period was 1.5 minutes.

4.1.2 Low Output Test Results (Secondary/Air Wash Inlet Control Slots – 3mm Open)

Low output smoke emission results are summarised in Table 2 and the optical density graphs are illustrated in Figures 6 to 10.

A mean smoke emission level of 1.6gh^{-1} was obtained which was below the mean permitted level of 6.1gh^{-1} .

The optical density results show that the emissions were satisfactory. An optical density of 0.2 was exceeded in three of the five tests undertaken, for periods of 1.5, 1.9 and 4.2 minutes. The mean period was 1.5 minutes.

CONCLUSIONS

- 5.1 When operated at high output, a mean smoke emission level of 2.5gh^{-1} was obtained which was below the PD 6434 mean permitted level of 6.7gh^{-1} .
- 5.2 Optical density graphs obtained during the high output tests showed that emissions were satisfactory. Emissions greater than 0.2 optical density occurred in four of the five tests undertaken, however, none exceeded the 6-minute guideline period of acceptability.
- 5.3 When operated at low output, a smoke emission level of 1.6gh^{-1} was obtained which was below the PD 6434 permitted level of 6.1gh^{-1} .
- 5.4 Optical density graphs obtained during the low output tests showed that emissions were satisfactory. Emissions greater than 0.2 optical density occurred in three of the five tests undertaken, however, none exceeded the 6-minute guideline period of acceptability.
- 5.5 The mean gravimetric smoke emission results obtained from the high and low output tests were both less than 75% of the permitted values, therefore further testing at an intermediate output was not undertaken.

6 RECOMMENDATIONS

- 6.1 The importance of following the manufacturer's recommended method of operating should be stressed in the operating instructions.
- 6.2 Modification of the existing secondary/air wash inlet slots, preventing closure beyond the 3mm closed position, used for the low output tests, should be implemented.
- 6.3 Modification of the tertiary air inlet plate located beneath the stove, preventing closure beyond the 2mm open position, used for both the high and low output tests, should be implemented.

It is noted that the manufacturer has already been notified of these recommendations.

7 REFERENCES

- 7.1 PD 6434:1969: Recommendations for the design and testing of smoke reducing solid fuel burning domestic appliance.
- 7.2 BS EN 13240:2001: Room heaters fired by solid fuel - Requirements and test methods.
- 7.3 BS 3841:1994: Determination of smoke emission from manufactured solid fuels for domestic use.

8 DETAILED TEST RESULTS

TABLE 1
HIGH OUTPUT TESTS

(Secondary/Air Wash Inlet Slots – Fully Open)

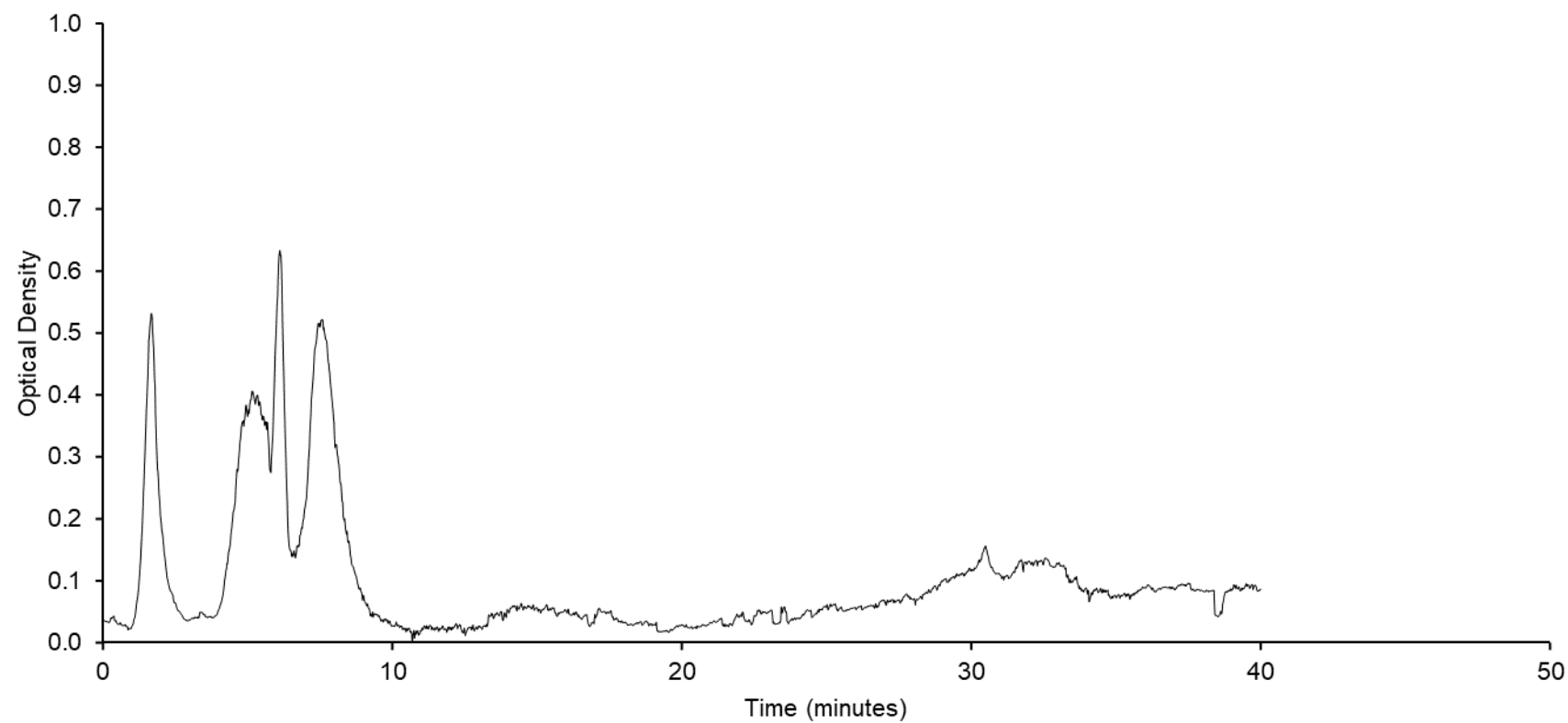
Test No.	Burning rate (as charged) kg h ⁻¹	Heat Output kW	Smoke Emission						
			Gravimetric			Optical Density			
			Total g	Mean gh ⁻¹	PD6434 permitted gh ⁻¹	Duration (min) Exceeding			
						0.1	0.2	0.4	0.7
1	1.47	4.9	1.1	1.6	6.6	10.1	3.9	1.4	0.0
2	1.65	5.5	1.4	2.3	6.8	1.5	0.8	0.1	0.0
3	1.48	4.9	1.2	1.8	6.6	0.7	0.0	0.0	0.0
4	1.58	5.3	1.7	2.7	6.8	1.8	1.3	0.8	0.0
5	1.58	5.3	2.7	4.3	6.8	2.2	1.7	1.1	0.0
Mean	1.55	5.2	1.6	2.5	6.7	3.3	1.5	0.7	0.0

TABLE 2
LOW OUTPUT TESTS

(Secondary/Air Wash Inlet Slots – 3mm Open)

Test No.	Burning rate (as charged) kg h ⁻¹	Heat Output kW	Smoke Emission						
			Gravimetric			Optical Density			
			Total g	Mean gh ⁻¹	PD6434 permitted gh ⁻¹	Duration (min) Exceeding			
						0.1	0.2	0.4	0.7
1	0.99	3.3	1.3	1.4	6.1	10.8	4.2	2.7	0.1
2	0.97	3.2	1.2	1.3	6.1	1.1	0.0	0.0	0.0
3	0.98	3.3	1.0	1.1	6.1	13.3	1.5	0.0	0.0
4	1.01	3.4	1.8	2.0	6.1	4.2	0.0	0.0	0.0
5	0.97	3.2	1.8	2.1	6.1	20.0	1.9	0.0	0.0
Mean	0.98	3.3	1.4	1.6	6.1	9.9	1.5	0.5	0.0

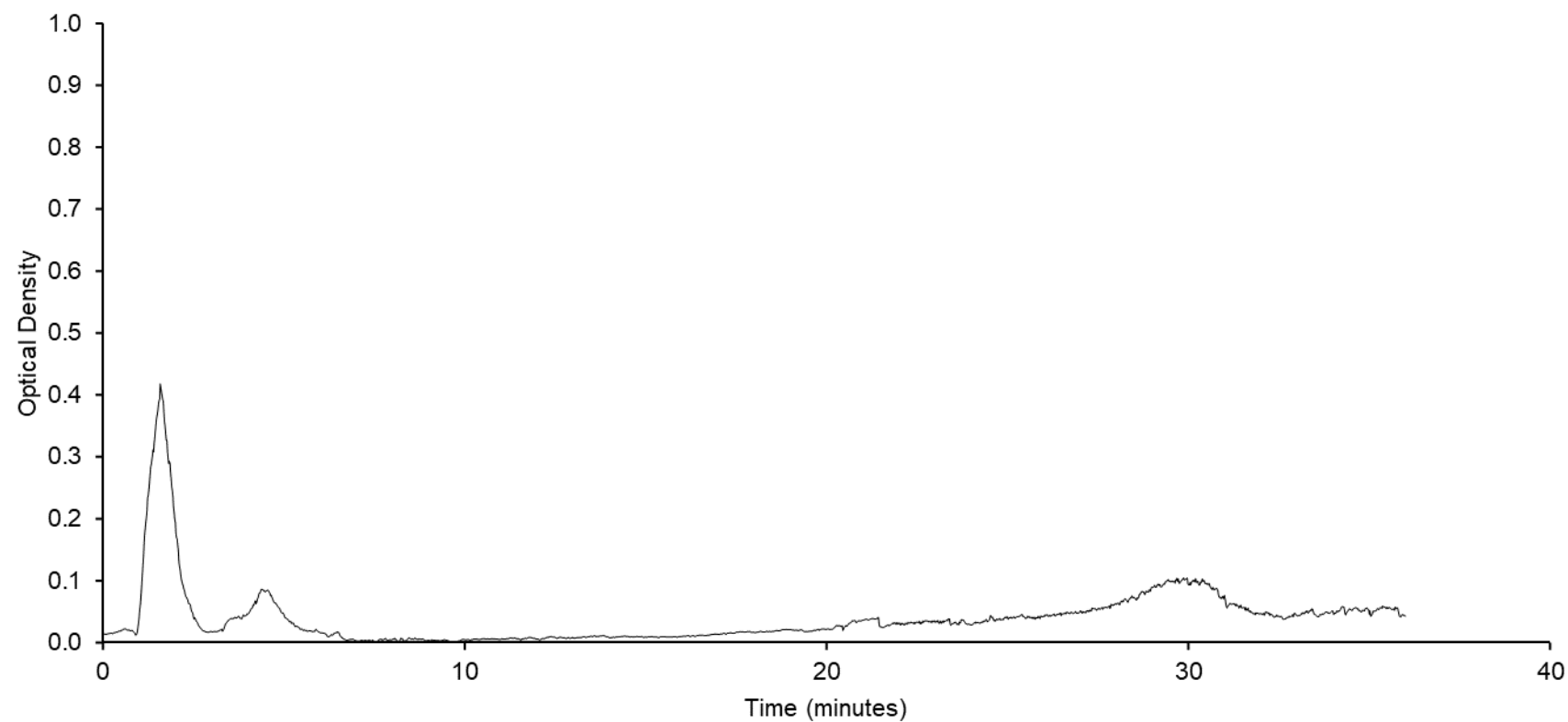
Optical Density for High Output 1



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.096	10.1 min	3.9 min	1.4 min	0.0 min

FIGURE 1

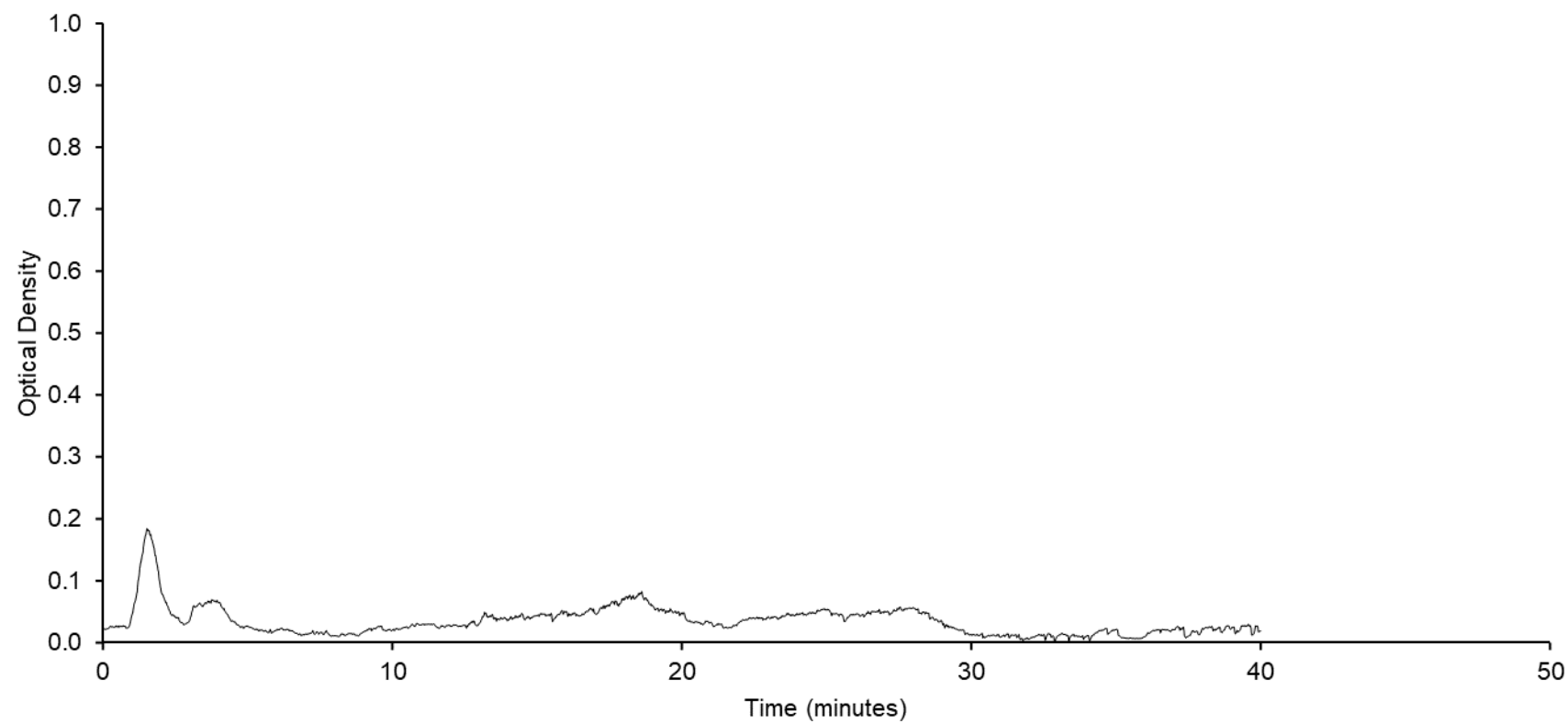
Optical Density for High Output 2



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.040	1.5 min	0.8 min	0.1 min	0.0 min

