

# **OPERATOR'S GUIDE**

# FlexiBurn

Multi-purpose Flammability Tester Model 1880

TestWise™

Covering Serial Numbers 1880/18/001 and upwards

James H. Heal & Co. Ltd. Halifax, England

Setting the Standard

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# **JAMES HEAL**

At James Heal, we are dedicated to designing and developing high precision testing instruments and test materials for physical and colour fastness testing. Our worldwide service and calibration division and expert technical assistance complement our product range, adding real value to your laboratory testing activities.

#### SETTING THE STANDARD

We are committed to forming close relationships and have established numerous partnerships within the textile industry, from trade and standards organizations, to test houses, customers and distribution partners.

With a heritage spanning more than 140 years, we have evolved and grown through a culture of continuous improvement, resulting in a thorough understanding of the applications, operating conditions and requirements of customers worldwide - from independent testing laboratories and test houses, to fabric suppliers, manufacturers and retailers.

Using knowledge and expertise, we consistently set the industry standard through product innovation and technology, with customer and user needs, present and future, driving our technological advancements. You can be assured that with James Heal, you will always receive the highest levels of product quality and customer service. We have Agents and Distribution partners all over the globe, ensuring locally available product whenever, and wherever you need it.

### **AREAS OF EXPERTISE**

#### Textile: Colour Fastness

- Chlorinated Water
- Dry Cleaning
- Dry Heat
- Hot Pressing
- Laundering
- Light

#### **Textile:** Physical

- Abrasion
- Bursting Strength
- Compression and Puncture
- Crease and Wrinkle Recovery
- Crimp
- Drape
- Durability
- Flammability
- Mass per unit area
- Pilling and Fuzzing

- Perspiration
- Phenolic Yellowing
- Print Durability
- Rubbing
- Washing
- Water
- Security of Attachments
- Seam Slippage
- Shrinkage
- Snagging
- Spray Rating
- Stretch and Recovery
- Surface Deterioration
- Tear Strength
- Tensile Strength
- Washing and Drying

#### **Non-Textile**

- Bursting strength of nonwovens, plastics, paper and medical products
- Micro-scratching of laminates, wooden, painted, automotive and high gloss surfaces
- Physical and colour fastness testing of leather
- Rubbing fastness of laminates and wooden surfaces
- Tear strength of paper and plastics

# FLEXIBURN - MULTI-PURPOSE FLAMMABILITY TESTER

The FlexiBurn flammability tester offers an effective and controlled way of testing ignition and flame spread properties of a range of materials.

To comply with various BS, EN, EN ISO and retailer standards, we offer a comprehensive range of easily interchangeable gas burners, test frames and test materials.

When used with the optional radiator assembly, FlexiBurn complies with EN 13772 'Burning behaviour - curtains and drapes- measurement of flame spread with large ignition source'.

Innovative engineering and intuitive understanding of your needs are combined to produce an aesthetically pleasing and ergonomic instrument, with intelligent, easy-to-use TestWise Test Software and a comprehensive library of international standards and retailers' own test methods.

#### Key features include

- Auto set up of standards
- Intuitive software minimal training required
- Controls to ensure compliance

### **Technical Assistance**

- Operator Training
- Knowledge transfer
- TestWise Software Online Maintenance and User Support
- Applications Support
- Engineering Support

## SAFE INSTALLATION GUIDE

#### Introduction

This guide provides information regarding the safety, installation and technical details for the James Heal Flexiburn 1880.

The Operator's Guide must be read carefully before operating the instrument; refer to Operator Safety section where applicable.

The full Operator's Guides can be accessed here in our KnowledgeHub: <a href="http://appsupport.james-heal.co.uk/support/solutions/5000155111">http://appsupport.james-heal.co.uk/support/solutions/5000155111</a>

You are advised to carry out your own risk assessment for use in conjunction with this document.

James Heal instruments conform to EU requirements where required.

#### EU Conformity

- Machinery Directive 2006/42/EC
- Low Voltage Directive (LVD) 2014/35/EU
- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Waste Electrical and Electronic Equipment recycling (WEEE) Directive 2012/19/EU
- Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU

### FLEXIBURN 1880

The FlexiBurn is packed in a large wooden case. Any optional accessories will be packed around the instrument. Remove the case lid and unpack the optional accessories and loose items first. The instrument is fixed to the base of the case as two separate items, 1) the instrument, and 2) the base leg unit. To remove the instrument the case must be stood upright first then remove the brackets which secure the instrument to the base. Remove the sides. Finally lift the FlexiBurn out of the case. Please check that all of your accessories and consumables are present before disposal of any packaging material and report any discrepancy to the manufacturer.

These are the standard items packed with the Flexiburn:-

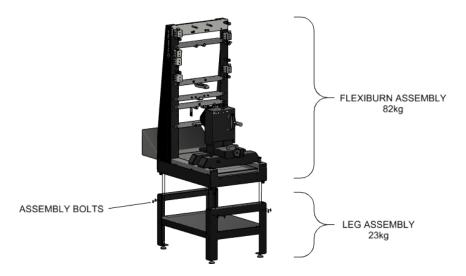
- 1 Mains Lead
- 1 17 mm Spacer (Burner tip to fabric face)
- 1 20 mm Spacer (Burner tip to fabric edge)
- 1 Wire Brush
- 1 TestWise software installed on a dongle
- 1 Burner Removal Tool
- 1 Pack of 6 Burner O Ring Seals
- 1 Cotton Trip Thread

Also check that the specimen frames and templates specified on your order are also present and any other optional equipment ordered.

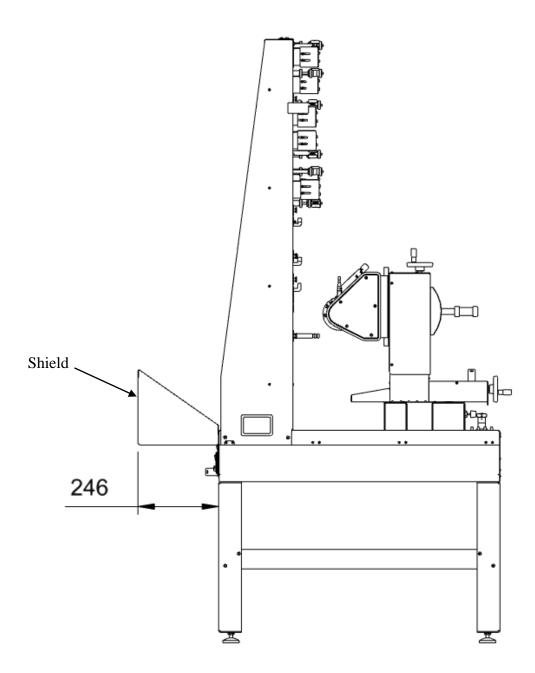
Check the operating voltage stamped on the serial number plate is the same as your electrical supply.

### INSTALLATION

- The FlexiBurn can be installed on the base leg unit provided, or it can be installed on a suitable table or work surface provided by the user.
- If using the base leg unit provided, carefully lift the Flexiburn onto the leg unit and secure using the 8off M6x16 bolts provided.



- The FlexiBurn must be located in a separate room, or in part of a room which has been fully partitioned to accommodate it.
- On the rear of the machine a shield can be fitted which can be used to space the FlexiBurn from the Test Chamber wall and also cover the gas pipes and electrical cables to protect them from debris. The figure below shows the FlexiBurn with the shield fitted and the distance to the wall.



- The testing room must have a <u>minimum</u> volume of 4 m3.
- The construction of the room must be such to allow location of the rig inside and the control module outside. The rig must be clearly visible from the outside from the control module location.
- The atmosphere within the room must be within the following limits :
  - Temperature 15 30 °C
  - Relative Humidity 20 65 %RH
- Fireproof materials <u>must</u> be used in the construction of the testing room.

- The room <u>must</u> be fitted with an extractor fan or other means of ventilation to facilitate the clearance of smoke and fumes after a test. In certain situations, a sprung-loaded vent located low down on the wall opposite the fan will help to clear the atmosphere by allowing the ingress of fresh air when the fan is operating.
- Connect the gas supply/supplies to the gas inlet on the left hand side of the FlexiBurn. Two gas supplies can be connected at the same time. (See Fig below).

#### Details of gas supply

- a GAS TYPE Commercial Butane to BS 4250
  - Commercial Propane for ISO 6940/1
- b SUPPLIER Calor gas stockist
- c CYLINDER Either 16 or 32 lb. type
- d REGULATOR Calor engineering high pressure regulator or similar
- e PIPING Calor engineering High pressure pipe of 3/16 inch (4.68 mm) internal diameter and complying with BS 3212

The gas cylinder should be placed outside the building/chamber.

The gas cylinder, regulator and piping are not supplied with the equipment.

FlexiBurn is not designed to be connected directly to a gas supply and <u>a Regulator must</u> <u>be included in the connection between the cylinder and the FlexiBurn</u>. The regulator is precisely set by the manufacturer to control the pressure of the supply and must not be adjusted. If a Regulator shows signs of wear, it should be replaced. Regulators must be marked BS 3016 or EN 12864.

For commercial propane, a typical bottle pressure is 20 bar - this must be Regulated down to 37 mbar.

For commercial butane, a typical bottle pressure is 2 bar - this must be Regulated down to 28 mbar.





Propane Regulator

**Butane Regulator** 

- For further information and/or advice on any of these points, consult the building safety officer and/or the local fire prevention officer.
- The FlexiBurn should be levelled using the four adjustable
- To prepare the rig for testing, insert the debris tray into the slot at the base of the rig.
- Ensure the correct burner is in place. Should the burner require changing, the tool on the left hand side of the rig (See Fig 1 ref. 20), fits over the burner and can be used as a spanner.
- The rig is now ready to carry out tests.

## SAFETY RECOMMENDATIONS

- If a gas leak is suspected, disconnect the equipment from the gas supply and check it thoroughly. If in doubt, do not use the equipment until it has been checked by the manufacturer or other competent authority.
- Do not enter the test room or cabinet until the test is completed <u>and</u> the smoke and fumes have cleared.
- Always place the specimen frame on the rig <u>before</u> igniting the gas.
- Do not allow debris to accumulate on the rig or specimen frames. Check them and empty the debris tray regularly.
- Always turn off the gas supply at the cylinder after use.
- The rig has been designed for testing textile materials in the vertical plane. <u>Materials with a large mass, with the potential to create a severe fire, must not</u> <u>be tested on this apparatus</u>. E.g. Large toys, large pieces of flammable foams etc.

### FRAME PREPARATION

Before using the FlexiBurn, ensure that the installation has been carried out correctly. Consult the Safety Installation Guide section for full details.



Check that the magnet keeper covers are removed (Fig 1).

Fit the required frame (fig 2 & 3). TAKE SPECIAL CARE WHEN HANDLING THE FRAMES AS THE PINS ARE VERY SHARP & ALWAYS KEEP THE COVER GUARD IN PLACE WHEN NOT IN USE.





Place the specimen on the frame, pushing the pins through the fabric and resting on the spacer stubs (figs 4 & 5)



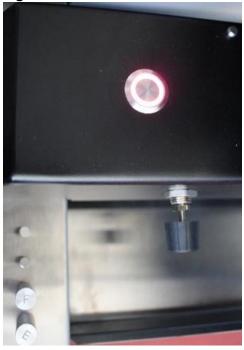


### **SWITCH ON**

#### FRAME

From the front of the FlexiBurn go down the left-hand side and round the back to find the power cable socket and power switch. Plug the power cable into the frame & into a wall socket. Switch on at the wall & on at the rocker switch on the frame. When switched on, the start test button at the front of the frame will flash red (fig 6). This alerts the user that the TestWise Software is not open - Once open, the button will turn blue (fig 7)







### **OPEN TESTWISE SOFTWARE**

Open TestWise by selecting the 'TestWise for Flexiburn' icon on your desktop screen (fig 8), this will open TestWise and take you to the Home Page (fig 9).