FIGURE 2

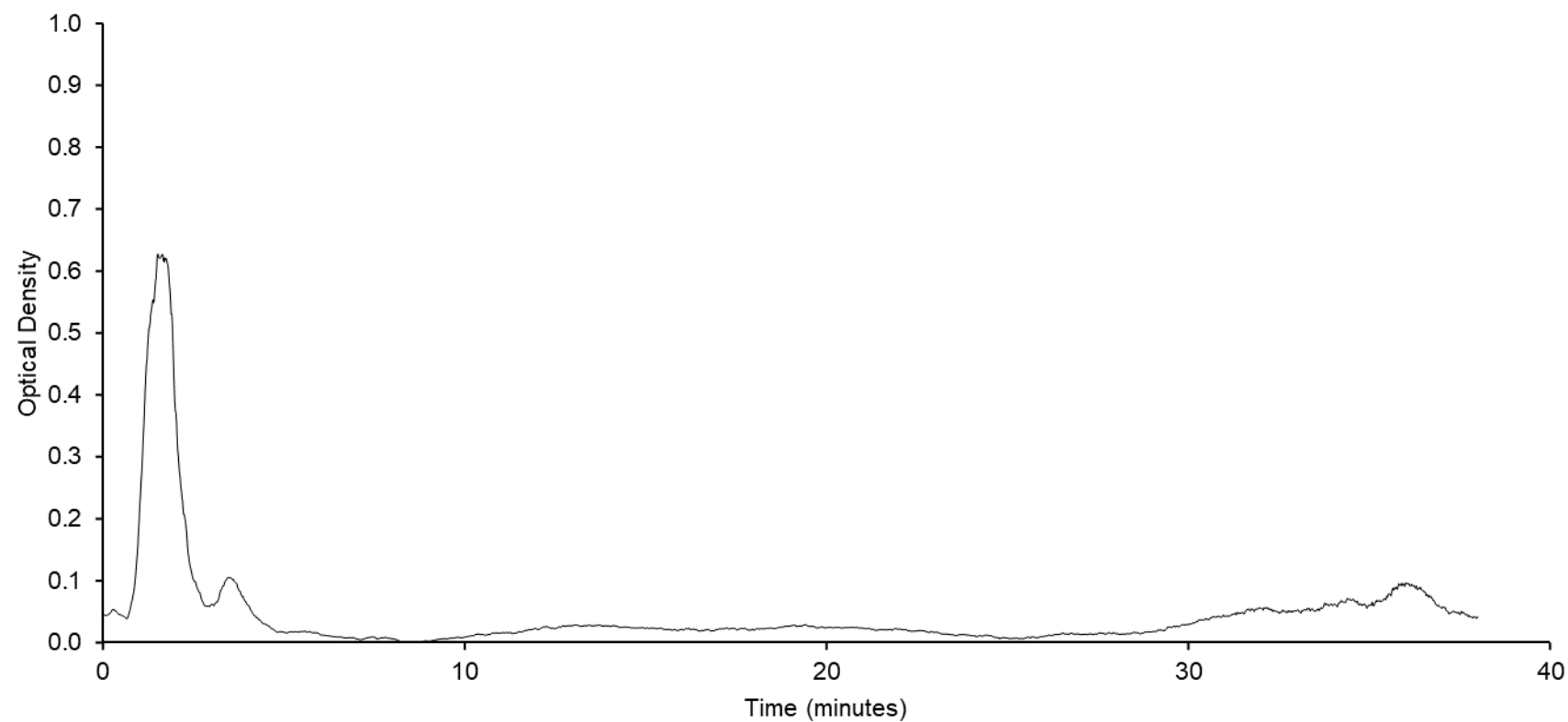
Optical Density for High Output 3



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.035	0.7 min	0.0 min	0.0 min	0.0 min

FIGURE 3

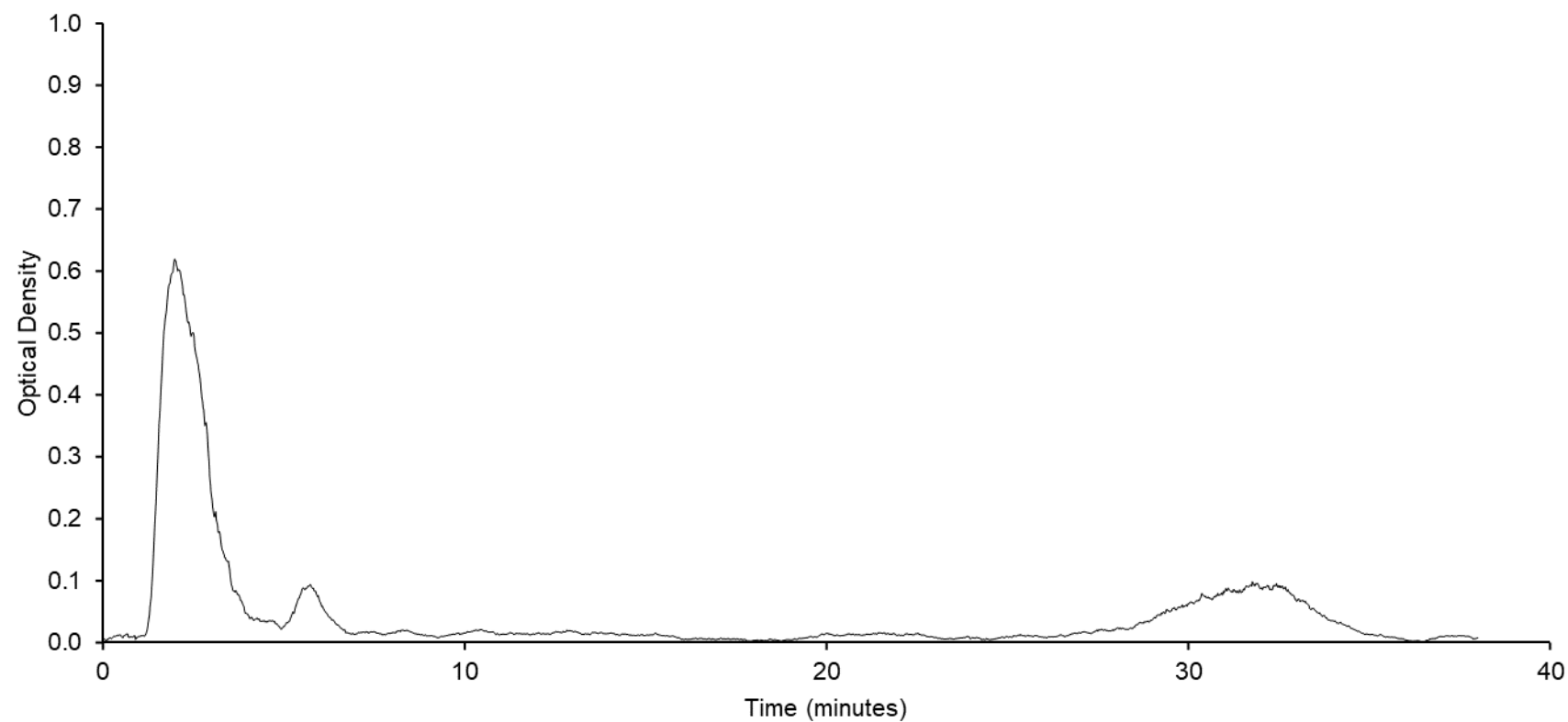
Optical Density for High Output 4



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.045	1.8 min	1.3 min	0.8 min	0.0 min

FIGURE 4

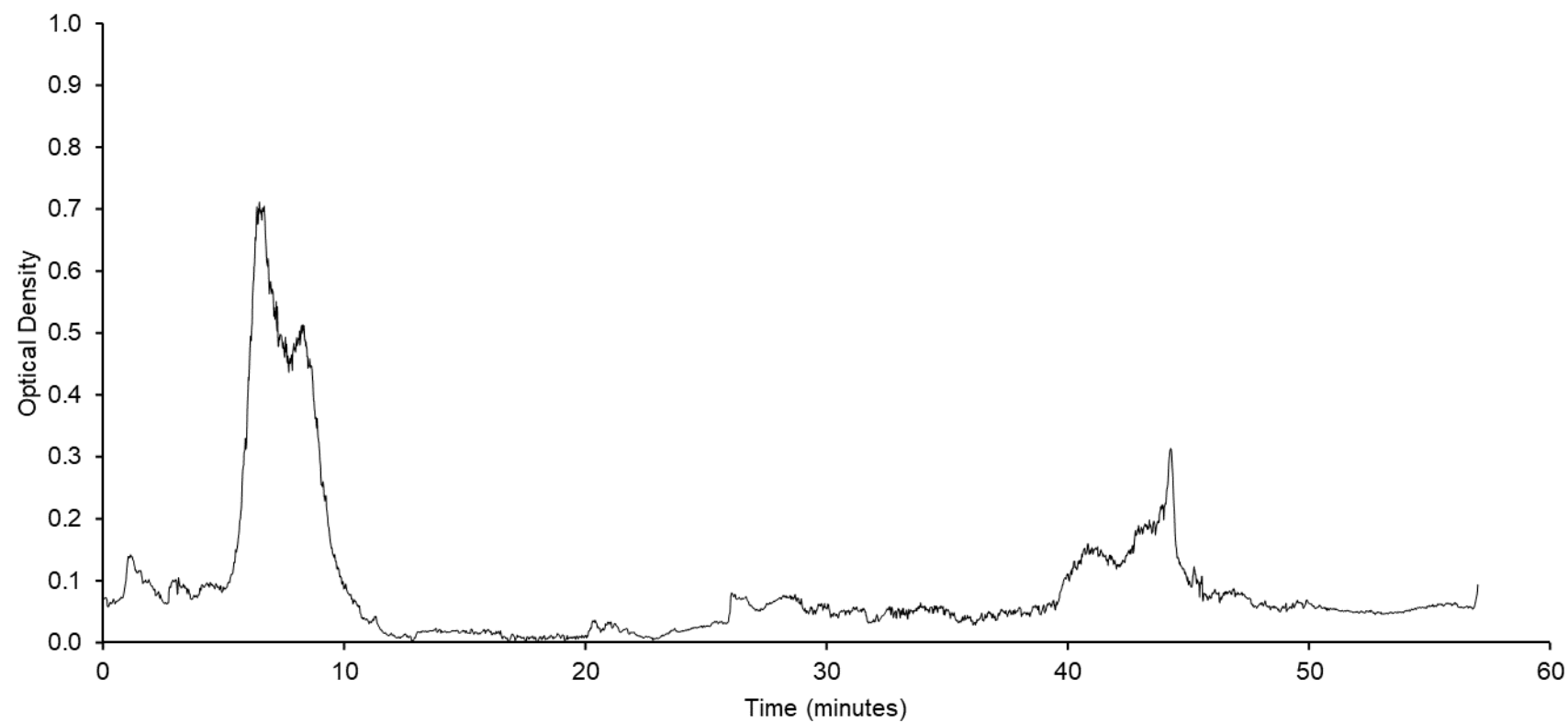
Optical Density for High Output 5



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.045	2.2 min	1.7 min	1.1 min	0.0 min

FIGURE 5

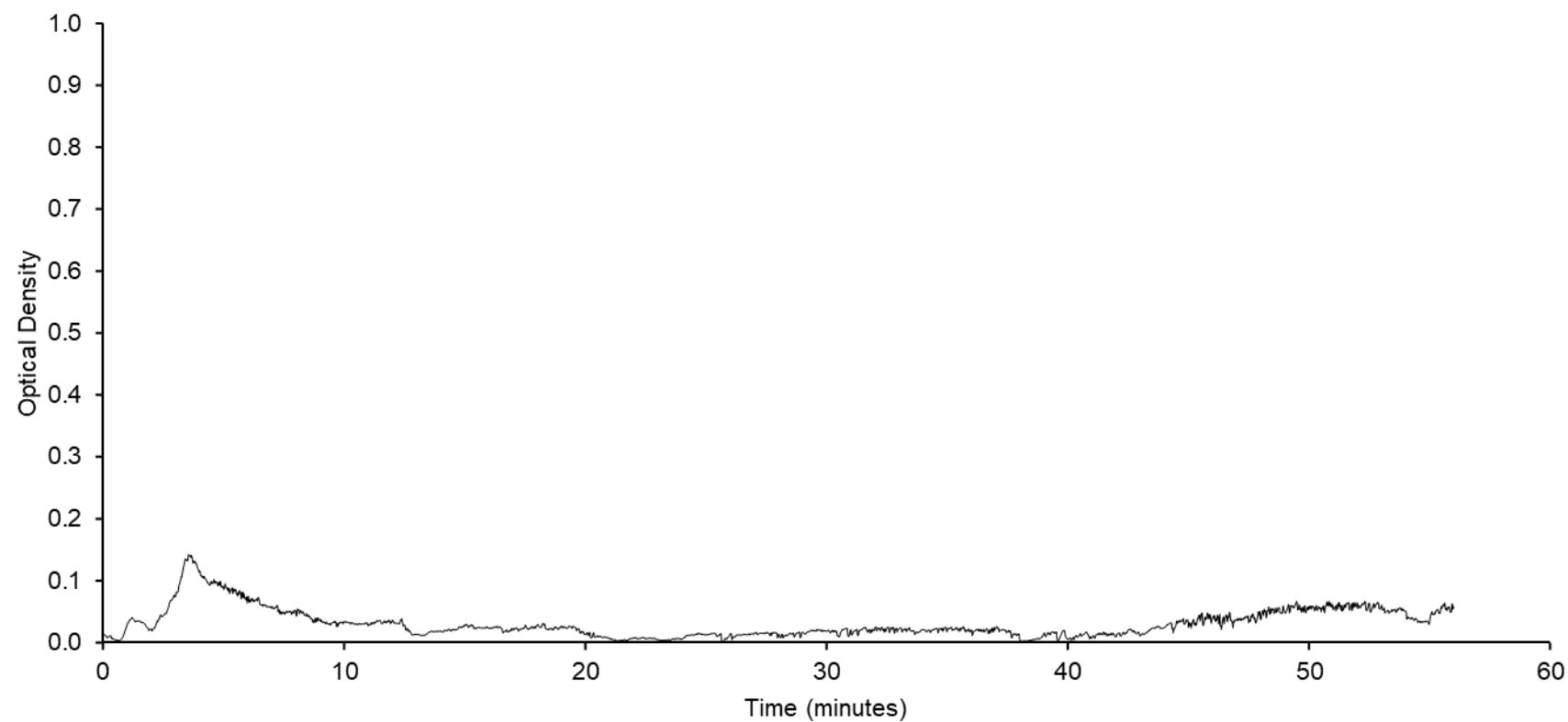
Optical Density for Low Output 1



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.086	10.8 min	4.2 min	2.7 min	0.1 min

FIGURE 6

Optical Density for Low Output 2



Average
0.031

> 0.1
1.1 min

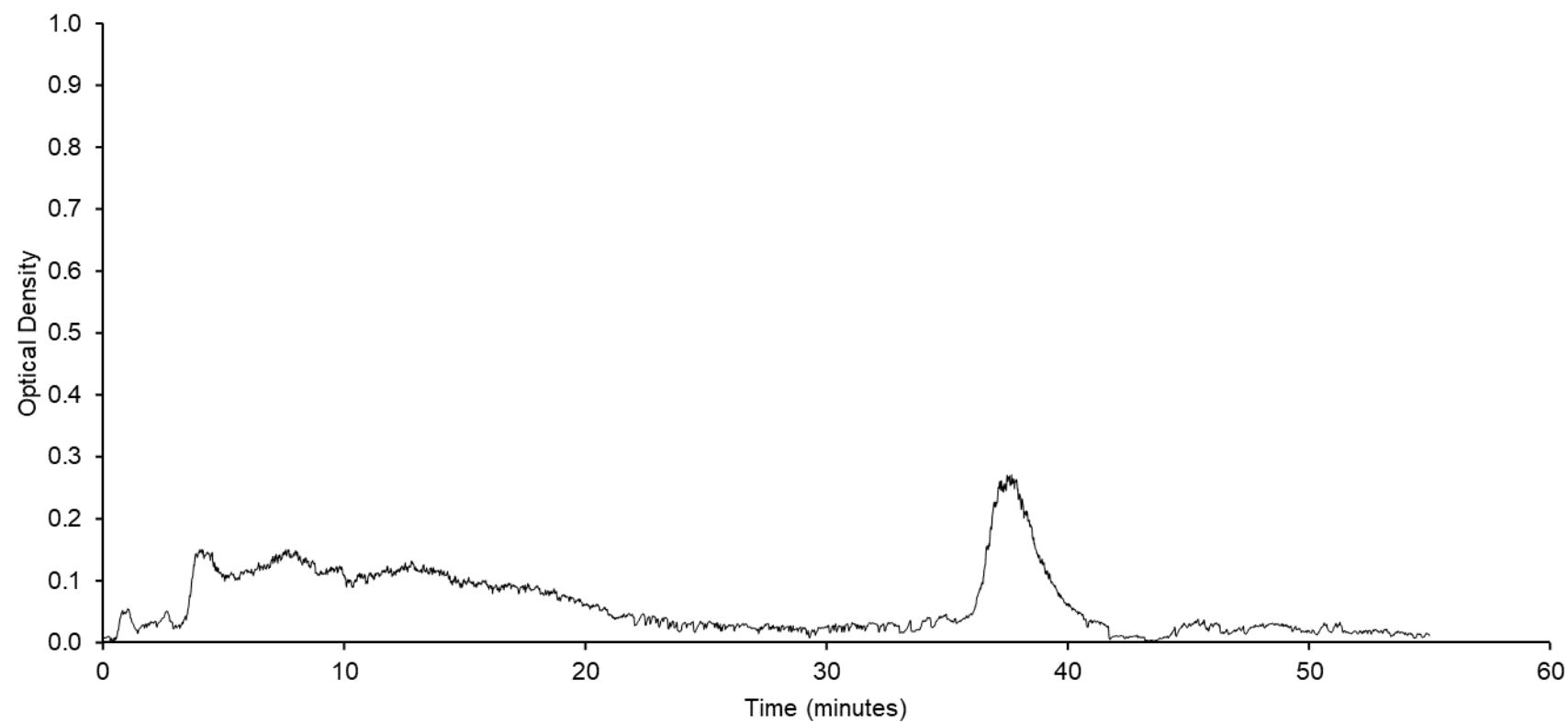
> 0.2
0.0 min

> 0.4
0.0 min

> 0.7
0.0 min

FIGURE 7

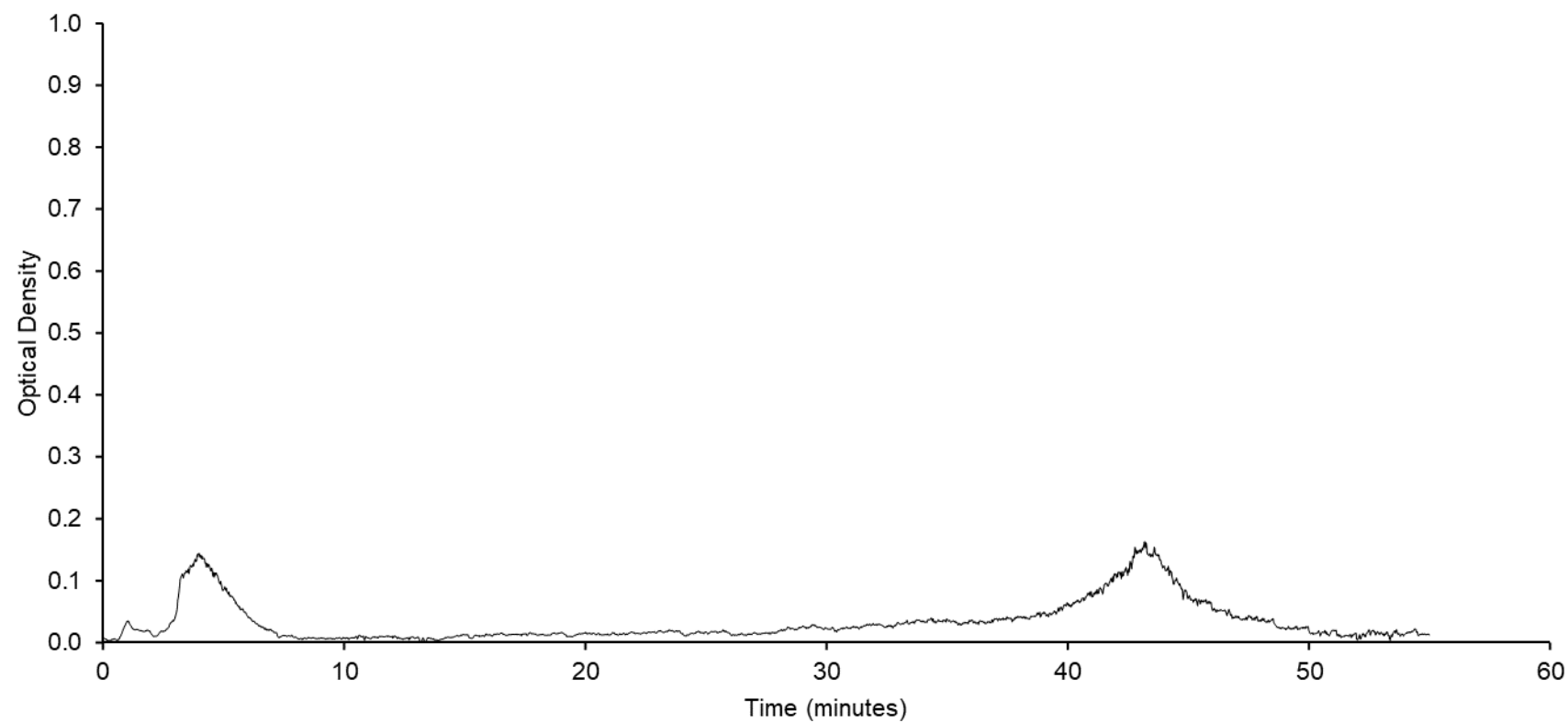
Optical Density for Low Output 3



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.060	13.3 min	1.5 min	0.0 min	0.0 min

FIGURE 8

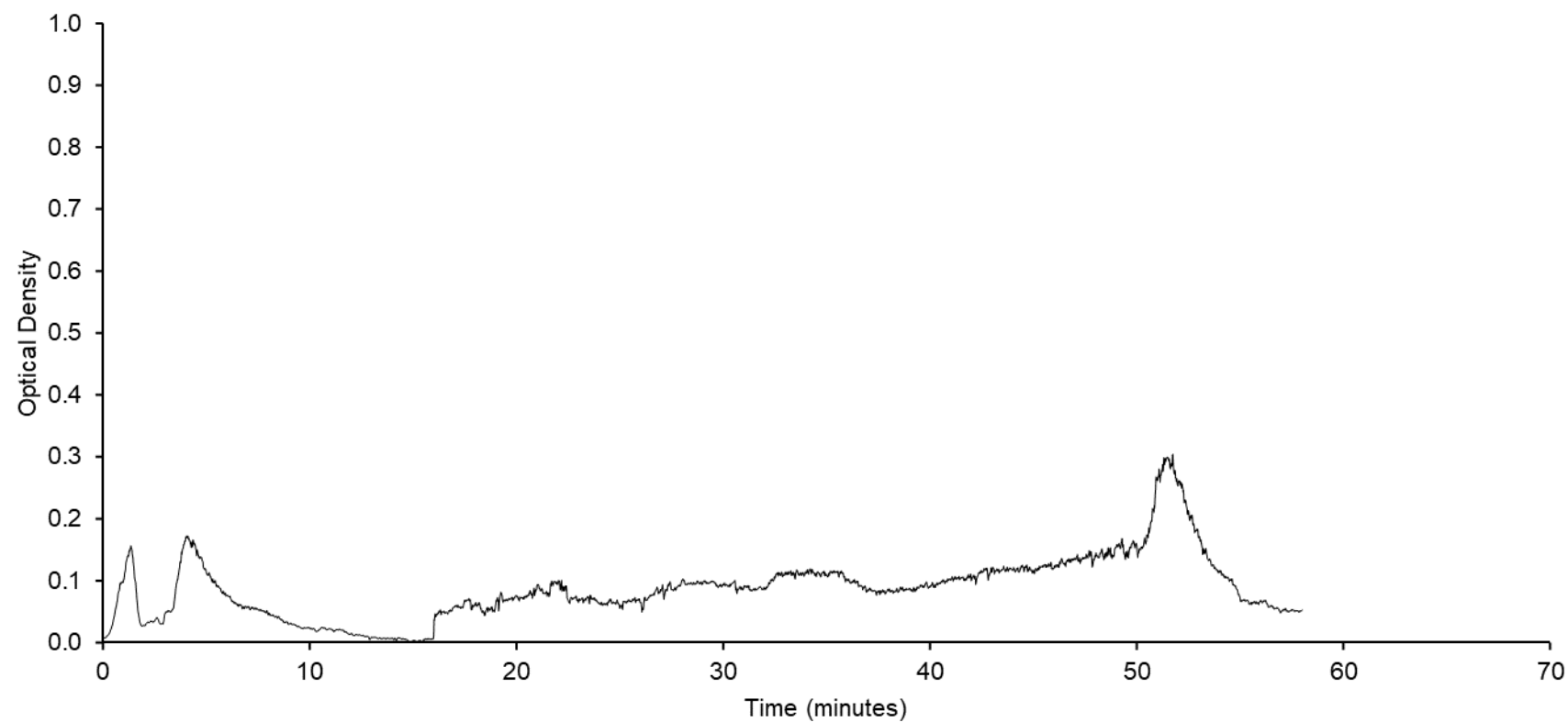
Optical Density for Low Output 4



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.033	4.2 min	0.0 min	0.0 min	0.0 min