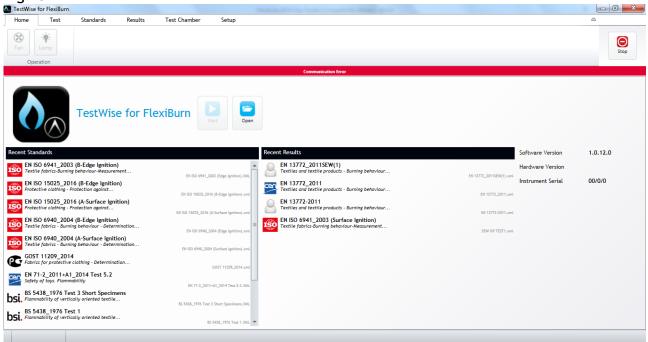


The menu for Recent Standards will appear on the left and Recent Results on the right. This page will intuatively populate with use and can be used to open recently used standards and to view recent results by highlighting the required standard and either selecting 'Start' to begin a new test or 'Open' to view recent results.

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If the frame is not switched on the red Communication Error bar will appear prompting the user to switch the frame on (fig 10) The Start Test button on the front of the frame will also be flashing red. Turn the frame on as described in the 'Switch on' section of this guide.

#### Fig 10



### **POSITIONING THE BURNER & CARRIAGE**

For all tests the burner and flame need to be set to the correct operating position. To do this flame guages are used (fig 11) to set the distance between flame & specimen. The burner housing carriage is manually moved into position. The burner angle is positioned using TestWise.

The following will provide positioning guidance for both surface ignition and edge ignition tests. The principles of which are transferrable for all other testing.

### SURFACE IGNITION TEST

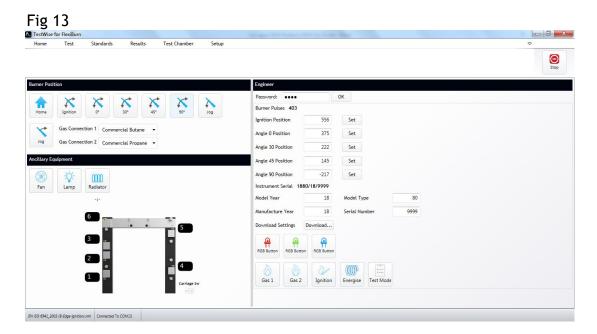
#### SETTING THE BURNER ANGLE.

To ensure that the burner and flame are in the correct operating position choose the flame guage marked with an F (sur<u>Face</u> (fig 11). When not in use these can be placed on the keepers next on the front left of the frame. The extra keepers are in place to hold other guages such as those used for toy testing etc. (fig 12)





In TestWise (fig 13) select Setup page found on the header ribbon at the top of the screen.



Locate the 'Burner Position' box on the left of the screen and click 'Home' to set the burner in the rest/start position - <u>This must be carried out before the burner flame guage</u> is placed on to the end of the burner.

Place the flame guage on the end of the burner (fig 14) then in the Burner Position box in TestWise (fig 8 above) select the angle required i.e.  $90^{\circ}$  and the burner will move to this position (fig 15).





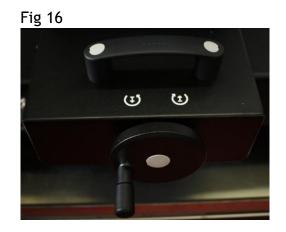
### **POSITIONING THE CARRIAGE**

#### HORIZONTAL POSITIONING

To move the carriage to the required position use the horizontal grab handle (fig 16 Top) to slide it forwards & backwards along the horizontal plane to place it in the approximate position required.

To fine tune the positioning, wind the circular handle at the front of the carriage (fig 16 Bottom) to bring the burner into the exact position required along this plane.

The graphics located above the circular handle & in front of the grab handle show which direction to wind the handle and on what plane the carriage will move - Turn to the right to move the carriage forward & left to move it backwards (fig 16 middle).



#### **VERTICAL POSITIONING**



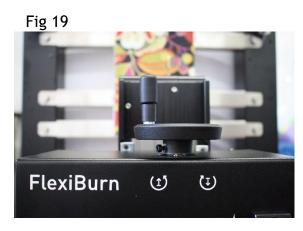


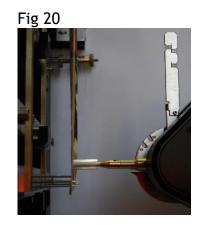


To vertically set the burner ensure the large leaver on the right of the carriage is positioned in the 'down' position, next to the graphic depicting the burner and flame on the horizontal plane (fig 17 & 18).

To move the lever, the spring loaded handle must be first pulled out towards the operator to allow for movement up & down the shaft. This moves the burner housing up and down. Be careful not to have the carriage too close to the specimen & frame when carrying out this operation to avoid any collision.

To set the burner into its exact position, turn the curcular handle at the top of the carriage to move into place (fig 19). The graphic in front of it next to the 'Flexiburn' logo depicts which direction to wind the handle and on what plane the carriage will move i.e vertically - Turn to the right to lower the carriage and to the left to raise it.





As the guage represents the distance required for the burner plus flame to be from the specimen, ensure that the guage just touches the specimen (fig 20).

Once set into position select  $0^{\circ}$  in Burner Position box (fig 21) on the TestWise software screen to return the burner to the rest/start position (fig 22).

Fig 21

Remove the guage - IMPORTANT! (fig 23)



Fig 23



### **EDGE IGNITION TEST**

To ensure that the burner and flame are in the correct operating position choose the flame guage marked with an E ( $\underline{E}$ dge) (fig 24). When not in use these can be placed on the keepers next on the front left of the frame. (fig 25)



On TestWise (fig 26) select 'Setup' found on the header ribbon at the top of the screen. Locate the 'Burner Position' box on the left of the screen and click 'Home' to ensure the burner is in the rest/start position - <u>This must be carried out before the burner flame</u> guage is placed on to the end of the burner.

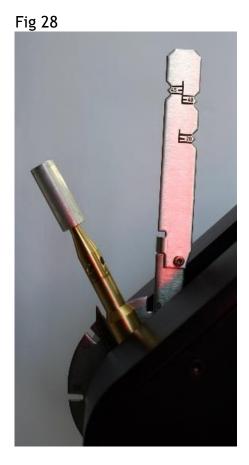
Place the flame guage on the end of the burner (fig 27) then select the angle required e.g.  $30^{\circ}$  and the burner will move to this position (fig 28).

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Fig 26

Fig 27





### **POSITIONING THE CARRIAGE**

#### HORIZONTAL POSITIONING

To move the carriage to the required position hold the horizontal grab handle (fig 29 Top) at the front of the carriage to slide it forwards & backwards to place it in the approximate position required along the horizontal plane.

To fine tune the positioning wind the circular handle at the front of the carriage (fig 29 Bottom) to bring the burner into the exact position required along this plane.

The graphic above the circular handle & in front of the grab handle depict which direction to wind the handle and on what plane the carriage will move - Turn to the right to move the carriage forward & to the left to move it backwards (fig 29 Middle).



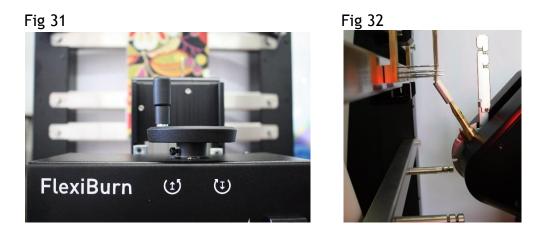
#### **VERTICAL POSITIONING**

To vertically set the burner ensure the large leaver on the right of the carriage is positioned in the 'up' position - next to the 'Flexiframe' graphic depicting the burner and flame at an angle (fig 30).

To move the lever, the spring loaded handle must be first pulled out towards the operator to allow for movement up & down the shaft. This moves the burner housing up and down. Be careful not to have the carriage too close to the specimen & frame when carrying out this operation to avoid any collision.



To set the burner into its exact position turn the curcular handle at the top of the carriage to move into place (fig 31). The graphic in front of it next to the 'Flexiburn' logo depicts which direction to wind the handle and on what plane the carriage will move - Turn to the right to lower the carriage and to the left to raise it.



As the guage represents the distance required for the burner plus flame to be from the specimen, ensure that the guage just touches the specimen (fig 32).

Once set into position select  $0^{\circ}$  in Burner Position box (fig 33) on the TestWise software screen to return the burner to the rest/start position (fig 34).

Remove the guage - IMPORTANT! (fig 35)

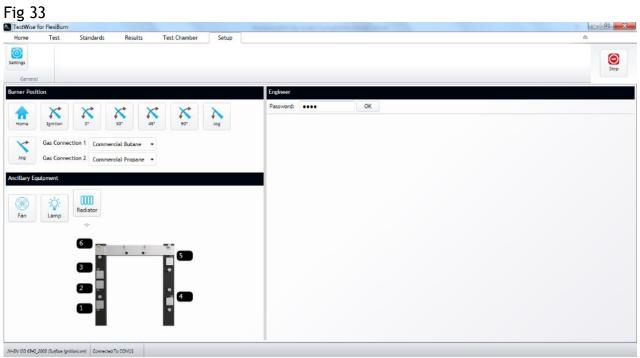


Fig 34







### FLAME HEIGHT ADJUSTMENT

Once the the operating position of the burner has been set it is time to set the flame height required.

This can be established in TestWise by selecting the standard required in either the Test Menu or the Standards Menu and locating Flame Height parameters in the Test Information section (fig 36).

Home Test Standards Results Test Chamber Setup		
		۵
r. st		Sto
	940_2004 (A-Surface Ignition)	Attachment
Safety of toys. Flammability	abrics - Burning behaviour - Determination of ease of ignition of vertically oriented specimens	794-609
EN 71-2-2011+A1-2014 Test 5.2 Sofety of toys. Flammability BI 71-3-2014-A1-2014 Test 5.3.04. Test Info Gas	Commercial Propane	e •
EN 71-2-2011+A1-2014 Test 5.3 Sofety of tays. Flammability EN 71-2-2011+A1-2014 Test 5.3.308L Burner A	CK GAS CONNECTIONS ARE SECURE 90 deg	g
Safety of tays. Flammability	re Heat Time 02:00 s	
EN 71-2-2011+A1-2014 Test 5.5 Safety of toys. Flammability Flame A	st Delay Time 0.0 s	
EN 71-2-2011-A1-2014 Test 5.5.3ML BS 5867-2_2008 Type B	eight 40 mn	n
Pabrics for curtains, drapes and window blinds Part EN ISO 15025_2016 (A-Surface Ignition).sml	Tolerance +/- 2 mn	n
EN ISO 15025_2016 (B-Edge Ignition) Protective clothing - Protection against	each 25 mn Tolerance +/- 2 mn	
Textile fabrics - Burning behaviour - Determination	on against flame - Method of test for limited flame spread	0
EN ISO 6940_2004 (A-Surface Ignition) Marker T		0
EN ISO 1010 00011 (S. C. L. M.		0
Textile fabrics - Burning behaviour - Determination EN ISO 6940-2004 (Surface Ignition).sml		0
EN ISO 6941_2003 (B-Edge Ignition) Textile fabrics-Burning behaviour-Measurement EN ISO 6941_2003 (Edge Ignition).2004	hread Position 6	o 📄 👔
EN ISO 6941_2003 (Surface Ignition) Textile fabrics-Burning behaviour-Measurement		0
EN ISO 6941-2003 (Surface Ignition)	Criterion 1.0 s	

Firstly, ensure that the flame height measure is standing vertically (fig 37).



In TestWise, go to the Setup Menu on the top ribbon, select Home button within Setup to ensure the burner is set to the start/rest position (fig 38).

Fig 38

ome Te	st Standards	Results	Test Chamber	Setup			۵
ngs							Ster
General er Position					Engineer		
ome Ignit		X 30°	5° 50°	Jog	Password: ••••	ОК	
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	Connection 2 Comm	mercial Propane	•				
llary Equipmen	it .						
illary Equipmen	× 0000						
8	Radiator						
8	Radiator		5.				
8	Radiator 10	. :	5				
8 3	Radiator 11-	. :	5				
8 3	Radiator 12- 13- 14- 14- 14- 14- 14- 14- 14- 14- 14- 14		5				
8 3	Radiator 11-		5				

Turn on the gas knob at the front left of the frame (fig 39).

Again, on the Setup page - Select Ignition, this will prompt the burner move back to the ignition & to light (fig 38).