FIGURE 9

Optical Density for Low Output 5



Average	> 0.1	> 0.2	> 0.4	> 0.7
0.088	20.0 min	1.9 min	0.0 min	0.0 min

FIGURE 10

APPENDIX A

**Performance Results from Gastec Report No.61384-1
Testing to BS EN 13240 + A2:2004
(1 page attached)**

Efficiency Tests

Performance test at nominal heat output burning wood logs

(See clause 6.2 and 6.3 of the Standard)

Test Fuel Type	Wood Logs			
Test number	A21/40-1	A21/40-2	A21/40-3	Mean
Test duration, h	0.80	0.80	0.77	0.80
Total efficiency, %	83.0	81.4	81.2	81.9
Nominal heat output, kW	4.2	4.1	4.3	4.2
Nominal heat output to water, kW	Not applicable			
Nominal heat output to space, kW	4.2	4.1	4.3	4.2
Mean CO emission (at 13% O ₂), %	0.12	0.12	0.12	0.12
Mean NO _x emission (at 13% O ₂), mg/Nm ³	86	83	83	84
Mean OGC emission (at 13% O ₂), mg/Nm ³	105	96	86	96
Particulate emission (at 13% O ₂), mg/Nm ³	16	20	14	17
Mean flue gas temperature, °C	247	256	258	254
Flue gas mass flow, gs ⁻¹	3.0	3.2	3.4	3.2
Calculated output over manufacturer's declared refuelling period, kW	4.2	4.1	4.1	4.1
Calculated period at manufacturer's declared nominal output, h	0.8	0.8	0.8	0.8

Summary of Efficiency Results – Net and Gross

Test Number	A21/40-1	A21/40-2	A21/40-3	Mean
Net efficiency, %	83.0	81.4	81.2	81.9
Gross efficiency, %	75.4	73.9	73.8	74.4

Assessment of Results Against Requirements of Standard

	Clause	Mean	Requirement of standard	Pass/Fail
Total efficiency, %	6.3	81.9	≥ 50	P
Nominal heat output, kW	6.3	4.2	≥ manufacturer's declaration	P
Mean CO emission (at 13% O ₂), %	6.2	0.12	≤ 1.0	P
Overall Assessment				Pass

APPENDIX B

Manufacturer's Installation and User Instructions (36 pages attached)

Installation and Operating Instructions



Multifuel Stove

Item No.: TST069S Eco Stove

Size: 390*356*572mm

Version 1 2021.4.13

Section	Contents	Page
1.	The Clean Air Act 1993 and Smoke Control Areas-----	1
2.	Important information about installing and using the stove-----	2
3.	Assembly of the stove-----	2
4.	Installation of the stove-----	3
5.	Operating Instructions-----	4
	5.1 Fuel	
	5.2 Before lighting	
	5.3 Lighting a wood fire	
	5.4 Refuelling on to a low fire bed	
	5.5 Fuel overloading	
	5.6 Operation with door left open	
	5.7 Dampers left open	
	5.8 De-ashing the stove	
6.	Guidance on safe operation-----	8
7.	Maintenance-----	9
8.	Fault Finding-----	9
9.	Specification-----	10

1- The Clean Air Act 1993 and Smoke Control Areas

Under the Clean Air Act local authorities may declare the whole or part of the district of the authority to be a smoke control area. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance ("exempted" from the controls which generally apply in the smoke control area).

In England appliances are exempted by publication on a list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015. Similarly in Scotland appliances are exempted by publication on a list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014. In Wales and Northern Ireland these are authorised by regulations made by Welsh Ministers and by the Department of the Environment respectively.

Further information on the requirements of the Clean Air Act can be found here: <https://www.gov.uk/smoke-control-area-rules>

Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements.

The TST069S multifuel Eco Stove has been recommended as suitable for use in smoke control areas when burning wood logs. Authorised mineral fuels can also be burned in smoke control areas. The TST069S multifuel Eco Stove is fitted with a permanent stop to prevent closure of the secondary air control inlet slots beyond 4mm open.

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed. Take care when assembling and moving the stove. It is made of cast iron and is very heavy (50kgs)

2- Important information about installing and using the stove

- All national and local regulations need to be complied with when installing the stove.
- The stove must be installed by a registered installer or approved by your local building control officer.
- Only use for domestic heating purposes only.
- Burn only approved fuels.
- This stove will become very hot whilst in operation and due care should be taken. Use only the tool provided to operate the door handles and ash pan. Do not place flammable objects on or near the stove.
- The stove must NOT be installed into a chimney that serves any other appliance and is suitable for intermittent burning.
- There must be a suitable air supply into the room where the stove is installed and care should be taken so it is not possible to block the front or back air inlets to the stove.
- There must NOT be an extractor fan in the same room as the stove as this may cause fumes to be emitted into the room.
- Do not make unauthorised changes or modifications to the stove
- The stove and chimney flue must be regularly cleaned . It is especially important to check for blockages following a prolonged shutdown period. It is recommended that the stove and flue is regularly maintained by a competent engineer.

3 – Assembly of the Stove

The stove maybe supplied with the flue collar fitted to the back. If the installation requires the flue to exit from the top of the stove, swap the collar for the blanking plate on the top.

- 3.1. Lay the stove carefully on its side and attach one leg to each corner of the base using the bolts and washers. Carefully lift the stove back upright to rest on its feet.
- 3.2. Check inner panels and grate inside to make sure every part is in the correct place.



4 – Installation of the stove

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed.
Our Stoves cannot accept any responsibility for any fault arising through incorrect installation or use.

4.1. Regulations

All national and local regulations need to be complied with when installing the stove.

4.2. Installation

The stove must be installed by a registered installer or approved by your local building control officer.

4.3. Safety clearances

The stove must be installed with the following minimum safety clearances from combustible materials.

Side 650mm

Rear 500mm

If the stove is to be installed in a non combustible recess it is recommended that 100mm clearance is left at the back and sides for maintenance and to allow air to circulate around the stove.

4.4. Floor

National and local building regulations must be complied with when considering the floor or hearth where the stove is to be installed. The floor must be capable of bearing the weight of the stove and the stove must be mounted on a non-combustible hearth.

4.5. Access for cleaning

Consideration must be given to installing extra access in the flue system to ensure all sections can be cleaned and maintained.

4.6 Requirements to fit a carbon monoxide (CO) alarm

When this stove is installed, Building Regulations require that whenever a new or replacement fixed solid fuel or wood/biomass appliance is installed in a dwelling a carbon monoxide alarm must be fitted in the same room as the appliance.

Further guidance on the installation of the Carbon Monoxide alarm is available in the latest version of BS EN 50292 and from the alarm manufacturers instructions.

IMPORTANT NOTE : The installation a Carbon Monoxide (CO) alarm is not a substitute for installing the appliance correctly regular servicing and maintenance of the chimney / flue or the stove itself.

5– Operating Instructions

5.1. Fuel

Wood

Use only seasoned timber with a moisture content of less than 20%. Typically this means wood which has been cut and stored in an open dry shelter for between one and two years. The recommended log dimensions are 12 inches long(300mm) x 6 inch diameter(150mm).

DO NOT BURN wet or unseasoned wood, construction timber, painted or treated wood, driftwood or manufactured board products. Doing so will result in the wood burning inefficiently and excess smoke, soot and tar will be produced. This will coat and damage the internal components of the stove and flue and could result in a chimney fire.

DO NOT BURN bituminous coal, any petroleum based products or any liquid fuels

Solid Fuel

Solid mineral fuel should be placed in the stove so that there is no more than a 30° incline of the fuel bed from front to back. It should not be stacked above the level of the rear firebrick as this may result in damage to the stove.

Solid fuel material burn best with the primary air sliders controlling the rate of burn. For optimum performance when burning only solid-mineral fuel, it may also be beneficial to close the tertiary air supply on the back of the stove.

Always de-ash before refuelling and do not let the ash build up to the underside of the grate bars. Solid mineral fuel produces ash, which if allowed to build up will stifle the airflow through the Primary air sliders and grate. This will eventually cause the fire to go out.

With some solid mineral fuels a residue of burnt fuel or clinker will accumulate on the grate, allow the fire to go out periodically to remove this.

Important! - We cannot stress firmly enough how important it is to empty the ashpan regularly. Air passing through the fire bed cools the grate bars. Distortion or burning out the grate bars is nearly always caused by ash being allowed to build up to the underside of the grate.

Anthracite is an approved natural smokeless fuel (not processed) and therefore can vary greatly in quality and performance. It generally requires excellent air supply and above average fire-bed temperatures to maintain maximum performance and with experience we would suggest that it is used in conjunction with other approved manufactured smokeless fuels as per the HETAS approved list.

Note that only Authorised fuels (and wood logs) can be burned in Smoke Control Areas (details of Authorised fuels can be found here <http://smokecontrol.defra.gov.uk/fuels.php>)

HETAS Ltd. approve the following fuels in closed appliances:-

Coalite
 Coalite Nuts
 Blazeprite
 Homefire
 Homefire Ovals
 Phurnacite
 Ancit
 Tayprite
 Sunprite Doubles
 Maxiprite
 Anthracite Small Nuts
 Wood Logs

Warning!- Petroleum coke fuels or household waste must not be burnt on this appliance. This appliance should not be used as an incinerator. No liquid fuels should be burnt on this appliance. Bituminous coals are not recommended.

5.2. Before lighting

If using for the first time, or following a long period out of use check that the flue is clear and unobstructed.

Check that the ash pan is empty and in position.

WARNING

During the first few times the stove is used, the heat resistant paint will be curing, and may give off small amounts of smoke and odours. This is completely normal for this type of appliance, and the room should be well ventilated.

To aid this process and not damage the stove finish, the first few times a new stove is used the fire should be kept to a moderate size, and not fired vigorously.

When the stove is new, for the first 20 hours burning only use gentle small controlled wood fires (NO COAL) during which the first three fires must be small kindling wood fires only. This is required to correctly adhere the paintwork on the stove. After the first three fires gently increase the size of the fuel and duration of the burn time. Failure to adhere to this instruction will result in likely damage to the paintwork on the stove. In addition, during the “break in fires” do not touch the paintwork on the stove as during this period the paintwork will be relatively soft and will mark easily.

5.3. Lighting a wood fire

Place 2 or 3 firelighters or screwed up newspaper onto the fire grate with about 1 kg of kindling and light the fire with a taper.

When the firelighters or newspaper are burning, leave the door ajar about 1 to 2 cm to achieve a good draw and avoid condensation. Allow the burning kindling to warm up the chimney.

After 2 to 5 minutes the chimney should be warm enough create a good draw and the door can be closed.

Once the kindling has formed a good bed of glowing embers the stove can be refuelled with 2 or 3 pieces of wood. (*do not be tempted to overfill the firebox and risk fuel falling onto the glass or out the fire as the door is opened*)

When opening the door always open gently for the first 2 to 3 cm to allow the pressure to equalise and stop smoke from escaping.

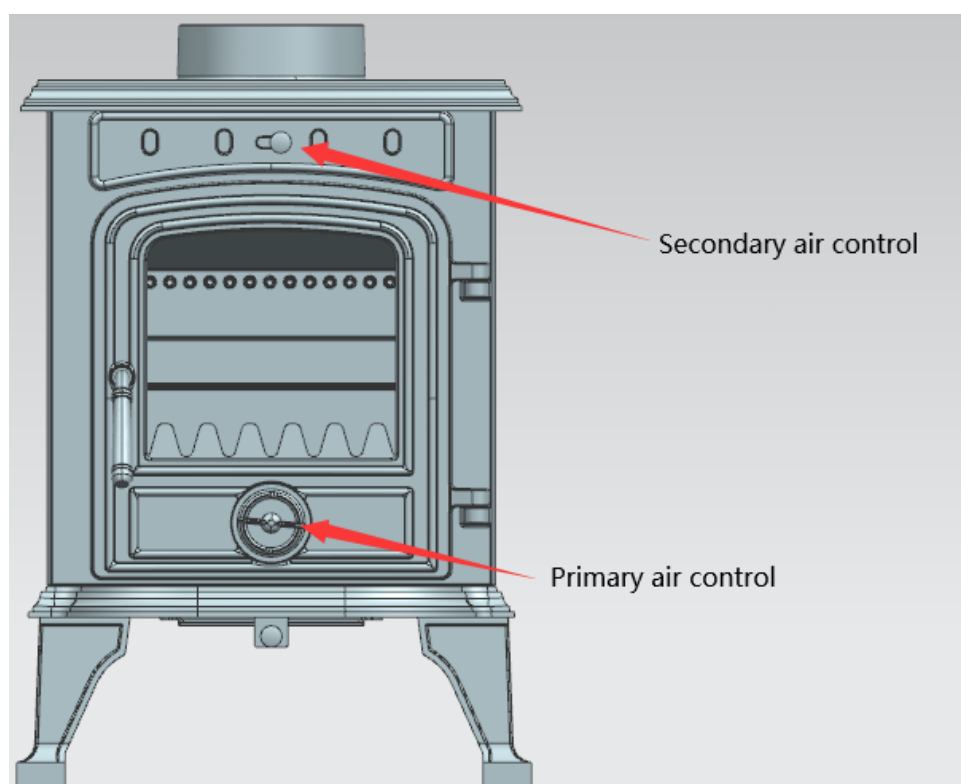
The stove should not be operated with either door left open for long periods.