Once the flame is lit select the  $0^{\circ}$  button (fig 38).

The lit burner will now be infront of the flame measuring guage (fig 40), turn the gas knob on the front of the frame to adjust the flame height to the required setting (fig 39).

Once the correct height is achieved, switch the gas off by depressing the circular start/stop button (this can be seen above the knob on fig 41), for a couple of seconds and the extinguishing of the flame will indicate that the gas is off.

Fig 39



Fig 40







### \*\*\*CAUTION!\*\*\*

THE FLEXIBURN PRODUCES A NAKED FLAME: EXCERSISE CAUTION WHEN OPERATING THE APPARATUS TAKING ALL REASONABLE MEASURES TO AVOID INJURY - ENSURE NO LOOSE CLOTHING IS WORN WHEN OPERATING & LONG HAIR IS TIED BACK.

KEEP A SAFE DISTANCE BACK FROM THE FLAME WHEN ADJUSTING THE FLAME HEIGHT - DO NOT LEAN IN TOO CLOSELY TO READ THE MEASURE.

DO NOT TOUCH THE BURNER AT ANY TIME WHILST THE FLAME IS LIT OR IMMEDIATELY AFTER USE.

IF THE BURNER NEEDS CHANGING ALWAYS ALLOW ENOUGH TIME FOR IT TO BECOME COMPLETELY COOL BEFORE CHANGING.

Once the measuring guage is <u>completely cool</u> it is good practice to pivot the guage backwards out of the way of the flame - USE A NON-CONDUCTIVE TOOL TO MOVE THE GUAGE - DO NOT USE HANDS TO DO THIS! However, it is only necessary to be moved back for tests where the measure would get in the way and inhibit the testing.

For the purposes of orientation the measure has been left standing in the majority of illustration photographs throughout this guide.

## **START TESTING**

To begin testing select the Test Page found along the ribbon at the top of the page (or the Home Page if is populated with recently used standards and the standard you require is listed).

Select the required standard from within the Standard box by hovering the arrow over the standard to be used and click once the standard area will then highlight blue (fig 42).

The Standard selected & Test Information will show in the central section whilst on the right will be an illustration of the attachments & burner required along with the stock number.

Scroll over any of the standards or parameters and further information will appear.

In the Test Information section, there is a safety information line at the top advising the user to check the gas connections are secure before use. The connections are found at the back of the frame (fig 43). If unsure about how the gas should be connected please refer to the Installation section within this guide.

Beneath the safety information line are found the test parameters.

To open the selected test either double click on the test area or select start.

estWise for FlexiBurn		Reduct 200 for last 1 and 100 feet and 100			
ome Test Standards Results	Test Chamber Setup				۵
t					Stop
t					
dard		EN ISO 6940_2004 (A-Surface Ignition)			Attachment
EN 71-2_2011+A1_2014 Test 5.5 Safety of tays. Flammability	<b>م</b>	Textile fabrics - Burning behaviour - Determination of ease of ignition of vertically orient	ted specimens		794-609
EN 71-2-2011+A1-2014 Test 5.2	EN 71-2_2011+A1_2014 Test 5.5.XWL	Test Information		$\bigcirc$	
Safety of toys. Flammability	EN 71-2-2011+A1-2014 Test 5.2.XWL	Gas	Commercial Pr	opane 🔺	9 8
EN 71-2-2011+A1-2014 Test 5.3		CHECK GAS CONNECTIONS ARE SECURE			
Safety of toys. Flammability	EN 71-2-2011+A1-2014 Test 5.3.XWL	Burner Angle		deg	
EN 71-2-2011+A1-2014 Test 5.4 Safety of tays. Flammability	EN 71-2-2011+A1-2014 Test 5.4.XWL	Burner Pre Heat Time	02:00		
EN 71-2-2011+A1-2014 Test 5.5	EN 7 11212011 YAI12014 TESC 0.4.AND	Start Test Delay Time	0.0		
Safety of toys. Flammability	EN 71-2-2011+A1-2014 Test 5.5.XWL	Flame Application Time	1.0		
BS 5867-2_2008 Type B Fabrics for curtains, drapes and window blinds Part		Flame Height	40		
	EN ISO 15025_2016 (A-Surface Ignition).xml		lerance +/- 2	=	Burner
EN ISO 15025_2016 (B-Edge Ignition) Protective clothing - Protection against		Flame Reach	25		794-597
EN ISO 6940_2004 (B-Edge Ignition)	EN ISO 15025_2016 (8-Edge Ignition).xml		lerance +/- 2		/94-09/
Textile fabrics - Burning behaviour - Determination	EN ISO 6940_2004 (Edge Ignition).xml	Marker Thread Position 1 Marker Thread Position 2		0	Î
EN ISO 6940_2004 (A-Surface Ignition) Textile fabrics - Burning behaviour - Determination		Marker Thread Position 2 Marker Thread Position 3		0	
EN ISO 6940-2004 (Surface Ignition)	EN ISO 6940_2004 (Surface Ignition).xml	Marker Thread Position 3		0	
Textile fabrics - Burning behaviour - Determination	EN ISO 6940-2004 (Surface Ignition).xml	Marker Thread Position 5		0	
EN ISO 6941_2003 (B-Edge Ignition) Textile fabrics-Burning behaviour-Measurement		Marker Thread Position 6		0	
EN ISO 6941 2003 (Surface Ignition)	EN ISO 6941_2003 (Edge Ignition).XWL	Thread Fineness		0	
Textile fabrics-Burning behaviour-Measurement	EN ISO 6941_2003 (Surface Ignition).XWL	Ignition Criterion	1.0		
EN ISO 6941-2003 (Surface Ignition) Textile fabrics-Burning behaviour-Measurement		Afterglow Criterion	0.0		
reactive passives burning benariour medicurement	EN ISO 6941-2003 (Surface Ignition).XWL	Artergiow Criterion	0.0	· ·	



If the gas is not detected or attached to the frame the 'Gas Unavailable' box will appear in the centre of the screen to prompt the attaching and/or turning on of the of the gas (fig 44).

Refer to the installation guide on how to attach the gas.

Go into Setup and choose the correct gas (as outlined in the Gas Unavailable box) in the dropdown box next to the appropriate gas outlet into which the gas is being fed (fig 45). Once done select OK.

ig 44				
estWise for FlexiBurn				- 0
lome Test Standards Results	Test Chamber Setup			\$
ar				Stop
st				
dard		EN ISO 6941_2003 (A-Surface Ignition)	Attachme	nt
EN 14878_2007 - Textiles - Burning behaviour of children's	*	Textile fabrics-Burning behaviour-Measurement of flame spread properties of vert	tically oriented specimens	794-586
EN 1624 1999 (A-Surface Ignition)	EN 14878_2007.XWL	Test Information	$\odot$	
Textiles and textile products - Burning behaviour	EN 1624_1999 (A-Surface Ignition).XWL	Gas	Commercial Propane	
EN 1624_1999 (B-Edge Ignition)	an man_ reverse province operations	ENSURE GAS IS SECURELY CONNECTED VIA THE APPROPRIATE REGULATOR		
Textiles and textile products - Burning behaviour	EN 1624_1999 (B-Edge Ignition).XWL	Broad Landa San San San San San San San San San Sa	90 deg	
EN 1625_1999 (A-Surface Ignition) Textiles and textile products - Burning behaviour	EN 1625_1999 (A-Surface Ignition).xml	Bi —	02:00 s	
EN 1625_1999 (B-Edge Ignition)	EN 1625_1999 (A-Sulface Ignition).30%	SI I	0.0 s	
Textiles and textile products - Burning behaviour	EN 1625_1999 (B-Edge Ignition).xml	FL ě	10.0 s	
EN 71-2_2011+A1_2014 Test 5.2 Safety of tays. Flammability		Gas Unavailable	40 mm	
EN 71-2_2011+A1_2014 Test 5.3	EN 71-2_2011+A1_2014 Test 5.2.XWL		Tolerance +/- 2 mm	
Safety of toys. Flammability	EN 71-2_2011+A1_2014 Test 5.3.XWL	FI Required: Commercial Propane	25 mm	and the second sec
EN 71-2_2011+A1_2014 Test 5.4 Safety of tays. Flammability		Available:	Tolerance +/- 2 mm Burner	
EN 71-2_2011+A1_2014 Test 5.5	EN 71-2_2011+A1_2014 Test 5.4.XWL	M 1: Methane	220	794-597
Safety of toys. Flammability	EN 71-2_2011+A1_2014 Test 5.5.XWL	M 2: Propane	370	
EN ISO 15025_2016 (A-Surface Ignition) Protective clothing - Protection against				
EN ISO 15025_2016 (B-Edge Ignition)	EN ISO 15025_2016 (A-Surface Ignition).xml	ОК	0	
Protective clothing - Protection against	EN ISO 15025_2016 (B-Edge ignition).xml			
EN ISO 6940_2004 (B-Edge Ignition) Textile fabrics - Burning behaviour - Determination		Marker Thread Position 6 Thread Fineness	0 46	1
EN ISO 6940_2004 (A-Surface Ignition)	EN ISO 6940_2004 (Edge Ignition).xml	Inread Fineness Ignition Criterion	40 0.0 s	
Textile fabrics - Burning behaviour - Determination	EN ISO 6940_2004 (Surface Ignition).uml	-	0.0 s	11
EN ISO 6941_2003 (B-Edge Ignition)	the rest of a second fraction (Shirty of York	Afterglow Criterion Max number of joins	0.0 s	
Textile fabrics-Burning behaviour-Measurement	EN ISO 6941_2003 (Edge Ignition).XWL	Max number of joins Burner Slow Retract		<b>1</b>
EN ISO 6941_2003 (A-Surface Ignition) Textile fabrics-Burning behaviour-Measurement	EN ISO 6941_2003 (Surface Ignition).XWL	Use Carriage Switch ?	V	
GOST 11209_2014	EN ISU 6941_2003 (Surface Ignition).XWE	Radiator Application Time	0.0 s	
Fabrics for protective clothing - Determination	GOST 11209_2014.xml	Radiator Application Time Radiator Preheat Time	0.0 s	
James Heal Test 1 Fabric	*	naulator Freneat (IMP	0.0 5	
nected To COM11		EN ISO 6941_2003 (A-Surface Ignition)		

### Fig 45

fise for FlexiBurn	And in the second se	0
r Test Standards Results Test Chamber Setup		۵.
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Position	Communication Error Engineer	
ostition	Password: •••• OK	
	Burner Pulses 0	
	Ignition Position 0 Set	
nnection 1 Butane •	Angle 0 Position 0 Set	
nnection 2 Propane	Angle 30 Position 0 Set	
Commercial Butane	Angle 45 Position 0 Set	
Commercial Propane		
Propage	Angle 90 Position 0 Set	
Methane	Model Year 0 Model Type 0	
Butane + Propane Mix	Manufacture Year 0 Serial Number 0	
-		
6	Download Settings Download	
5	RDD Sumaria RDD Sumaria RDD Sumaria	
3	Gia 1 Gia 2 Junior Junior Teat Mode	
2		
· 4		

Once it is ensured that the gas is attached and turned on, double click on either the highlighted standard or single click on the start icon (fig 46). This will then open the Run Test page.

stWise for FlexiBurn		Reduct 277 by Lots Comparison, Rolling and			- 0
me Test Standards Results	Test Chamber Setup				۵
					Stop
lard		EN ISO 6940_2004 (A-Surface Ignition)		Att	tachment
EN 71-2_2011+A1_2014 Test 5.5		<ul> <li>Textile fabrics - Burning behaviour - Determination of ease of ignition of vert</li> </ul>	ically oriented specimens		794-609
Safety of toys. Flammability	EN 71-2_2011+A1_2014 Test 5.5.XML	Test Information		$\bigcirc$	
EN 71-2-2011+A1-2014 Test 5.2 Safety of toys. Flammability	EN 71-2-2011+A1-2014 Test 5.2.XWL	Gas	Commercial Pr	opane 🔺	9 22 CD 8
EN 71-2-2011+A1-2014 Test 5.3	EN 71-2-2011+A1-2014 TESE 5.2.3ML	CHECK GAS CONNECTIONS ARE SECURE			
Safety of toys. Flammability	EN 71-2-2011+A1-2014 Test 5.3.XWL		90		
EN 71-2-2011+A1-2014 Test 5.4 Safety of tays. Flammability		Burner Pre Heat Time	02:00		
EN 71-2-2011+A1-2014 Test 5.5	EN 71-2-2011+A1-2014 Test 5.4.XML	Start rest betay rine	0.0		
Safety of tays. Flammability	EN 71-2-2011+A1-2014 Test 5.5.XWL	Flame Application Time	1.0		
BS 5867-2_2008 Type B Fabrics for curtains, drapes and window blinds		Flame Height	40		
Part	EN ISO 15025_2016 (A-Surface Ignition).xml		Tolerance +/- 2	-	
EN ISO 15025_2016 (B-Edge Ignition) Protective clothing - Protection against		Flame Reach	25 Tolerance +/- 2		rner
EN ISO 6940_2004 (B-Edge Ignition)	EN ISO 15025_2016 (B-Edge lanition).xml Protective clot	hing - Protection against flame - Method of test for limited flame spread	Toterance +/- 2	0	794-597
Textile fabrics - Burning behaviour - Determination	EN ISO 6940_2004 (Edge Ignition).xml	Marker Thread Position 2		0	Ĩ
EN ISO 6940_2004 (A-Surface Ignition) Textile fabrics - Burning behaviour - Determination		Marker Thread Position 2		0	
EN ISO 6940-2004 (Surface Ignition)	EN ISO 6940_2004 (Surface Ignition).xml	Marker Thread Position 4		0	
Textile fabrics - Burning behaviour - Determination	EN ISO 6940-2004 (Surface Ignition).xml			0	
EN ISO 6941_2003 (B-Edge Ignition) Textile fabrics-Burning behaviour-Measurement		Marker Thread Position 6		0	
EN ISO 6941_2003 (Surface Ignition)	EN ISO 6941_2003 (Edge Ignition).XML	Thread Fineness		0	
Textile fabrics-Burning behaviour-Measurement	EN ISO 6941_2003 (Surface Ignition).XML	Ignition Criterion	1.0	s	<b>*</b>
EN ISO 6941-2003 (Surface Ignition) Textile fabrics-Burning behaviour-Measurement	EN ISO 6941-2003 (Surface Ignition).XML	Afterglow Criterion	0.0	s 🗸	

### **RUN TEST PAGE**

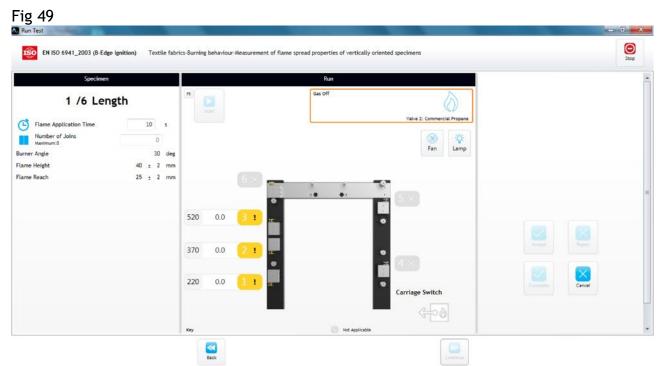
The Run Test page will appear showing the Test Parameters box (fig 47) Populate each field as required by clicking in the relevant box and typing in the necessary information.

EN ISO 6940	2004 (A-Surface Ignition) Textile fabrics - Burn	ing behaviour - Determination of ease of ignition	of vert	tically oriented specimens		( s	Ditop
		Test Par	amet	ers			
erator / User		J Bloggs	5	Thread Fineness	1	0	
Company	A Company			Length		200	m
Reference	1234ABC			Width		80	m
Material	100% Fabric	Number of Length Specimens	_	3	ā		
Mass Comment	150g/m² Treate			Number of Width Specimens		3	
Comment	Treate			Number of Bias Specimens		0	
			0=				
			8	Room Temperature		20	
				Room Relative Humidity		55	%R
			-	Room Air Speed		0	m
			?	Fabric Status	Washed		٠
						Number of Treatments	5
				Edge Type	Raw		•
			Ø	Face Type	Front		•
			8	Conditioning Temperature		20	1
			-	Conditioning Humidity		65	%R

All parameters with an arrow to the right side of their box have drop-down menu's from which to select from (fig 48) These parameters are: Fabric Status, Edge Type, Face Type. The Fabric Status parameter allows for the number of treatments to be listed if a treatment field has been selected.

	Test Pa	rameters			
	J Bloggs	Thread Fineness		0	
A Company		Length		200	m
1234ABC		New York Ne		80	-
100% Fabric					m
150g/m²		Number of Length Specimens		3	
Treate		Number of Width Specimens		3	
		Number of Bias Specimens		0	
				20	
		Room Relative Humidity		55	%R
		Room Air Speed		0	m/
		7 Fabric Status	Washed		•
			As Received		_
		Edan Turna	Washed		
			Dry Cleaned		
			Cleansed		
		Conditioning Temperature	N/A		
		Conditioning Humidity		65	%R
	00% Fabric 150g/m²	1234ABC 00% Fabric 550g/m <sup>2</sup>	1234ABC With 1234ABC With 1236g/m <sup>3</sup> Treate Number of Length Specimens 1236g/m <sup>3</sup> 1236g/m <sup>3</sup> 12	1234ABC       Image: Width         1234ABC       Image: Width	contraining       Image: Contraining Contrate Contrate Contraining Contraining Contraining Contra

Once all the required fields have been populated select continue. The test page depicting the FlexiBurn frame graphic will now appear (fig 49).



The Specimen box, on the left, shows the specimen number being tested along with the number of specimens to be tested. The orientation of the specimen is also shown.

Beneath this the sewing joins, burner & flame paramaters are displayed.

Flame Application Time and Number of Joins fields (where set as part of the test parameters) can be can be completed.

The other parameters are set to the selected standard's specifications and cannot be changed.

To the right is the Run field showing the frame graphic centrally.

Where marker/trip threads are required (should they be required by the standard), these fields will highlighted yellow.

It is now time to thread up the marker/trip threads.

### THREADING UP

The following threading up description is for standard BS EN ISO 6941, however the principle is the same for all standards that require timed marker/trip threads.

#### PHYSICAL THREADING UP METHOD

Thread each marker/trip thread from the right securing the thread between the 1<sup>st</sup> spacer and the nut (closest to the frame) traversing across the specimen face, round the corresponding nut (which is two cones on congruent axes with their apexes together looking like so: and holds the thread trip detection wires) and affix back in place between the 1<sup>st</sup> & 2nd (larger) spacer. (figs 50, 51 & 52)

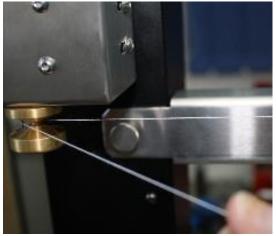
The threads must have enough tension applied to ensure that the trip wires are pulled in.

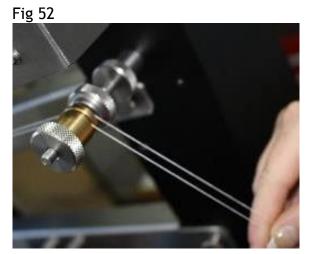
The back thread will lie across the specimen whilst the front thread will stand proud of the specimen. (fig 53)

The frame fully mounted with specimen holder, specimen & threads will look similar (dependent upon the standard being employed) to the photograph seen in figures 54 & 55.









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Fig 54

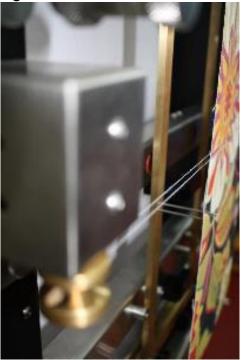




Fig 55



To check the th

### **TESTWISE - THREADING UP**

On the TestWise software Run field you will see the trip fields change from yellow to blue as each thread is put in correctly place. If the threads do not go round the trip wire with sufficient tension placed on them to draw them in, the trip fields will not turn blue nor will the blue thread line show across the frame on the diagram (fig 56)

Similarly, if the threads are placed in the wrong place for the test setting then the corresponding field and thread line will appear red on the diagram (fig 57).

When all the threads are correctly placed all the thread fields will turn blue along with the thread placements on the diagram which will now be visible. The start icon will also become active (fig 58).

Once the this is all in place it is time to start the test.

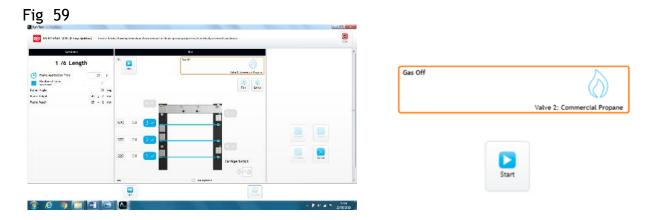




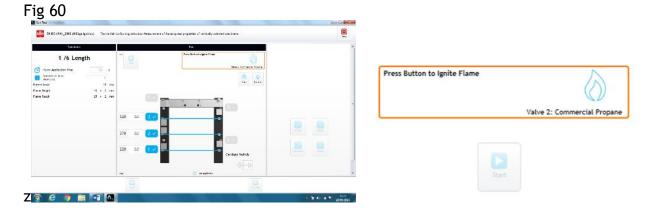
# **CONDUCTING TEST**

## FLAME IGNITION & PREHEATING BURNER

Click on the start button on the software (fig 59)



The Gas/Burner information box outlined in orange will now have changed from reading 'Gas off' to 'Press button to ignite flame' (fig 60). Locate the Start Test button situated on the left of the burner housing - it will be flashing blue (fig 61).





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Depress the button and the buner will ignite, very briefly TestWise will show 'Waiting for flame'. A clicking sound will be heard whilst the button is being depressed & will stop once the finger is drawn away.

The burner will automatically move from its Start Position (fig 62) backwards to the Ignite Position (fig 63) and 'Moving to Ignition' will flash up on TestWise.

Once lit, the burner will return to the vertical position to pre-heat for 2 minutes (fig 64)

(NB This pre-heat time may be used on the first test to adjust the flame height but it must be ensured that the flame height measure is in the vertical position to do this and the operator has the skill to adjust the height correctly in the time allowed).

On TestWise, the count down will show in the burner status box which will now have turned from having an orange outline to having a blue outline (fig 65).

If Preheat is not required then simply click on the Skip icon to go to the next stage - Flame Application.

Fig 62 Start position



Fig 63 Ignition position

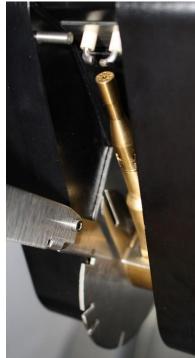


Fig 64 Preheat position



Fig 65

Specimen		10		First				
1 /6 Length	ו	<b>B</b>	taip	01:55	0			
e Application Time	10 8				Table 2: Convertal Property			
er of Joins	0 33 deg				Sin Lamp			
e 1	40 ± 2 mm 25 ± 2 mm						_	
	14 I 7 mm		-	1. 1.				
		520 0.0					Skip	
		520 0.0					200	
		370 0.0	27					
			-					
		220 0.0	· 💽 🛶		Carriage Switch	Preheating Burner	F	<b>k</b>
					4-0			~ ^
		-		en replicat		01:55		· · · · · · · · · · · · · · · · · · ·

## FLAME APPLICATION

Once preheated (or skipped), the burner will move to the Flame Application position (fig 66) required and apply the flame for the required amount of time as stated in the standard e.g 10 seconds. Once the flame application time has elapsed the flame will cease to be ignited and return its vertical resting position (fig 67).