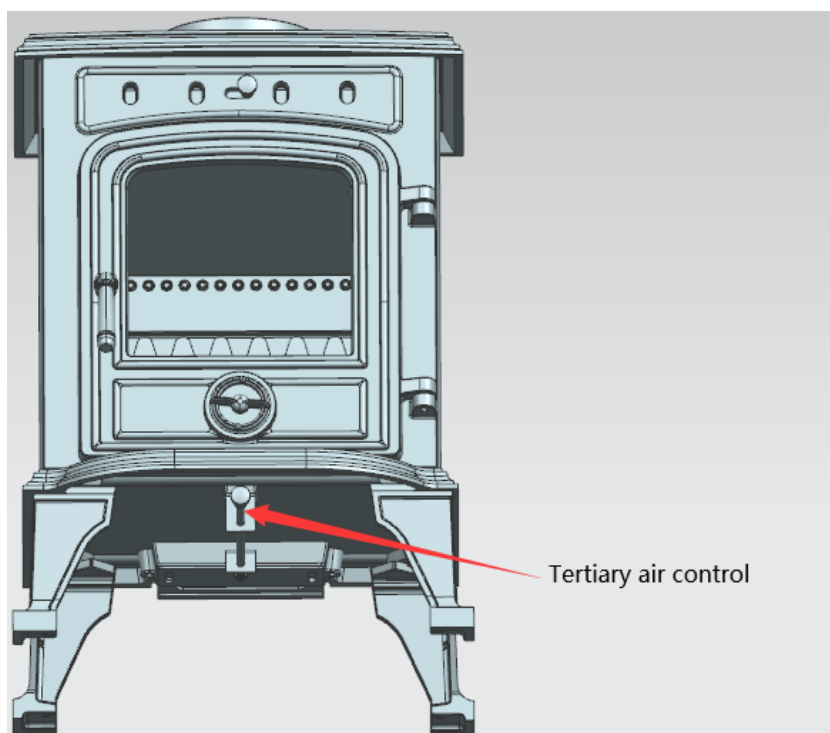
The stove door should never be left open when the stove is in use.

Under normal chimney draft conditions expect to refuel the stove every 45 to 60 minutes.

Under normal operation on burning wood the tertiary air setting should always be fully **OPEN**.

Please follow below diagram ensure all the setting is correct.





5.4. Refuelling on to a low fire bed

If there is insufficient burning material in the firebed to light a new fuel charge, excessive smoke emission can occur. Refuelling must be carried out onto a sufficient quantity of glowing embers and ash that the new fuel charge will ignite in a reasonable period. If there are too few embers in the fire bed, add suitable kindling to prevent excessive smoke

WARNING

When refuelling the door should be left ajar for five minutes then closed, after which the air controls can be adjusted to the desired setting.

5.5. Fuel overloading

The maximum amount of fuel specified in this manual should not be exceeded, overloading can cause excess smoke.

5.6. Operation with door left open

Operation with the door open can cause excess smoke. The appliance must not be operated with the appliance door left open except as directed in the instructions.

5.7. Dampers left open

Operation with the air controls or dampers open can cause excess smoke. The appliance must not be operated with air controls or dampers door left open except as directed in the instructions.

5.8. De-ashing the stove

Before de-ashing the stove, make sure that all the fuel has burned out and the ashes has cool down, then use a brush let the ash fall from bed of the fire into the ash pan underneath. Then take out of the ashpan in this case, if you have the vacuum cleaner, sucked the ash into the vacuum cleaner directly.

If the stove is still burning when you want to de-ashing the stove, please make sure that you take a Fire-retardant glove and use special tools for cleaning. Brush and vacuum cleaner are not suitable in this case.

WARNING

Take great care when removing and emptying the ash pan. It may be very hot and still contain burning or smouldering embers and is a fire risk.

6 – Guidance on safe operation

Fire can be very dangerous

During operation, the stove and all the fittings (door handles and controls) get very hot.

Do not overfire the stove.

It is possible to fire the stove to such an extent that damage may occur. Look out for parts of the stove or flue glowing red hot. If such a situation occurs adjust the air supply accordingly to reduce the burning rate.

Chimney fire

In the event of a chimney fire

- Shut all air controls immediately
- Raise the alarm and evacuate the building
- Call the fire brigade
- Do not re-enter the building

Fumes

If installed, operated and maintained correctly the stove will not emit fumes into the room other than occasionally very small amounts when re-fuelling or de-ashing.

If fumes are being emitted during normal operation

Ventilate the room by opening all doors and windows.

Let the fire burn out

Leave the room

Check the stove, flue and chimney for blockages

Do not re-use the stove until the cause of the problem has been identified and rectified.

If required seek expert help.

Adverse weather conditions

In a small number of installations, very occasionally in specific weather conditions (direction of wind) the draw of the chimney may be affected causing a downdraught and fumes to be emitted into the room.

If this is the case the stove should not be used and advice sought from a professional flue installer who would be able to advise on possible solutions such as an anti-downdraught cowl.

7- Maintenance

Maintenance should only be carried out when the stove is cool

Before use

Between burns in the stove it is good practice to keep ash and debris to a minimum. Especially empty the ash pan and ash pan section. Remember that if only burning wood it is recommended to keep a bed of ash about 1cm thick on the grate.

Cleaning the stove

Clean the outside of the stove with a soft brush.

Note that if required the flue can be accessed for cleaning from inside the stove.

Stove glass

Clean the stove glass only when cool with a specialist glass cleaner. Use of any abrasive cleaner will scratch the glass and make subsequent cleaning more difficult.

Chimney

It is important to have the chimney cleaned at least once a year.

Regular inspection and cleaning of the internal components of the stove can indicate if the chimney requires more frequent cleaning.

If the stove has been unused for an extended period (during the summer) the chimney should be checked by a competent person before use.

Note

All parts that are in direct contact with the fire (grate, Baffle, back or side air boxes) are considered as normal wear parts. Their life will be dependant on how vigorously the stove is operated and they must be inspected and maintained on a regular basis. If they become worn, damaged or not positioned correctly, non wear parts such as the stove top and sides will be exposed to excessive heat and may be damaged.

8– Fault Finding**Fire will not burn**

- The fuel is too wet and not suitable
- Air inlets to the stove are blocked
- The flue is blocked or restricted
- Inadequate air supply into the room

Soot build up on glass

- Fuel is too wet

Fuel pieces are too large and "smouldering" rather than burning.

The stove operating temperature is too low

The stove is being run too "slow" with not enough air

Poor chimney draft

Excessive wear on internal parts

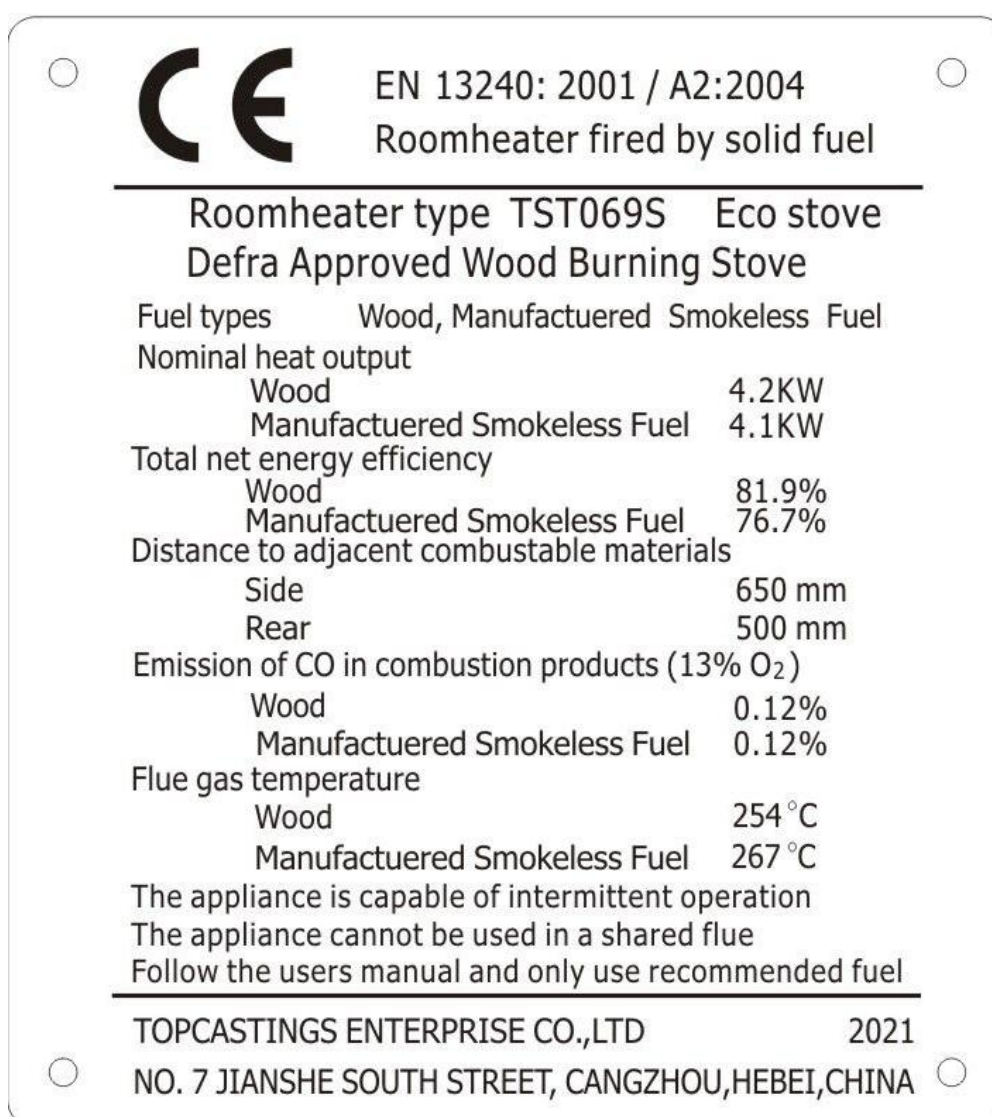
Stove fired too vigorously

Too little air passing through the bottom grate

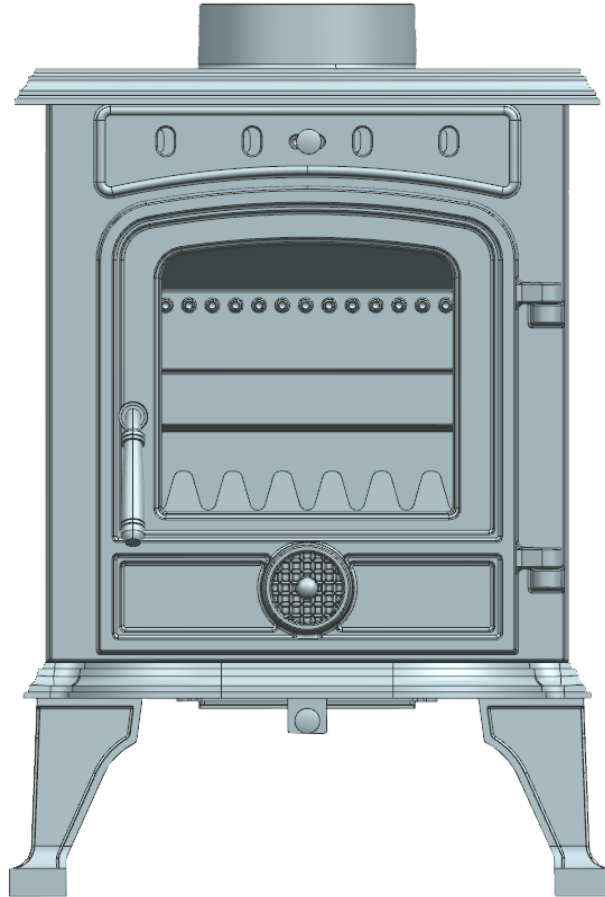
Use of wood that is too dry (eg wood from old furniture)

9 - Specification

Copy of the CE plate attached to the stove



Installation and Operating Instructions



Multifuel Stove

Item No.: TST069SN Eco Stove

Size: 387*356*572mm

Version 1 2021.4.14

Section	Contents	Page
1. The Clean Air Act 1993 and Smoke Control Areas-----		1
2. Important information about installing and using the stove-----		2
3. Assembly of the stove-----		2
4. Installation of the stove-----		3
5. Operating Instructions-----		4
5.1 Fuel		
5.2 Before lighting		
5.3 Lighting a wood fire		
5.4 Refuelling on to a low fire bed		
5.5 Fuel overloading		
5.6 Operation with door left open		
5.7 Dampers left open		
5.8 De-ashing the stove		
6. Guidance on safe operation-----		8
7. Maintenance-----		9
8. Fault Finding-----		9
9. Specification-----		10

1- The Clean Air Act 1993 and Smoke Control Areas

Under the Clean Air Act local authorities may declare the whole or part of the district of the authority to be a smoke control area. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance ("exempted" from the controls which generally apply in the smoke control area).

In England appliances are exempted by publication on a list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015. Similarly in Scotland appliances are exempted by publication on a list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014. In Wales and Northern Ireland these are authorised by regulations made by Welsh Ministers and by the Department of the Environment respectively.

Further information on the requirements of the Clean Air Act can be found here: <https://www.gov.uk/smoke-control-area-rules>

Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements.