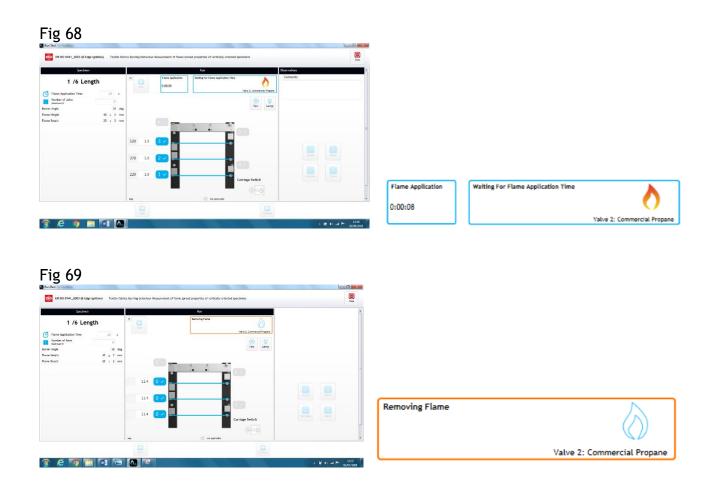




On TestWise - the Burner Status box will show the flame application timer countdown and show 'Waiting for flame application time' status. (fig 68).

Once the time has elapsed the Burner Status box will read 'Removing Flame' and the outline will turn blue (fig 69).

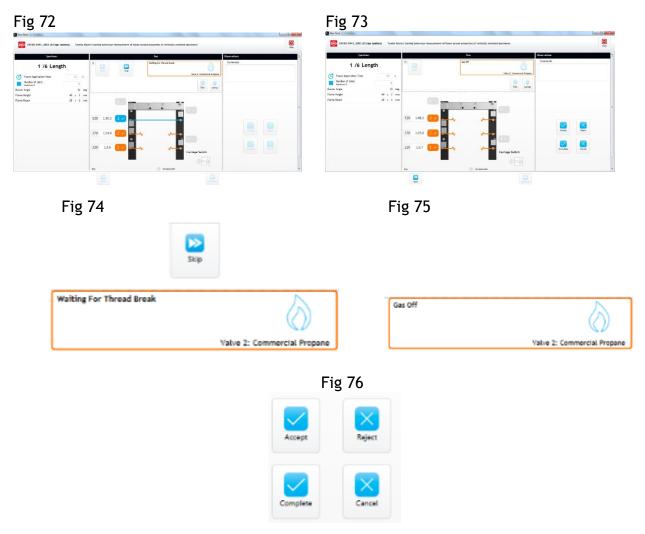
Also at the point of flame application the timers next to each thread line on the diagram will begin to count up. These will cease on the tripping of the timer wire when threads are burnt through or the test is stopped.



## **THREAD BREAK**

If the specimen has ignited, as the flame reaches & burns through each thread marker causing the timer trip wire to release, the corresponding timer will stop on the TestWise threading diagram. Also dipicted will be the thread showing as broken with both the box and thread turning from blue to orange (figs 70, 71, 72 & 73). 'Waiting for Thread Break' will also show until <u>all</u> threads have burnt through.





Once all threads have burnt through, the Burner Status box will change from stating 'Waiting for thread break' to 'Gas off' resting mode (figs 74 & 75).

Four blue icons will now appear on the right of the test screen showing Accept, Reject, Complete and Cancel (fig 76).

Accept - Accepts the current test specimen results and resets the test screen tor the next specimen (fig 77).

Reject - Rejects the test specimen and resets the test screen keeping the same specimen number (fig 78).

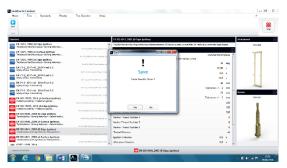
Complete - (Figs 79 - 84) Allows the operator to complete the test any time before the specified number of samples have been tested, returns to the main Test page and displays centrally the 'Save' box.

Prompting the operator to 'Save results now?' - 'Yes' will save the results which can then be found in the main Results page - the selector for which can be found at the top of screen. 'No' will simply not save the results data. Both options will result in the operator being returned to the main Test page.

Cancel - Cancels the test and returns to the main Test page (fig 85)

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Uname 2 / Classification 2 / Standardsmarketing 2 /	n in			International Sector Se			
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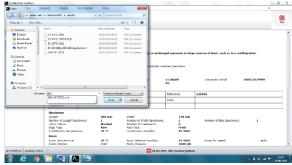
# Fig 79 Complete & Save (1)



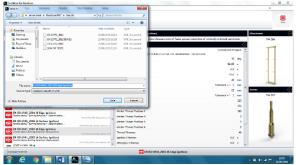
# Fig 81 Complete & Save (3)



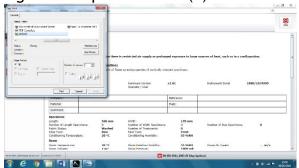
## Fig 83 Complete & Save (5)



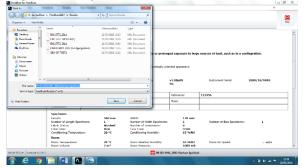
# Fig 80 Complete & Save (2)



# Fig 82 Complete & Save (4)



# Fig 84 Complete & Save (6)



## Fig 85 Cancel

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100 /040 2000	5 Corporation (	mi Comana Ta CC					EN 150 6841 2023 8	Lidea Instituci		

## SAVING COMPLETED TEST RESULTS

When all specimens have been tested the operator will be automatically returned to the main Test page where the 'Save' box will show centrally asking the operator to 'Save now?' giving the option 'Yes' or 'No'.

Selecting 'No' will simply not save the results.

Selecting 'Yes' will allow the operator to save the results wherever they choose as an xml file.

Printing Results - To print results click on the Results tab at the top of the page and select the print icon.

Results can also be Opened & Saved using this Results Menu selection method should the operator wish.

## **TEST RESULTS PAGE**

The Results page is found on the ribbon at the top of the page between the Standards & Set Up pages. To access this simply click on the tab and the results page will appear.

If TestWise has just been opened only the left Recent Results column will be populated and the right side blank (fig 86) - If software is newly installed all fields will be blank (fig 87). If a test(s) have been completed in the current session then the most recent test results will show on the remaining three-quarters of the page (fig 88).

Select the results required by highlighting the required test results found in Recent Results, click once and a box will appear in the centre of the test results page area asking if the selected results are required to be opened or double click on the highlighted results and the test result sheet will appear to the right of the Recent Results box (fig 88).

Results can be saved or printed by selecting the save or print icon adjacent to the blue 'Open' selector on the top left of the screen.



TestWise for FlexiBurn Home Test Standa	erds Results	Test Chamber	Setup						
	eros Results	lest Chamber	Setup						
Cgan Save Print									Stop
Results									Stop
econt Results		es He	۹ľ						
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EN ISO 6941_2003 (B-Edge Ignit	FlexiBurn Resu								
EN ISO 6941_2003 (B-Ed) DI ISO 6941_2003 IB-Edge Ignit	Results may not app	ly to situations	where there is a	restricted air supply or prolong	ed exposi	ure to large	sources of heat, such as in a cor	aflagration.	
EN 13772_2011SEW(1)	Standard: EN ISO 69	41_2003 (B-Ed	lge Ignition)						
JH-EN ISO 6941_2003 (Si Di ISO 6941_2003 (Surface Ign)	Textile fabrics-Burning	behaviour-Meas	urement of flame	spread properties of vertically orie	nted specir	mens			
EN 13772_2011 EN 13772_2011	Test Initiated: 12:15:4								
EN 13772-2011	Software Version Boom Location	1.0.13.0	)		v1.01 Jimmy		Instrument Serial	1880/18/9999	
( II )					,				
	Company:	James Heal			Reference	e:	JH1		
	Material:	100 % Cottor	1		Mass:		150 g/m²		
	Comment:	Treated							
	Specimens								
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	Edge Type: Conditioning Temperal	100	Raw 20 °C	Face Type: Conditioning Humidity:		Front 65 %RH			
	Room		10 0						
	Room Temperature:		20 °C	Room Relative Humidity:		55 %RH	Room Air Speed:	m/s	
	Room Volume:		7 m <sup>3</sup>	Room Pressure:		1000 mb	The second second		

## **TEST CHAMBER PAGE**

The test chamber paramaters are set to a default setting however they can be set to any parameters by simply clicking in the box and entering the required parameters.

Fans & lamps may be attached as ancillary devices in the corresponding sockets at the back of the frame.

They can be switced on and off here within the Test Chamber Menu (fig 89), and on the Settings Menu page under 'Ancillary Equipment' and also on the live Test Pages.

Home     Test     Standards     Results     Test Chamber     Setup       Imp Operation     Imp Operator / User     Imp Operator / User     Imp Operator / User       Imp Operator / User     Imp Operator / User     Imp Operator / User       Imp Operator / User     Imp Operator / User     Imp Operator / User       Imp Operator / User     Imp Operator / User     Imp Operator / User       Imp Operator / User     Imp Operator / User     Imp Operator / User
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erator / User  Room Temperature 20 °C
Room Temperature 20 °C
Soom Relative Humidity 55 %RH
Roam Air Speed     O m/s
Room Volume 7 m <sup>3</sup>
Room Pressure     1000 mb
20 NORM PLESSING 100 ND

## **SETUP PAGE**

The Setup Menu (fig 90) allows for the operator to move the burner manually, change some parameters, add test sheet information and attach ancillary equipment. Engineers also use this page to calibrate the burner angle settings.

Selecting 'Settings' at the top left of the page will show a box centrally on the page which opens in the 'Results' sub page (fig 91). This page allows the operator to state what details will be displayed on the test results page including the addition of a page header image.

Select the 'General' sub page and Communication Port can be selected, available text language chosen & a Statement section where comments can be placed which will appear on the final test results sheet.

The Burner Position is set here. This page is needed when setting the burner & flame position as each button when selected manually will take the burner to the selected position and thus allow the operator to set the carriage at the correct position.

The Home button will allow the apparatus to reset & take the burner to its resting/start position.

The Ignition & 0° buttons are used when setting the flame height

There are two jog buttons - one to move the burner up & one for down.

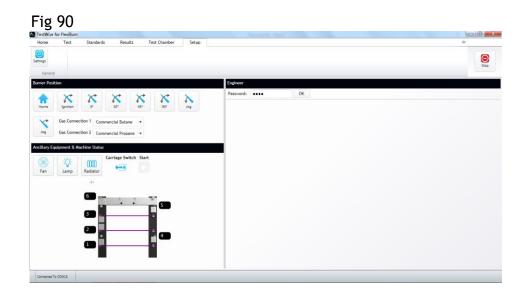
Also found here are the Gas Connection Information Selectors which relate to which gas type is attached to which connector at the back of the apparatus.

The Ancillary Equipment box is where the lamp, fan & radiator peripherals are enabled.

The right hand portion of the screen is blank and for used use by the engineer and is password protected.

### Thread sensor check

To determine if the thread sensors are working. Depress the thread sensor wires on the frame if they are working correctly the thread line will show purple (Fig 90).