The TST069SN multifuel Eco Stove has been recommended as suitable for use in smoke control areas when burning wood logs. Authorised mineral fuels can also be burned in smoke control areas. The TST069SN multifuel Eco Stove is fitted with a permanent stop to prevent closure of the secondary air control inlet slots beyond 4mm open.

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed. Take care when assembling and moving the stove. It is made of cast iron and is very heavy (50kgs)

2- Important information about installing and using the stove

- All national and local regulations need to be complied with when installing the stove.
- The stove must be installed by a registered installer or approved by your local building control officer.
- Only use for domestic heating purposes only.
- Burn only approved fuels.
- This stove will become very hot whilst in operation and due care should be taken. Use only the tool provided to operate the door handles and ash pan. Do not place flammable objects on or near the stove.
- The stove must NOT be installed into a chimney that serves any other appliance and is suitable for intermittent burning.
- There must be a suitable air supply into the room where the stove is installed and care should be taken so it is not possible to block the front or back air inlets to the stove.
- There must NOT be an extractor fan in the same room as the stove as this may cause fumes to be emitted into the room.
- Do not make unauthorised changes or modifications to the stove
- The stove and chimney flue must be regularly cleaned . It is especially important to check for blockages following a prolonged shutdown period. It is recommended that the stove and flue is regularly maintained by a competent engineer.

3 – Assembly of the Stove

The stove maybe supplied with the flue collar fitted to the back. If the installation requires the flue to exit from the top of the stove, swap the collar for the blanking plate on the top.

- 3.1. Lay the stove carefully on its side and attach one leg to each corner of the base using the bolts and washers. Carefully lift the stove back upright to rest on its feet.
- 3.2. Check inner panels and grate inside to make sure every part is in the correct place.



4 – Installation of the stove

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed.
Our Stoves cannot accept any responsibility for any fault arising through incorrect installation or use.

4.1. Regulations

All national and local regulations need to be complied with when installing the stove.

4.2. Installation

The stove must be installed by a registered installer or approved by your local building control officer.

4.3. Safety clearances

The stove must be installed with the following minimum safety clearances from combustible materials.

Side 650mm

Rear 500mm

If the stove is to be installed in a non combustible recess it is recommended that 100mm clearance is left at the back and sides for maintenance and to allow air to circulate around the stove.

4.4. Floor

National and local building regulations must be complied with when considering the floor or hearth where the stove is to be installed. The floor must be capable of bearing the weight of the stove and the stove must be mounted on a non-combustible hearth.

4.5. Access for cleaning

Consideration must be given to installing extra access in the flue system to ensure all sections can be cleaned and maintained.

4.6 Requirements to fit a carbon monoxide (CO) alarm

When this stove is installed, Building Regulations require that whenever a new or replacement fixed solid fuel or wood/biomass appliance is installed in a dwelling a carbon monoxide alarm must be fitted in the same room as the appliance.

Further guidance on the installation of the Carbon Monoxide alarm is available in the latest version of BS EN 50292 and from the alarm manufacturers instructions.

IMPORTANT NOTE : The installation a Carbon Monoxide (CO) alarm is not a substitute for installing the appliance correctly regular servicing and maintenance of the chimney / flue or the stove itself.

5– Operating Instructions

5.1. Fuel

Wood

Use only seasoned timber with a moisture content of less than 20%. Typically this means wood which has been cut and stored in an open dry shelter for between one and two years. The recommended log dimensions are 12 inches long(300mm) x 6 inch diameter(150mm).

DO NOT BURN wet or unseasoned wood, construction timber, painted or treated wood, driftwood or manufactured board products. Doing so will result in the wood burning inefficiently and excess smoke, soot and tar will be produced. This will coat and damage the internal components of the stove and flue and could result in a chimney fire.

DO NOT BURN bituminous coal, any petroleum based products or any liquid fuels

Solid Fuel

Solid mineral fuel should be placed in the stove so that there is no more than a 30° incline of the fuel bed from front to back. It should not be stacked above the level of the rear firebrick as this may result in damage to the stove.

Solid fuel material burn best with the primary air sliders controlling the rate of burn. For optimum performance when burning only solid-mineral fuel, it may also be beneficial to close the tertiary air supply on the back of the stove.

Always de-ash before refuelling and do not let the ash build up to the underside of the grate bars. Solid mineral fuel produces ash, which if allowed to build up will stifle the airflow through the Primary air sliders and grate. This will eventually cause the fire to go out.

With some solid mineral fuels a residue of burnt fuel or clinker will accumulate on the grate, allow the fire to go out periodically to remove this.

Important! - We cannot stress firmly enough how important it is to empty the ashpan regularly. Air passing through the fire bed cools the grate bars. Distortion or burning out the grate bars is nearly always caused by ash being allowed to build up to the underside of the grate.

Anthracite is an approved natural smokeless fuel (not processed) and therefore can vary greatly in quality and performance. It generally requires excellent air supply and above average fire-bed temperatures to maintain maximum performance and with experience we would suggest that it is used in conjunction with other approved manufactured smokeless fuels as per the HETAS approved list.

Note that only Authorised fuels (and wood logs) can be burned in Smoke Control Areas (details of Authorised fuels can be found here <http://smokecontrol.defra.gov.uk/fuels.php>)

HETAS Ltd. approve the following fuels in closed appliances:-

Coalite
 Coalite Nuts
 Blazeprite
 Homefire
 Homefire Ovals
 Phurnacite
 Ancit
 Tayprite
 Sunprite Doubles
 Maxiprite
 Anthracite Small Nuts
 Wood Logs

Warning!- Petroleum coke fuels or household waste must not be burnt on this appliance. This appliance should not be used as an incinerator. No liquid fuels should be burnt on this appliance. Bituminous coals are not recommended.

5.2. Before lighting

If using for the first time, or following a long period out of use check that the flue is clear and unobstructed.

Check that the ash pan is empty and in position.

WARNING

During the first few times the stove is used, the heat resistant paint will be curing, and may give off small amounts of smoke and odours. This is completely normal for this type of appliance, and the room should be well ventilated.

To aid this process and not damage the stove finish, the first few times a new stove is used the fire should be kept to a moderate size, and not fired vigorously.

When the stove is new, for the first 20 hours burning only use gentle small controlled wood fires (NO COAL) during which the first three fires must be small kindling wood fires only. This is required to correctly adhere the paintwork on the stove. After the first three fires gently increase the size of the fuel and duration of the burn time. Failure to adhere to this instruction will result in likely damage to the paintwork on the stove. In addition, during the “break in fires” do not touch the paintwork on the stove as during this period the paintwork will be relatively soft and will mark easily.

5.3. Lighting a wood fire

Place 2 or 3 firelighters or screwed up newspaper onto the fire grate with about 1 kg of kindling and light the fire with a taper.

When the firelighters or newspaper are burning, leave the door ajar about 1 to 2 cm to achieve a good draw and avoid condensation. Allow the burning kindling to warm up the chimney.

After 2 to 5 minutes the chimney should be warm enough create a good draw and the door can be closed.

Once the kindling has formed a good bed of glowing embers the stove can be refuelled with 2 or 3 pieces of wood. *(do not be tempted to overfill the firebox and risk fuel falling onto the glass or out the fire as the door is opened)*

When opening the door always open gently for the first 2 to 3 cm to allow the pressure to equalise and stop smoke from escaping.

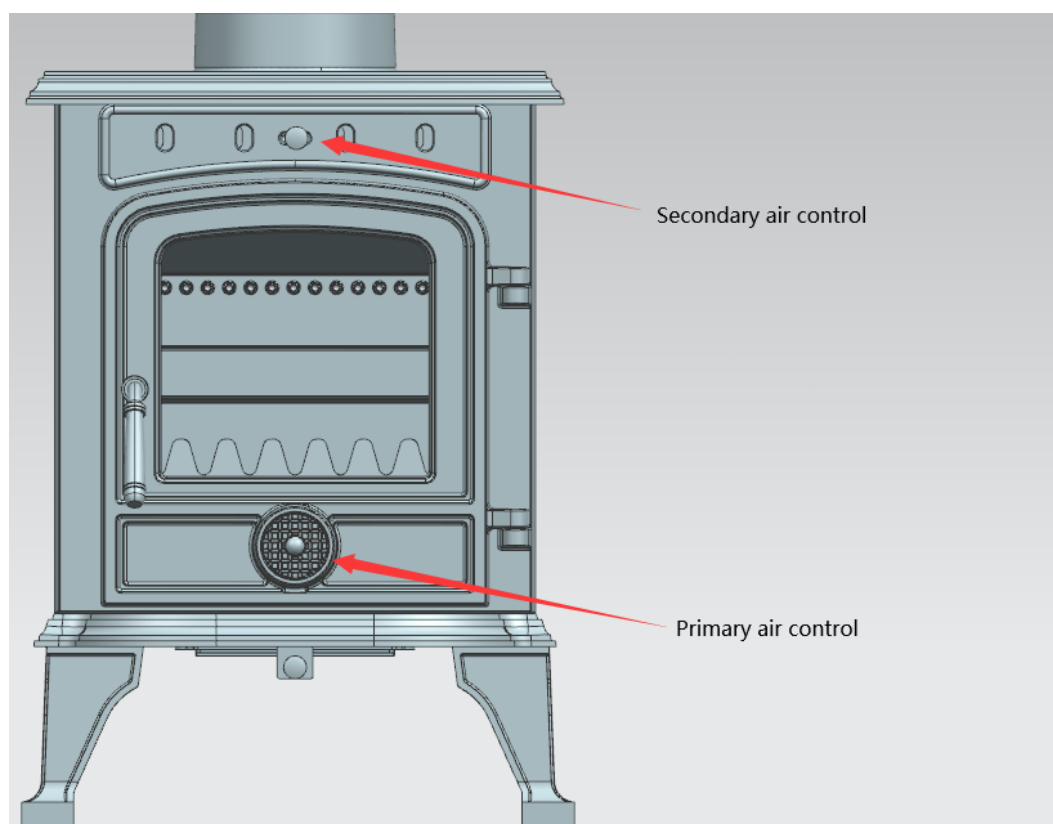
The stove should not be operated with either door left open for long periods.

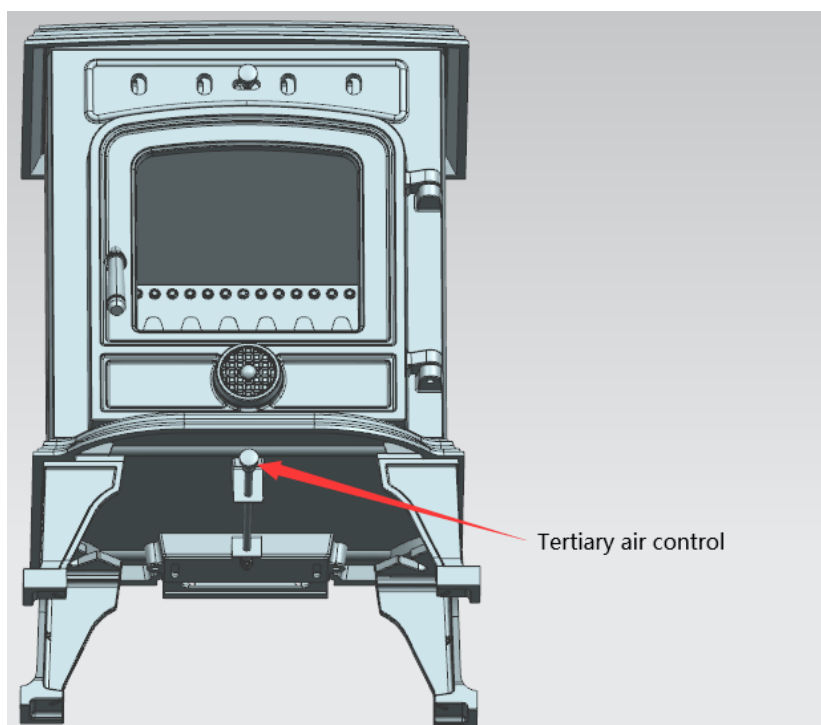
The stove door should never be left open when the stove is in use.

Under normal chimney draft conditions expect to refuel the stove every 45 to 60 minutes.

Under normal operation on burning wood the tertiary air setting should always be fully **OPEN**.

Please follow below diagram ensure all the setting is correct.





5.4. Refuelling on to a low fire bed

If there is insufficient burning material in the firebed to light a new fuel charge, excessive smoke emission can occur. Refuelling must be carried out onto a sufficient quantity of glowing embers and ash that the new fuel charge will ignite in a reasonable period. If there are too few embers in the fire bed, add suitable kindling to prevent excessive smoke

WARNING

When refuelling the door should be left ajar for five minutes then closed, after which the air controls can be adjusted to the desired setting.

5.5. Fuel overloading

The maximum amount of fuel specified in this manual should not be exceeded, overloading can cause excess smoke.

5.6. Operation with door left open

Operation with the door open can cause excess smoke. The appliance must not be operated with the appliance door left open except as directed in the instructions.

5.7. Dampers left open

Operation with the air controls or dampers open can cause excess smoke. The appliance must not be operated with air controls or dampers door left open except as directed in the instructions.

5.8. De-ashing the stove

Before de-ashing the stove, make sure that all the fuel has burned out and the ashes has cool down, then use a brush let the ash fall from bed of the fire into the ash pan underneath. Then take out of the ashpan in this case, if you have the vacuum cleaner, sucked the ash into the vacuum cleaner directly.

If the stove is still burning when you want to de-ashing the stove, please make sure that you take a Fire-retardant glove and use special tools for cleaning. Brush and vacuum cleaner are not suitable in this case.

WARNING

Take great care when removing and emptying the ash pan. It may be very hot and still contain burning or smouldering embers and is a fire risk.