Options		
👩 Options		
Results General	Result Titles Company Reference Material	J Heal JH1 100% Cotton
	Mass Comment Print Options Page Header Ir	150 g/m <sup>2</sup> Treated
	Use Page H	leader Image
		OK Cancel

# **STANDARDS PAGE**

The Standards Menu (fig 92) is used to create new and ammend existing tests to form new ones.

estWise for FlexiBurn Iome Test Standards Results	Test Chamber Setup	The second se			<u> </u>
Internet Standards Results	Test Chamber Setup				Stop
Standard					
ndard		EN ISO 6941_2003 (B-Edge Ignition)			Attachment
EN 1625_1999 (A-Surface Ignition) Textiles and textile products - Burning behaviour	*	Textile fabrics-Burning behaviour-Measurement of flame spread properties of verti	ically oriented speci	mens	794-586
EN 1625 1999 (B-Edge Ignition)	EN 1625_1999 (A-Surface Ignition).xml	Test Information		$\Diamond$	
EN 7025_1999 (0-Coge right Coll) Textiles and textile products - Burning behaviour EN 71-2_2011+A1_2014 Test 5.2	EN 1625_1999 (B-Edge Ignition).xml	Gas  Gas  Insure Gas IS SECURELY CONNECTED VIA THE APPROPRIATE REGULATOR	Commercial P	ropane 🔺	
Safety of toys. Flammability	EN 71-2_2011+A1_2014 Test 5.2.XWL	Burner Angle	30	) deg	
EN 71-2_2011+A1_2014 Test 5.3 Safety of tays. Flammability		Burner Pre Heat Time	02:00	) s	
EN 71-2_2011+A1_2014 Test 5.4	EN 71-2_2011+A1_2014 Test 5.3.XWL	Start Test Delay Time	0.0	) s	_
Safety of toys. Flammability	EN 71-2_2011+A1_2014 Test 5.4.XWL	Flame Application Time	10.0	) s	
EN 71-2_2011+A1_2014 Test 5.5 Safety of tays. Flammability		Flame Height	40	) mm	
EN ISO 15025 2016 (A-Surface Ignition)	EN 71-2_2011+A1_2014 Test 5.5.XWL		Tolerance +/- 2	2 mm	in the second se
Protective clothing - Protection against	EN ISO 15025_2016 (A-Surface Ignition).xml	Flame Reach	25	i mm	Burner
EN ISO 15025_2016 (B-Edge Ignition)	en de receptere (e ser les gincen).com		Tolerance +/- 2	2 mm	794-597
Protective clothing - Protection against	EN ISO 15025_2016 (8-Edge Ignition).xml	Marker Thread Position 1		220	Ĩ
EN ISO 6940_2004 (B-Edge Ignition) Textile fabrics - Burning behaviour - Determination		Marker Thread Position 2		370	L L
EN ISO 6940_2004 (A-Surface Ignition)	EN ISO 6940_2004 (Edge Ignition).xml	Marker Thread Position 3		520	
Textile fabrics - Burning behaviour - Determination	EN ISO 6940_2004 (Surface Ignition).xml	Marker Thread Position 4		0	
EN ISO 6941_2003 (B-Edge Ignition) Textile fabrics-Burning behaviour-Measurement	=	Marker Thread Position 5		0	
EN ISO 6941_2003 (A-Surface Ignition)	EN ISO 6941_2003 (Edge Ignition).XWL	Marker Thread Position 6		0	1
Textile fabrics-Burning behaviour-Measurement	EN ISO 6941_2003 (Surface Ignition).XWL	Thread Fineness		46	
GOST 11209_2014 Fabrics for protective clothing - Determination		Ignition Criterion	0.0	) s	
,	G05T 11209_2014.xml	Afterglow Criterion	0.0	) s 🖕	

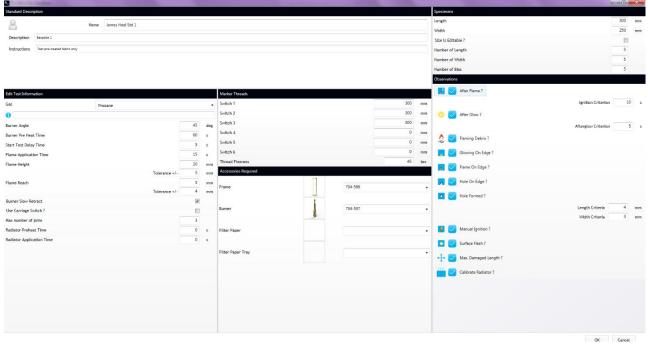
## **NEW STANDARD**

To create a completely new test simply select 'New' icon at the top left of the screen and populate the test parameters page as required - where necessary typing over the default settings (fig 93) & click OK.

The 'Save As' box will then appear with the details placed in the 'Name' box on the Standard Description page in the 'File Name' box (fig 94).

This will then return the operator to the Standards Menu at the top of which can be found the newly created standard highlighted grey (fig 95).

# Fig 93



# Fig 94

Save As					X	۵
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Desktop 🖈	BS 5438_1976 Test 2.XML	05/07/2018 10:32	XML Document	4 KB	ted textile fabrics and fabric assemblies subjected to a small igniting flame. Flame Spread Time	794-582
- Downloads 🖈 📑	BS 5438_1976 Test 3 Short Specimens.XML	05/07/2018 10:32	XML Document	4 KB	$\odot$	
🗄 Documents 🖈 📄	BS 5438_1976 Test 3.XML	05/07/2018 10:32	XML Document	4 KB	Commercial Butane	-001
📰 Pictures 🛷 📄	BS 5438_1989 Test 2A (Edge Ignition).XML	05/07/2018 10:32	XML Document	4 KB	90 deg	
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	BS 5867-2_2008 Type A.XML	05/07/2018 10:32	XML Document	4 KB	0.0 s	
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olarbenscogger	BS 5867-2_2008 Type C.xml	05/07/2018 10:32	XML Document	4 KB	45 mm	111
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BS 5867-2_2008 Type C				er Thread Position 5	600	
Si. Fabrics for curtains, drapes and win Part	dow blinds		Mark	er Thread Position 6	75	
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SI, Materials and material assemblies u	sed in	85 62491982 Pa		d Fineness		
<ul> <li>BS 7837_1996 (2015)</li> </ul>		85 6249_1982 Pa	Igniti	on Criterion	1.0 s	<b>A</b>
SI. Specification for flammability perfo	rmance	85 7837_1996 (20	After	glow Criterion	1.0 s	
	n)			umber of joins	0	
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EN 1101_1996 (B-Edge Ignitic Textile and textile products - Burnin	ition)			arriage Switch ?		
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BS 540, 1976 Tet. 3.       Rane Application Time       0.0       s         Rane Application Time       0.0       s         So 54.30, 1976 Tet. 3.       Gas particity of verticity o	BS 5438_1976 Test 3 Short Specimens Flammability of vertically oriented textile		Start Test Delay Time	0.0 s	L L
B 543 (1995 Test 2A (Edge brition)     Take regin     I mine		85 5438_1976 Test 3 Short Specimens.XWL	Flame Application Time	10.0 s	
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Flammability of traiting fabric with gabric wit	BS 5438 1989 Test 2A (Surface Ignition)	85 5438_1989 Test 2A (Edge Ignition).XWL	Flame Reach	0 mm	
Plannetaria of prioritics and prio	Flammability of textile fabrics when subjected	BS 5438_1989 Test 2A (Surface Ignition).XWL		Tolerance +/- 0 mm	
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Fabric for cutating, stoppes and window binds:     Marker Thread Position 5     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 586.7.2,008 Type C     Binds 2,000 Type C     0       BS 750.7.109 C45 deg inglitoh     0     0       Set Type C45 deg inglitoh     0     0       EN 110 (2,0016 (A Surface [pintioh])     Binds 2,000 Type C4     Binds 2,000 Type C4       EN 110 (2,0016 (A Surface [pintioh])     Binds 2,000 Type C4     Binds 2,000 Type C4       EN 110 (2,0016 (A Surface [pintioh])     Binds 2,000 Type C4     Binds 2,000 Type C4       EN 110 (2,0016 (A Surface [pintioh])     Binds 2,000 Type C4     Binds 2,000 Type C4       EN 110 (2,0016 (A Surface [pintioh])     Binds 2,000 Type C4     Binds 2,000 Type C4       EN 110 (2,0016 (A Surface [pintioh])     Binds 2,000 Type C4     Binds 2,000 Type C4 </td <td></td> <td>85 5867-2_2008 Type A.XWL</td> <td>Marker Thread Position 4</td> <td>0</td> <td></td>		85 5867-2_2008 Type A.XWL	Marker Thread Position 4	0	
BS 58-7-2.008 Type C     Marker Thread Doubtion 6     0       BS 68-7-2.008 Type C     Thread Theoles Social So	Fabrics for curtains, drapes and window blinds		Marker Thread Position 5	0	
rest Bit 300 2,2005 years Bit 200 2,2005 years Sector function of meterial catentification and meterial catentification and the sector of points Sector function of prime determined Bit 20,200 years and the sector of points Sector function of prime determined Bit 20,200 years and the sector of points EN 1101 2,2006 (A. Surface Liphtion) EN 1102 2,2006 (A. Su		85 5867-2_2008 Type 8.xml	Marker Thread Position 6	0	
B 5624_1982 Part 1     [mition Criterion     1.0     s       Metrinic on metrini camendici unal in     B 100 - 2005 (wife in	Fabrics for curtains, drapes and window blinds Part.		Thread Fineness	46	
Materialization material same miles used in     After glow Criterion     0.0 s       SP32D_1096 (2015)     Nax number of joins     0       Sector function for flow modelity performance     10 x20, 190 (40 cm		BS 5867-2_2008 Type C.xml	Ignition Criterion	1.0 s	
B5 7837_1996 (2015)     Max number of joins     0       Specification for fammability professment.     B1 7827_1996 (2015)     Sumer Slow Retract     Image: Specification for fammability professment.       Ex 1100_1290 (8-Edge ignition)     Ex 1100_1790 (8-Edge ignition)     Use Carriage Switch ?     Image: Switch ?       Ex 1100_22016 (A-Surface Ignition)     Ex 1100_1790 (8-Edge ignition)     Radiator Application Time     0.0 s       Ex 1100_22016 (A-Edge ignition)     Ex 1100_22016 (A-Edge ignition)     0.0 s       Ex 1100_22016 (B-Edge ignition)     Ex 1100_22016 (A-Edge ignition)     0.0 s	Materials and material assemblies used in	85 6249_1982 Part 1.XWL	Afterglow Criterion	0.0 s	
EN 1101_1996 (B-Edge Ignition) Tectile and tectile products - Suming behaviour EN 1102_2016 (A-Surface Ignition) EN	BS 7837_1996 (2015)		Max number of joins	0	
Testile and testile products - Suming behaviour Use Carriage Switch ? Use Carriage Sw		85 7837_1996 (2015).XML	Burner Slow Retract	$\checkmark$	
EN 1102_2016 (A.Surface (pintion)     Radiator Application Time     0.0 s       Facilization Table (Package (pintion))     Radiator Application Time     0.0 s       EN 1102_2016 (B.Edge (pintion))     Radiator Application Time     0.0 s	Textile and textile products - Burning behaviour	EN 1101 1006 /B.Edan Institut) and	Use Carriage Switch ?		
Di 1102_2016 (B-Edge Ignition) 0.0 s	EN 1102_2016 (A-Surface Ignition)	EN TIOL_1996 (Breage Ignition).30%	Radiator Application Time	0.0 s	
Textiles and textile products - Burning behaviour.		EN 1102_2016 (A-Surface Ignition).XWL	Radiator Preheat Time	0.0 s	
	EN 1102_2016 (B-Edge Ignition) Textiles and textile products - Burning behaviour	FN 1102 2016 (B-Fdee Issifive) XXV			

Results can be saved or printed by selecting the save or print icon adjacent to the blue 'Open' selector on the top left of the screen.

## **EDIT STANDARD**

To edit any <u>user created</u> standard - highlight the required test (fig 96), select the 'Edit' button - the Standard Test Parameters page (fig 97) will appear on screen & change the parameters as required.