6 – Guidance on safe operation

Fire can be very dangerous

During operation, the stove and all the fittings (door handles and controls) get very hot.

Do not overfire the stove.

It is possible to fire the stove to such an extent that damage may occur. Look out for parts of the stove or flue glowing red hot. If such a situation occurs adjust the air supply accordingly to reduce the burning rate.

Chimney fire

In the event of a chimney fire

- Shut all air controls immediately
- Raise the alarm and evacuate the building
- Call the fire brigade
- Do not re-enter the building

Fumes

If installed, operated and maintained correctly the stove will not emit fumes into the room other than occasionally very small amounts when re-fuelling or de-ashing.

If fumes are being emitted during normal operation

Ventilate the room by opening all doors and windows.

Let the fire burn out

Leave the room

Check the stove, flue and chimney for blockages

Do not re-use the stove until the cause of the problem has been identified and rectified.

If required seek expert help.

Adverse weather conditions

In a small number of installations, very occasionally in specific weather conditions (direction of wind) the draw of the chimney may be affected causing a downdraught and fumes to be emitted into the room.

If this is the case the stove should not be used and advice sought from a professional flue installer who would be able to advise on possible solutions such as an anti-downdraught cowl.

7- Maintenance

Maintenance should only be carried out when the stove is cool

Before use

Between burns in the stove it is good practice to keep ash and debris to a minimum. Especially empty the ash pan and ash pan section. Remember that if only burning wood it is recommended to keep a bed of ash about 1cm thick on the grate.

Cleaning the stove

Clean the outside of the stove with a soft brush.

Note that if required the flue can be accessed for cleaning from inside the stove.

Stove glass

Clean the stove glass only when cool with a specialist glass cleaner. Use of any abrasive cleaner will scratch the glass and make subsequent cleaning more difficult.

Chimney

It is important to have the chimney cleaned at least once a year.

Regular inspection and cleaning of the internal components of the stove can indicate if the chimney requires more frequent cleaning.

If the stove has been unused for an extended period (during the summer) the chimney should be checked by a competent person before use.

Note

All parts that are in direct contact with the fire (grate, Baffle, back or side air boxes) are considered as normal wear parts. Their life will be dependant on how vigorously the stove is operated and they must be inspected and maintained on a regular basis. If they become worn, damaged or not positioned correctly, non wear parts such as the stove top and sides will be exposed to excessive heat and may be damaged.

8– Fault Finding**Fire will not burn**

- The fuel is too wet and not suitable
- Air inlets to the stove are blocked
- The flue is blocked or restricted
- Inadequate air supply into the room

Soot build up on glass

- Fuel is too wet

Fuel pieces are too large and "smouldering" rather than burning.

The stove operating temperature is too low

The stove is being run too "slow" with not enough air

Poor chimney draft

Excessive wear on internal parts

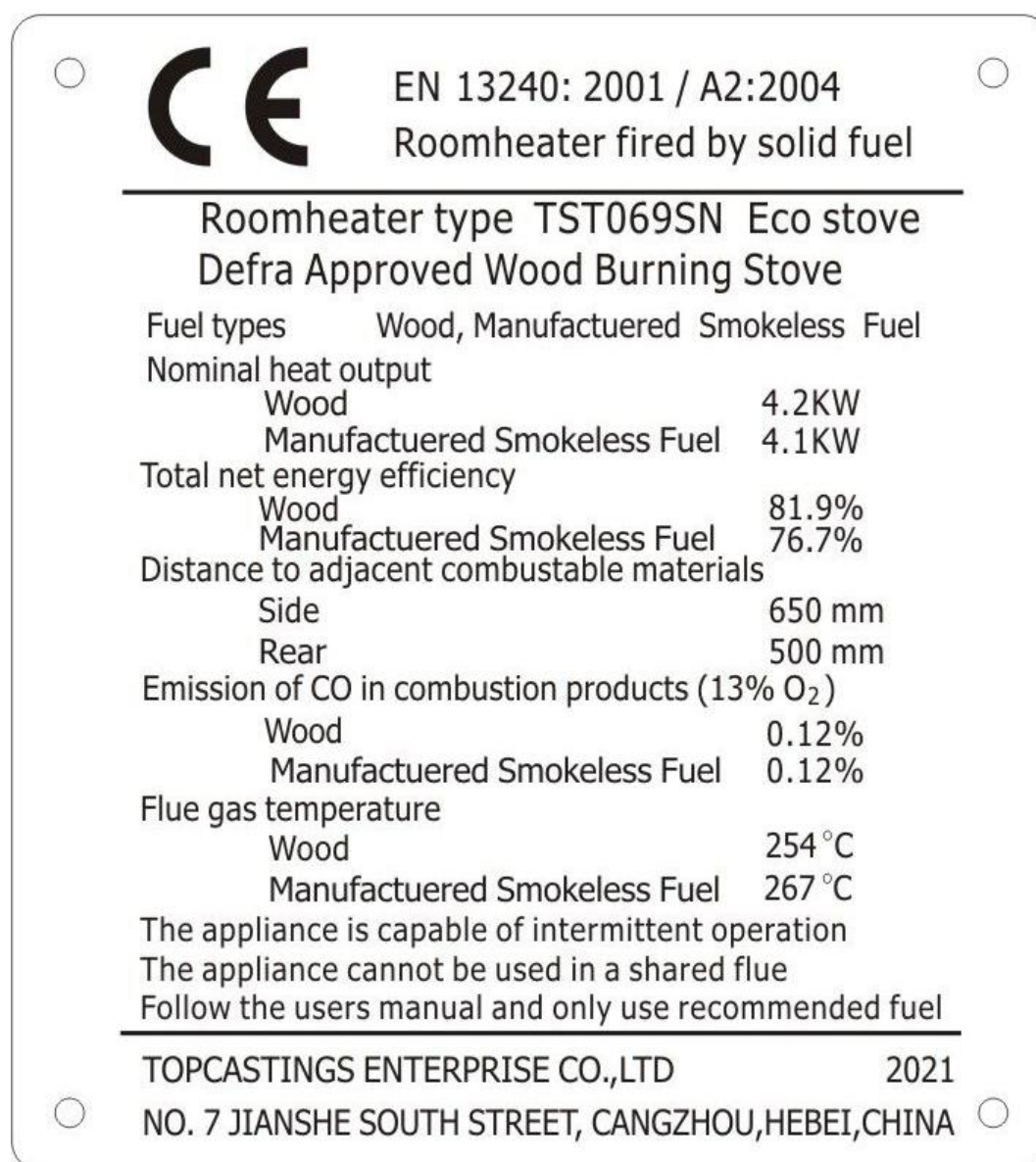
Stove fired too vigorously

Too little air passing through the bottom grate

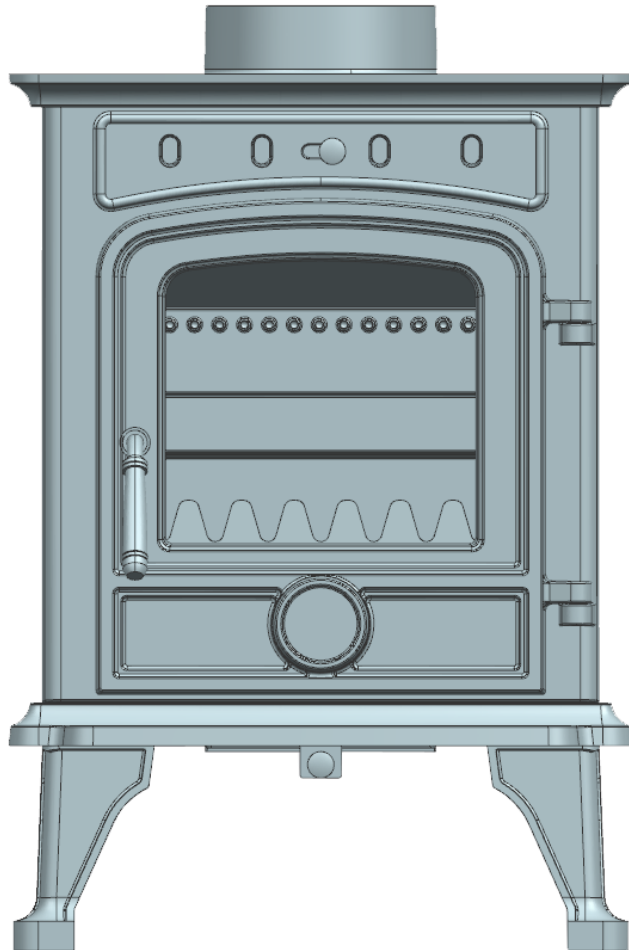
Use of wood that is too dry (eg wood from old furniture)

9 - Specification

Copy of the CE plate attached to the stove



Installation and Operating Instructions



Multifuel Stove

Item No.: TST096 Eco Stove

Size: 376*356*572mm

Version 1 2021.4.14

Section	Contents	Page
1.	The Clean Air Act 1993 and Smoke Control Areas-----	1
2.	Important information about installing and using the stove-----	2
3.	Assembly of the stove-----	2
4.	Installation of the stove-----	3
5.	Operating Instructions-----	4
	5.1 Fuel	
	5.2 Before lighting	
	5.3 Lighting a wood fire	
	5.4 Refuelling on to a low fire bed	
	5.5 Fuel overloading	
	5.6 Operation with door left open	
	5.7 Dampers left open	
	5.8 De-ashing the stove	
6.	Guidance on safe operation-----	8
7.	Maintenance-----	9
8.	Fault Finding-----	9
9.	Specification-----	10

1- The Clean Air Act 1993 and Smoke Control Areas

Under the Clean Air Act local authorities may declare the whole or part of the district of the authority to be a smoke control area. It is an offence to emit smoke from a chimney of a building, from a furnace or from any fixed boiler if located in a designated smoke control area. It is also an offence to acquire an "unauthorised fuel" for use within a smoke control area unless it is used in an "exempt" appliance ("exempted" from the controls which generally apply in the smoke control area).

In England appliances are exempted by publication on a list by the Secretary of State in accordance with changes made to sections 20 and 21 of the Clean Air Act 1993 by section 15 of the Deregulation Act 2015. Similarly in Scotland appliances are exempted by publication on a list by Scottish Ministers under section 50 of the Regulatory Reform (Scotland) Act 2014. In Wales and Northern Ireland these are authorised by regulations made by Welsh Ministers and by the Department of the Environment respectively.

Further information on the requirements of the Clean Air Act can be found here: <https://www.gov.uk/smoke-control-area-rules>

Your local authority is responsible for implementing the Clean Air Act 1993 including designation and supervision of smoke control areas and you can contact them for details of Clean Air Act requirements.

The TST096 multifuel Eco Stove has been recommended as suitable for use in smoke control areas when burning wood logs. Authorised mineral fuels can also be burned in smoke control areas. The TST096 multifuel Eco Stove is fitted with a permanent stop to prevent closure of the secondary air control inlet slots beyond 4mm open.

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed. Take care when assembling and moving the stove. It is made of cast iron and is very heavy (50kgs)

2- Important information about installing and using the stove

- All national and local regulations need to be complied with when installing the stove.
- The stove must be installed by a registered installer or approved by your local building control officer.
- Only use for domestic heating purposes only.
- Burn only approved fuels.
- This stove will become very hot whilst in operation and due care should be taken. Use only the tool provided to operate the door handles and ash pan. Do not place flammable objects on or near the stove.
- The stove must NOT be installed into a chimney that serves any other appliance and is suitable for intermittent burning.
- There must be a suitable air supply into the room where the stove is installed and care should be taken so it is not possible to block the front or back air inlets to the stove.
- There must NOT be an extractor fan in the same room as the stove as this may cause fumes to be emitted into the room.
- Do not make unauthorised changes or modifications to the stove
- The stove and chimney flue must be regularly cleaned . It is especially important to check for blockages following a prolonged shutdown period. It is recommended that the stove and flue is regularly maintained by a competent engineer.

3 – Assembly of the Stove

The stove maybe supplied with the flue collar fitted to the back. If the installation requires the flue to exit from the top of the stove, swap the collar for the blanking plate on the top.

- 3.1. Lay the stove carefully on its side and attach one leg to each corner of the base using the bolts and washers. Carefully lift the stove back upright to rest on its feet.
- 3.2. Check inner panels and grate inside to make sure every part is in the correct place.



4 – Installation of the stove

PLEASE READ THESE INSTRUCTIONS CAREFULLY

For your safety it is very important that your stove is correctly installed.
Our Stoves cannot accept any responsibility for any fault arising through incorrect installation or use.

4.1. Regulations

All national and local regulations need to be complied with when installing the stove.

4.2. Installation

The stove must be installed by a registered installer or approved by your local building control officer.

4.3. Safety clearances

The stove must be installed with the following minimum safety clearances from combustible materials.

Side 650mm

Rear 500mm

If the stove is to be installed in a non combustible recess it is recommended that 100mm clearance is left at the back and sides for maintenance and to allow air to circulate around the stove.

4.4. Floor

National and local building regulations must be complied with when considering the floor or hearth where the stove is to be installed. The floor must be capable of bearing the weight of the stove and the stove must be mounted on a non-combustible hearth.

4.5. Access for cleaning

Consideration must be given to installing extra access in the flue system to ensure all sections can be cleaned and maintained.

4.6 Requirements to fit a carbon monoxide (CO) alarm

When this stove is installed, Building Regulations require that whenever a new or replacement fixed solid fuel or wood/biomass appliance is installed in a dwelling a carbon monoxide alarm must be fitted in the same room as the appliance.