Fig 96

ew Edit Copy				Stop
Standard		James Heal Test 1		ttachment
James Heal Test 1		Fabric		
j Fabric	James Heal Test 1.300.	Test Information		
BS 5438_1976 Test 1 Flammability of vertically oriented textile		Gas	Commercial Butane	lumer
<ul> <li>BS 5438 1976 Test 2</li> </ul>	BS 5438_1976 Test 1.XWL	Burner Angle	90 deg	794-597
Flammability of vertically oriented textile	BS 5438_1976 Test 2.XWL	Burner Pre Heat Time	02:00 s	Ĩ
BS 5438_1976 Test 3 Short Specimens Flammability of vertically oriented textile		Start Test Delay Time	0.0 s	
	85 5438_1976 Test 3 Short Specimens.XWL	Flame Application Time	10.0 s	
BS 5438_1976 Test 3 Flammability of vertically oriented textile	BS 5438_1976 Test 3.XWL	Flame Height	40 mm	8
BS 5438_1989 Test 2A (Edge Ignition) Flammability of textile fabrics when subjected			Tolerance +/- 2 mm	
	85 5438_1989 Test 2A (Edge Ignition).XWL	Flame Reach	0 mm	
BS 5438_1989 Test 2A (Surface Ignition) Flammability of textile fabrics when subjected	85 5438_1989 Test 2A (Surface Ignition).XML		Tolerance +/- 0 mm	
BS 5722_1984 Test 3 Flammability performance of fabrics and fabric		Marker Thread Position 1	0	
BS 5867-2_2008 Type A	BS 5722_1984 Test 3.XML	Marker Thread Position 2	0	
Fabrics for curtains, drapes and window blinds		Marker Thread Position 3	0	
BS 5867-2_2008 Type B	85 5867-2_2008 Type A.XWL	Marker Thread Position 4	0	
Fabrics for curtains, drapes and window blinds Patr		Marker Thread Position 5	0	
	BS 5867-2_2008 Type B.aml	Marker Thread Position 6	0	
BS 5867-2_2008 Type C Fabrics for curtains, drapes and window blinds Part		Thread Fineness	46	
	85 5867-2_2008 Type C.aml	Ignition Criterion	1.0 s	
BS 6249_1982 Part 1 Materials and material assemblies used in	85 6249 .1982 Part 1.XML	Afterglow Criterion	0.0 s	
BS 7837_1996 (2015) Specification for flammability performance		Max number of joins	0	
	BS 7837_1996 (2015).XML	Burner Slow Retract	$\checkmark$	
EN 1101_1996 (B-Edge Ignition) Textile and textile products - Burning behaviour	EN 1101_1996 (B-Edge Ignition).xml	Use Carriage Switch ?	-	
EN 1102_2016 (A-Surface Ignition) Textiles and textile products - Burning behaviour	are transmission to some significant	Radiator Application Time	0.0 s	
	EN 1102_2016 (A-Surface Ignition).JOWL	Radiator Preheat Time	0.0 s	
EN 1102_2016 (B-Edge Ignition) Textiles and textile products - Burning behaviour	EN 1102 2016 (B-Edge Janifron) XXX			

## Fig 97

Standard Descri	ption										Specimens		
Q	N	ame	Name								Length	200	mm
											Width	160	mm
Description	Description										Size Is Editable ?	<b>V</b>	
Instructions											Number of Length	3	
											Number of Width	3	
Edit Test Inform	ation					Marker Threads					Number of Bias	0	
Gas		Comn	nercial Butane		•	Switch 1			0 n	m	Observations		
0						Switch 2			0 n	nm	After Flame ?		<b>^</b>
Burner Angle				90	deg	Switch 3			0 m	nm	Ignition Criterion	1	s
Burner Pre Heat	t Time			120	s	Switch 4			0 m	m		1	2
Start Test Delay	Time		[	0	s	Switch 5			0 m	nm	O After Glow ?		
Flame Applicati	on Time			10	s	Switch 6			0 m	nm	🛕 🔽 Flaming Debris ?		
Flame Height				40	mm	Thread Fineness		4	16 te	ex			
			Tolerance +/-	2	mm	Accessories Required					Glowing On Edge ?		=
Flame Reach				0	mm	Frame			•	Â	Flame On Edge ?		
			Tolerance +/-	0	mm	Tune			•				
Burner Slow Re	tract			<b>v</b>							Hole On Edge ?		
Use Carriage Sv	vitch ?					Burner	794-597		•	=	Hole Formed ?		
Max number of	joins			0									
Radiator Prehea	at Time			0	s	Filter Paper			•		Manual Ignition ?		
Radiator Applica	ation Time			0	s						Surface Flash ?		
						Filter Paper Tray			•	•	* •		-
											ОК	Cancel	ι I

### **COPY STANDARD**

If a standard is to be produced similar to an existing one - highlight the existing standard required & select the 'Copy' button. The 'Enter Standard Description' box will appear centrally where the Name & Description can be edited (fig 98). Select OK and the copy will be saved and appear at the top of the Standard with the corresponding test details on the left (fig 99). The copied standard can now be selected & edited.

TestWise for FlexiBurn					
Home Test Standards Results	Test Chamber Set	up			۵
lew Edit Copy					Stop
Standard					
andard			0 6941_2003 (B-Edge Ignition)		Attachment
EN 1625_1999 (A-Surface Ignition) Textiles and textile products - Burning behaviour	EN 1625_1999 (A-Surface Ignitic		le fabrics-Burning behaviour-Measurement of flame spread propertie	s of vertically oriented specimens	794-586
EN 1625_1999 (B-Edge Ignition)		Test	Information	٢	Sec. 30
Textiles and textile products - Burning behaviour	EN 1625_1999 (8-Edge Ignitic	i).xml	ENSURE GAS IS SECURELY CONNECTED VIA THE APPROPRIATE REGULA	Commercial Propane	
EN 71-2_2011+A1_2014 Test 5.2 Safety of toys. Flammability	C			30 deg	
EN 71-2_2011+A1_2014 Test 5.3	EN 71-2_2011+A1_2014 Te	Enter Stand	ard Description	02:00 s	
Safety of toys. Flammability	EN 71-2_2011+A1_2014 Te	Nam	e EN ISO 6941 2003 (B-Edge Ignition)	0.0 s	
EN 71-2_2011+A1_2014 Test 5.4 Safety of toys. Flammability		Han	e chiso osti_toos (a cage ignition)	10.0 s	
	EN 71-2_2011+A1_2014 Te				
EN 71-2_2011+A1_2014 Test 5.5 Safety of tays. Flammability	EN 71-2_2011+A1_2014 Te	Descriptio	n Textile fabrics-Burning behaviour-Measurement of flame spread properties of vertically oriented specimens		
EN ISO 15025_2016 (A-Surface Ignition)					Burner
Protective clothing - Protection against	EN ISO 15025_2016 (A-Surface Ig		OK Cancel		794-597
EN ISO 15025_2016 (B-Edge Ignition) Protective clothing - Protection against	U			Tolerance +/- 2 mm	/94-39/
EN ISO 6940 2004 (B-Edge Ignition)	EN ISO 15025_2016 (8-Edge Ignitit		er Thread Position 1	220	1
Pextile fabrics - Burning behaviour - Determination	EN ISO 6940_2004 (Edge Ignitic	) vml	er Thread Position 2	370	
EN ISO 6940_2004 (A-Surface Ignition) Textile fabrics - Burning behaviour - Determination			er Thread Position 3	520	
	EN ISO 6940_2004 (Surface Ignitic	n)xomi	er Thread Position 4	0	1
EN ISO 6941_2003 (B-Edge Ignition) Textile fabrics-Burning behaviour-Measurement			er Thread Position 5	0	-
EN ISO 6941_2003 (A-Surface Ignition)	EN ISO 6941_2003 (Edge Ignitio	Mark	er Thread Position 6	0	
Center Contraction Contractic Contracti	EN ISO 6941_2003 (Surface Ignitic	).XWL Thre	ad Fineness	46	
GOST 11209_2014 Fabrics for protective clothing - Determination		Ignit	ion Criterion	0.0 s	
	G05T 11209_20	4.xml 🚽 Afte	glow Criterion	0.0 s 🖕	

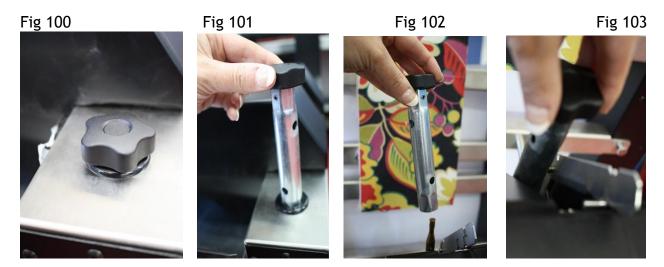
Fig 99

TestWise for FlexiBurn Home Test Standards Results	Test Chamber Setup			
Bi di Copy	rescentinou setap			Stop
Standard		SEW TEST		Attachment
SEW TEST Textile fabrics-Burning behaviour-Measurement			tically oriented specimens	794-586
EN ISO 6941 2003 (B-Edge Ignition)	SEW TEST.XWL	Test Information		$\odot$
Textile fabrics-Burning behaviour-Measurement	EN ISO 6941_2003 (8-Edge Ignition).XWL	Gas	Commercial Propane	· •
BS 5438_1976 Test 1 SL. Flammability of vertically oriented textile	85 5438_1976 Test 1.XML	ENSURE GAS IS SECURELY CONNECTED VIA THE APPROPRIATE REGULATOR Burner Angle	30 deg	
BS 5438_1976 Test 2 Flammability of vertically oriented textile	03 9430_1770 Test 1.AML	Burner Pre Heat Time	02:00 s	
	85 5438_1976 Test 2.XML	Start Test Delay Time	0.0 s	
BS 5438_1976 Test 3 Short Specimens Flammability of vertically oriented textile	85 5438_1976 Test 3 Short Specimens.XWL	Flame Application Time	10.0 s	
BS 5438_1976 Test 3		Flame Height	40 mm	
	85 5438_1976 Test 3.XML		Tolerance +/- 2 mm	=
BS 5438_1989 Test 2A (Edge Ignition) SL, Flammability of textile fabrics when subjected	BS 5438_1989 Test 2A (Edge Ignition).XML	Flame Reach	25 mm	
BS 5438_1989 Test 2A (Surface Ignition) Flammability of textile fabrics when subjected			Tolerance +/- 2 mm	794-597
	85 5438_1989 Test 2A (Surface Ignition).XML	Marker Thread Position 1	220	
BS 5722_1984 Test 3 Flammability performance of fabrics and fabric	85 5722_1984 Test 3.XML	Marker Thread Position 2	370	
BS 5867-2_2008 Type A		Marker Thread Position 3	520	
Si. Fabrics for curtains, drapes and window blinds	85 5867-2_2008 Type A.XML	Marker Thread Position 4	0	
BS 5867-2_2008 Type B		Marker Thread Position 5	C	
Si. Fabrics for curtains, drapes and window blinds Part	65 5867-2_2008 Type 8.xml	Marker Thread Position 6	0	
BS 5867-2_2008 Type C		Thread Fineness	46 0.0 s	
Si, Fabrics for curtains, drapes and window blinds	85 5867-2_2008 Type C.xml	Ignition Criterion	0.0 s	
<ul> <li>BS 6249_1982 Part 1</li> </ul>	*	Afterglow Criterion	0.0 s	<b>*</b>

# **CHANGING THE BURNER**

To change the burner take out the burner tool from its housing on the front left of the frame place fully over the burner and unscrew to loosen (figs 100 to 103). Once loosened, remove tool and unscrew the remainder of the way by hand and lift being careful not to loose rubber 'o' ring from round the bottom of the burner.

Replace the new burner by hand ensuring the rubber 'o' ring is placed loosely around the bottom of the burner, screw in by hand & tighten using the burner tool ensuring not to use too much force & over tighten.



# \*\*\*CAUTION!\*\*\*

# ALWAYS CHANGE THE BURNER WHEN COLD

THE FLEXIBURN PRODUCES A NAKED FLAME: EXCERSISE CAUTION WHEN OPERATING THE APPARATUS TAKING ALL REASONABLE MEASURES TO AVOID INJURY - ENSURE NO LOOSE CLOTHING IS WORN WHEN OPERATING & LONG HAIR IS TIED BACK.

DO NOT TOUCH THE BURNER AT ANY TIME WHILST THE FLAME IS LIT OR IMMEDIATELY AFTER USE.

WHEN CHANGING THE BURNER ALWAYS ALLOW ENOUGH TIME FOR IT TO BECOME COMPLETELY COLD BEFORE CHANGING IF IT HAS RECENTLY BEEN LIT.

# **TOY TESTING WITH FLEXIBURN**

The Toy Cage and 45 degree Test Frame have been specially developed for testing toys according to EN 71-2 Safety of toys - Flammability. These are available as optional accessories and are supplied complete with CD containing the appropriate software. Instructions for installing software is supplied with the CD.