Further guidance on the installation of the Carbon Monoxide alarm is available in the latest version of BS EN 50292 and from the alarm manufacturers instructions.

IMPORTANT NOTE : The installation a Carbon Monoxide (CO) alarm is not a substitute for installing the appliance correctly regular servicing and maintenance of the chimney / flue or the stove itself.

5– Operating Instructions

5.1. Fuel

Wood

Use only seasoned timber with a moisture content of less than 20%. Typically this means wood which has been cut and stored in an open dry shelter for between one and two years. The recommended log dimensions are 12 inches long(300mm) x 6 inch diameter(150mm).

DO NOT BURN wet or unseasoned wood, construction timber, painted or treated wood, driftwood or manufactured board products. Doing so will result in the wood burning inefficiently and excess smoke, soot and tar will be produced. This will coat and damage the internal components of the stove and flue and could result in a chimney fire.

DO NOT BURN bituminous coal, any petroleum based products or any liquid fuels

Solid Fuel

Solid mineral fuel should be placed in the stove so that there is no more than a 30° incline of the fuel bed from front to back. It should not be stacked above the level of the rear firebrick as this may result in damage to the stove.

Solid fuel material burn best with the primary air sliders controlling the rate of burn. For optimum performance when burning only solid-mineral fuel, it may also be beneficial to close the tertiary air supply on the back of the stove.

Always de-ash before refuelling and do not let the ash build up to the underside of the grate bars. Solid mineral fuel produces ash, which if allowed to build up will stifle the airflow through the Primary air sliders and grate. This will eventually cause the fire to go out.

With some solid mineral fuels a residue of burnt fuel or clinker will accumulate on the grate, allow the fire to go out periodically to remove this.

Important! - We cannot stress firmly enough how important it is to empty the ashpan regularly. Air passing through the fire bed cools the grate bars. Distortion or burning out the grate bars is nearly always caused by ash being allowed to build up to the underside of the grate.

Anthracite is an approved natural smokeless fuel (not processed) and therefore can vary greatly in quality and performance. It generally requires excellent air supply and above average fire-bed temperatures to maintain maximum performance and with experience we would suggest that it is used in conjunction with other approved manufactured smokeless fuels as per the HETAS approved list.

Note that only Authorised fuels (and wood logs) can be burned in Smoke Control Areas (details of Authorised fuels can be found here <http://smokecontrol.defra.gov.uk/fuels.php>)

HETAS Ltd. approve the following fuels in closed appliances:-

Coalite
 Coalite Nuts
 Blazeprite
 Homefire
 Homefire Ovals
 Phurnacite
 Ancit
 Tayprite
 Sunprite Doubles
 Maxiprite
 Anthracite Small Nuts
 Wood Logs

Warning!- Petroleum coke fuels or household waste must not be burnt on this appliance. This appliance should not be used as an incinerator. No liquid fuels should be burnt on this appliance. Bituminous coals are not recommended.

5.2. Before lighting

If using for the first time, or following a long period out of use check that the flue is clear and unobstructed.

Check that the ash pan is empty and in position.

WARNING

During the first few times the stove is used, the heat resistant paint will be curing, and may give off small amounts of smoke and odours. This is completely normal for this type of appliance, and the room should be well ventilated.

To aid this process and not damage the stove finish, the first few times a new stove is used the fire should be kept to a moderate size, and not fired vigorously.

When the stove is new, for the first 20 hours burning only use gentle small controlled wood fires (NO COAL) during which the first three fires must be small kindling wood fires only. This is required to correctly adhere the paintwork on the stove. After the first three fires gently increase the size of the fuel and duration of the burn time. Failure to adhere to this instruction will result in likely damage to the paintwork on the stove. In addition, during the “break in fires” do not touch the paintwork on the stove as during this period the paintwork will be relatively soft and will mark easily.

5.3. Lighting a wood fire

Place 2 or 3 firelighters or screwed up newspaper onto the fire grate with about 1 kg of kindling and light the fire with a taper.

When the firelighters or newspaper are burning, leave the door ajar about 1 to 2 cm to achieve a good draw and avoid condensation. Allow the burning kindling to warm up the chimney.

After 2 to 5 minutes the chimney should be warm enough create a good draw and the door can be closed.

Once the kindling has formed a good bed of glowing embers the stove can be refuelled with 2 or 3 pieces of wood. (*do not be tempted to overfill the firebox and risk fuel falling onto the glass or out the fire as the door is opened*)

When opening the door always open gently for the first 2 to 3 cm to allow the pressure to equalise and stop smoke from escaping.

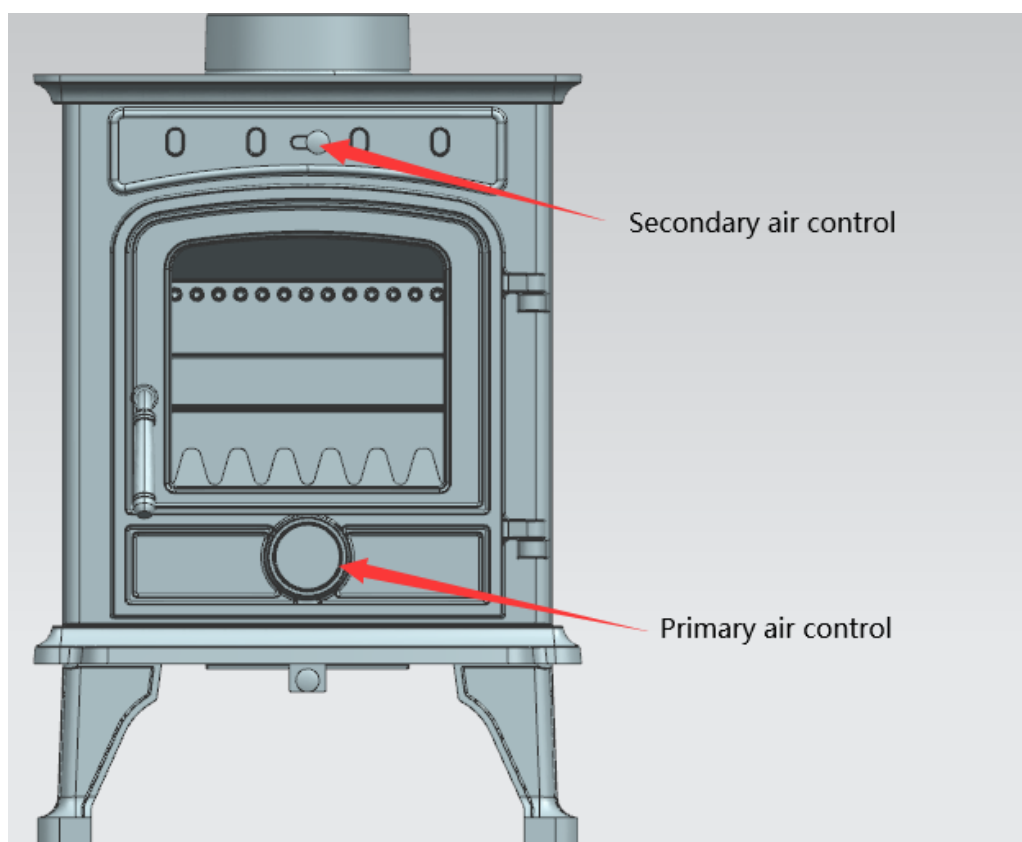
The stove should not be operated with either door left open for long periods.

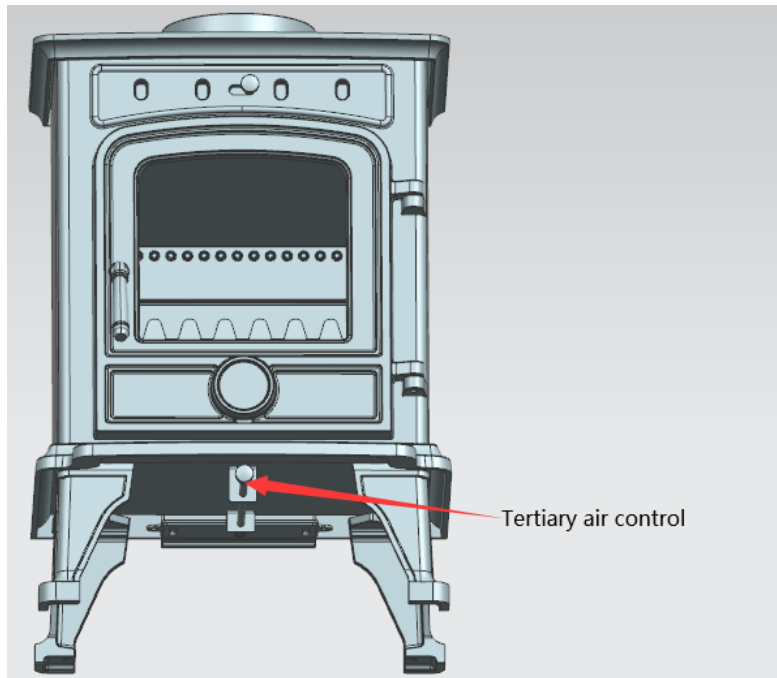
The stove door should never be left open when the stove is in use.

Under normal chimney draft conditions expect to refuel the stove every 45 to 60 minutes.

Under normal operation on burning wood the tertiary air setting should always be fully **OPEN**.

Please follow below diagram ensure all the setting is correct.





5.4. Refuelling on to a low fire bed

If there is insufficient burning material in the firebed to light a new fuel charge, excessive smoke emission can occur. Refuelling must be carried out onto a sufficient quantity of glowing embers and ash that the new fuel charge will ignite in a reasonable period. If there are too few embers in the fire bed, add suitable kindling to prevent excessive smoke

WARNING

When refuelling the door should be left ajar for five minutes then closed, after which the air controls can be adjusted to the desired setting.

5.5. Fuel overloading

The maximum amount of fuel specified in this manual should not be exceeded, overloading can cause excess smoke.

5.6. Operation with door left open

Operation with the door open can cause excess smoke. The appliance must not be operated with the appliance door left open except as directed in the instructions.

5.7. Dampers left open

Operation with the air controls or dampers open can cause excess smoke. The appliance must not be operated with air controls or dampers door left open except as directed in the instructions.

5.8. De-ashing the stove

Before de-ashing the stove, make sure that all the fuel has burned out and the ashes has cool down, then use a brush let the ash fall from bed of the fire into the ash pan underneath. Then take out of the ashpan in this case, if you have the vacuum cleaner, sucked the ash into the vacuum cleaner directly.

If the stove is still burning when you want to de-ashing the stove, please make sure that you take a Fire-retardant glove and use special tools for cleaning. Brush and vacuum cleaner are not suitable in this case.

WARNING

Take great care when removing and emptying the ash pan. It may be very hot and still contain burning or smouldering embers and is a fire risk.

6 – Guidance on safe operation

Fire can be very dangerous

During operation, the stove and all the fittings (door handles and controls) get very hot.

Do not overfire the stove.

It is possible to fire the stove to such an extent that damage may occur. Look out for parts of the stove or flue glowing red hot. If such a situation occurs adjust the air supply accordingly to reduce the burning rate.

Chimney fire

In the event of a chimney fire

- Shut all air controls immediately
- Raise the alarm and evacuate the building
- Call the fire brigade
- Do not re-enter the building

Fumes

If installed, operated and maintained correctly the stove will not emit fumes into the room other than occasionally very small amounts when re-fuelling or de-ashing.

If fumes are being emitted during normal operation

Ventilate the room by opening all doors and windows.

Let the fire burn out

Leave the room

Check the stove, flue and chimney for blockages

Do not re-use the stove until the cause of the problem has been identified and rectified.

If required seek expert help.

Adverse weather conditions

In a small number of installations, very occasionally in specific weather conditions (direction of wind) the draw of the chimney may be affected causing a downdraught and fumes to be emitted into the room.

If this is the case the stove should not be used and advice sought from a professional flue installer who would be able to advise on possible solutions such as an anti-downdraught cowl.

7- Maintenance

Maintenance should only be carried out when the stove is cool

Before use

Between burns in the stove it is good practice to keep ash and debris to a minimum. Especially empty the ash pan and ash pan section. Remember that if only burning wood it is recommended to keep a bed of ash about 1cm thick on the grate.

Cleaning the stove

Clean the outside of the stove with a soft brush.

Note that if required the flue can be accessed for cleaning from inside the stove.

Stove glass

Clean the stove glass only when cool with a specialist glass cleaner. Use of any abrasive cleaner will scratch the glass and make subsequent cleaning more difficult.

Chimney

It is important to have the chimney cleaned at least once a year.

Regular inspection and cleaning of the internal components of the stove can indicate if the chimney requires more frequent cleaning.

If the stove has been unused for an extended period (during the summer) the chimney should be checked by a competent person before use.

Note

All parts that are in direct contact with the fire (grate, Baffle, back or side air boxes) are considered as normal wear parts. Their life will be dependant on how vigorously the stove is operated and they must be inspected and maintained on a regular basis. If they become worn, damaged or not positioned correctly, non wear parts such as the stove top and sides will be exposed to excessive heat and may be damaged.

8– Fault Finding**Fire will not burn**

- The fuel is too wet and not suitable
- Air inlets to the stove are blocked
- The flue is blocked or restricted
- Inadequate air supply into the room

Soot build up on glass

- Fuel is too wet

Fuel pieces are too large and "smouldering" rather than burning.

The stove operating temperature is too low

The stove is being run too "slow" with not enough air

Poor chimney draft

Excessive wear on internal parts

Stove fired too vigorously

Too little air passing through the bottom grate

Use of wood that is too dry (eg wood from old furniture)

9 - Specification

Copy of the CE plate attached to the stove