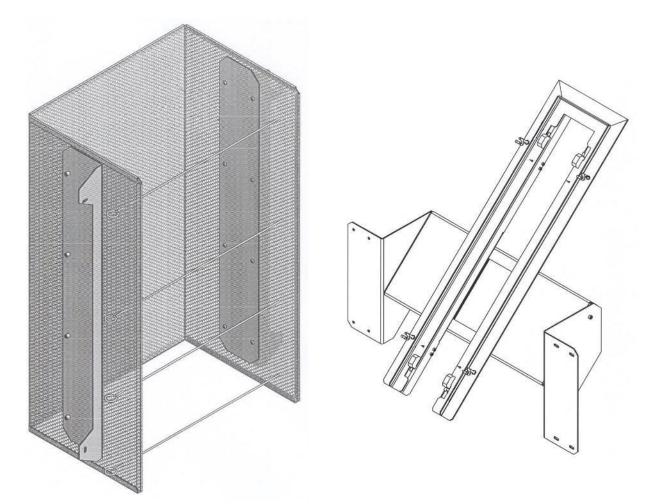


Fig 104. Toy Cage with skewers

Fig 105. 45 degree Test Frame

EN71-2 describes five (5) test methods: Tests 5.2, 5.3 and 5.5 use the Toy Cage, while Test 5.4 employs the 45 degree Test Frame. Test 5.6, toys with a maximum dimension greater than 520mm, cannot be carried out using FlexiBurn.

Tests carried out in the Toy Cage are ignitability tests. Test 5.4, using the 45 degree Test Frame, is used to measure the rate of flame spread and utilises two (2) marker trip threads linked to timing devices to accomplish this.

The 45 degree Test Frame is fixed with eight (8) screws and the Toy Cage is fixed with just four (4) screws.

Before fitting either the Toy Cage or 45 degree Test Frame, all the support struts must be removed to provide space for the toy accessories.



### Health & Safety Warning

Due to the bulk and weight of the Toy Cage and 45 degree Test Frame, they must be installed and uninstalled by two (2) people. The toy testing accessories are too heavy for one (1) person. Attempting to fit them alone is likely to result in damage to person and/or instrument.



### Figure 106: Fitting the Toy Cage (above)

To fit the Toy Cage into the FlexiBurn:

- Remove all of the support struts.
- Pull the burner back as far as it will go and move to the "down" position.
- Fold the flame height indicator scale down so that it is not damaged.
- Using two (2) people, one on either side of the FlexiBurn, lift the Toy Cage over the burner arm and fit the four (4) holding screws, as shown in Figure 106.
- Secure the toy using one (1) or more skewers.
- Move the burner into the test position and reposition the toy if required.
- The burner arm can be in the "up" or "down" position, whichever is the more convenient.



- Remove all of the support struts.
- Pull the burner back as far as it will go and move to the "down" position.
- Fold the flame height indicator scale down so that it is not damaged.
- Using two (2) people, one on either side of the FlexiBurn, lift the 45 degree Test Frame over the burner arm and fit the eight (8) holding screws, as shown in 107.

Figure 107: Fitting the 45 degree Test Frame (above)

### **MARKER THREADS FOR TEST 5.4**

Before setting up the marker threads, ensure the specimen is secured on the four (4) pins and under the U-shaped plate. Apply only slight tension to the specimen to ensure it is straight.

Two (2) marker threads are used to measure the rate of flame spread. One at 50mm from the lower edge of the specimen and the other 550mm from the lower edge of the specimen. These are linked to MT1 and MT2 timers.

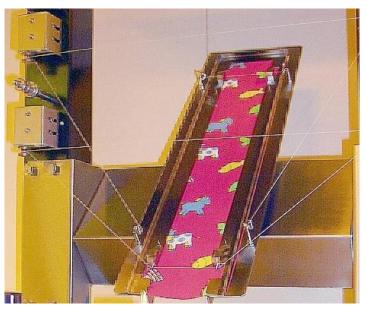


Figure 108: Marker thread arrangements for Test 5.4

## **CARRYING OUT THE TOY TESTS**

EN71-2 describes five (5) test methods: Tests 5.2, 5.3 and 5.5 use the Toy Cage, while Test 5.4 employs the 45 degree Test Frame. Test 5.6, toys with a maximum dimension greater than 520mm, cannot be carried out using FlexiBurn.

Test	Toy Cage or 45 degree Test Frame	Flame height (mm)	Flame application time (s)	Burner orientation (degrees)	Distance from burner tip to specimen (mm)
5.2	Cage	20 ± 2	2 ± 0.5	0 (vertical)	10 approx.
5.3	Cage	20 ± 2	5 ± 0.5	45	5 approx.
5.5	Cage	20 ± 2	3 ± 0.5	45	5 approx.
5.4	Frame	40 ± 3	10 ± 1	0 (vertical)	30 ± 2

Table 1: Some Toy Testing parameters

When the burner is to be applied at 45 degrees (Tests 5.3 and 5.5), push the burner **forward** and set the correct distance between the burner tip and the specimen. Ignite the gas and press START to begin the test. The burner preheat time starts, after which the burner moves to 45 degrees and applies the flame to the specimen for the specified duration. Make the required observations.

When the burner is to be applied in the vertical position (zero degrees) (Tests 5.2 and 5.4), the test procedure is slightly different to above. Set the correct distance between the burner tip and the specimen. Retract the burner **backward**, ignite the gas and press START to begin the test. The burner preheat time starts. You must now re-enter the Test Chamber and push the burner forward to the application position. At the same time the flame application timer will start. Remove yourself immediately from the room and make the required observations. If you are performing Test 5.4, the marker thread timers will operate.

# LIST OF STANDARDS

The following is a list of standards stored in TestWise as part of the FlexiBurn package. Other standards can be added on a bespoke basis by **James Heal** or the user create new or amend stored standards to suit their own needs. Any amendments to standards which affect the test procedure and with reference to the FlexiBurn apparatus can be sent via e-mail and uploaded to the TestWise software.

When a standard refers to a test as ~A, it means a surface test. When a standard refers to a test as ~B, it means an edge test.

Some tests may also refer to different size specimens, please ensure the correct specimen size is selected.

Some standards may have more than one (1) issue current. Please ensure you select the correct year of issue. TestWise can store an infinite amount of standards.

	FLEXIBURN STANDARDS	
STANDARD	STANDARD TITLE	GAS (NOT SUPPLIED)
BS 5438_1976 Test 1	Flammability of vertically oriented textile fabrics and fabric assemblies subjected to a small igniting flame. Minimum Ignition Time	Commercial Butane
BS 5438_1976 Test 2	Flammability of vertically oriented textile fabrics and fabric assemblies subjected to a small igniting flame. Limited Flame Spread	Commercial Butane
BS 5438_1976 Test 3 Short Specimens	Flammability of vertically oriented textile fabrics and fabric assemblies subjected to a small igniting flame. Flame Spread Time	Commercial Butane
BS 5438_1976 Test 3	Flammability of vertically oriented textile fabrics and fabric assemblies subjected to a small igniting flame. Flame Spread Time	Commercial Butane
BS 5438_1989 Test 2A (Edge Ignition)	Flammability of textile fabrics when subjected to a small igniting flame applied to the edge or surface of vertically oriented specimens. Limited flame spread	Commercial Butane

		<u> </u>
STANDARD	STANDARD TITLE	GAS (NOT SUPPLIED)
BS 5438_1989 Test 2A (Surface Ignition)	Flammability of textile fabrics when subjected to a small igniting flame applied to the edge or surface of vertically oriented specimens. Limited flame spread	Commercial Butane
BS 5722_1984 Test 3	Flammability performance of fabrics and fabric assemblies used in sleepwear and dressing gowns	Commercial Butane
BS 5867-2_2008 Type A	Fabrics for curtains, drapes and window blinds Part 2: Flammability requirements - Specification	Commercial Propane
BS 5867-2_2008 Type B	Fabrics for curtains, drapes and window blindsPart 2: Flammability requirements - Specification	Commercial Propane
BS 5867-2_2008 Type C	Fabrics for curtains, drapes and window blinds Part 2: Flammability requirements - Specification	Commercial Propane
BS 6249_1982 Part 1	Materials and material assemblies used in clothing for protection against heat and flame. Specification for flammability testing and performance.	Commercial Butane
BS 7837_1996 (2015)	Specification for flammability performance for textiles used in the construction of marquees and similar textile structures	Commercial Butane
EN 71-2_2011+A1_2014 Test 5.2	Safety of toys. Flammability	Commercial Propane
EN 71-2_2011+A1_2014 Test 5.3	Safety of toys. Flammability	Commercial Propane
EN 71-2_2011+A1_2014 Test 5.4	Safety of toys. Flammability	Commercial Propane
EN 71-2_2011+A1_2014 Test 5.5	Safety of toys. Flammability	Commercial Propane

STANDARD	STANDARD TITLE	GAS
		(NOT SUPPLIED)
EN 1101_1996 (A-Surface Ignition)	Textile and textile products - Burning behaviour - Curtains and drapes - Detailed procedure to determine the ignitability of vertically oriented specimens (small flame)	Commercial Propane
EN 1101_1996 (B-Edge Ignition)	Textile and textile products - Burning behaviour - Curtains and drapes - Detailed procedure to determine the ignitability of vertically oriented specimens (small flame)	Commercial Propane
EN 1102_2016 (A-Surface Ignition)	Textiles and textile products - Burning behaviour -Curtains and drapes - Detailed procedure to determine theflame spread of vertically oriented specimens	Commercial Propane
EN 1102_2016 (B-Edge Ignition)	Textiles and textile products - Burning behaviour - Curtains and drapes - Detailed procedure to determine the flame spread of vertically oriented specimens	Commercial Propane
EN 1103_2005	Textiles — Fabrics for apparel — Detailed procedure to determine the burning behaviour	Commercial Propane
EN 1624_1999 (A-Surface Ignition)	Textiles and textile products - Burning behaviour of industrial and technical textiles - Procedure to determine the flame spread of vertically oriented specimens	Commercial Propane
EN 1624_1999 (B-Edge Ignition)	Textiles and textile products - Burning behaviour of industrial and technical textiles - Procedure to determine the flame spread of vertically oriented specimens	Commercial Propane
EN 1625_1999 (A-Surface Ignition)	Textiles and textile products - Burning behaviour of industrial and technical textiles - Procedure to determine the ignitability of vertically oriented specimens	Commercial Propane
EN 1625_1999 (B-Edge Ignition)	Textiles and textile products - Burning behaviour of industrial and technical textiles - Procedure to determine the ignitability of vertically oriented specimens	Commercial Propane

STANDARD	STANDARD TITLE	GAS
		(NOT SUPPLIED)
EN 13772_2011	Textiles and textile products - Burning behaviour - Curtains and drapes - Measurement of flame spread of vertically oriented specimens with large ignition source	Commercial Propane
EN 14878_2007	Textiles - Burning behaviour of children's nightwear - Specification	Commercial Propane
EN ISO 6940_2004 (B- Edge Ignition)	Textile fabrics - Burning behaviour - Determination of ease of ignition of vertically oriented specimens	Commercial Propane
EN ISO 6940_2004 (A- Surface Ignition)	Textile fabrics - Burning behaviour - Determination of ease of ignition of vertically oriented specimens	Commercial Propane
EN ISO 6941_2003 (B- Edge Ignition)	Textile fabrics-Burning behaviour- Measurement of flame spread properties of vertically oriented specimens	Commercial Propane
EN ISO 6941_2003 (A- Surface Ignition)	Textile fabrics-Burning behaviour- Measurement of flame spread properties of vertically oriented specimens	Commercial Propane
EN ISO 15025_2016 (A- Surface Ignition)	Protective clothing - Protection against flame - Method of test for limited flame spread	Commercial Propane
EN ISO 15025_2016 (B- Edge Ignition)	Protective clothing - Protection against flame - Method of test for limited flame spread	Commercial Propane
GOST 11209_2014	Fabrics for protective clothing - Determination of fire resistance	Commercial Propane

## **GLOSSARY OF TERMS USED IN THE FLAMMABILITY TESTING OF TEXTILES**

For a more comprehensive list of terms and definitions used in the description of the burning behaviour of textiles and textile products see ISO 4880.

#### AFTERFLAME

Persistence of flaming of a material, under specified test conditions, after the ignition source has been removed.

#### AFTERFLAME TIME

DURATION OF FLAME

Length of time for which a material continues to flame, under specified test conditions, after the ignition source has been removed. Expressed in seconds.

#### AFTERGLOW

Persistence of glowing of a material after cessation of flaming, under specified test conditions, or, if no flaming occurs, after the ignition source has been removed.

#### AFTERGLOW TIME

DURATION OF AFTERGLOW Self-extinguishability (deprecated).

Self-extinguishing (deprecated).

Length of time for which a material continues to glow, under specified test conditions, after cessation of flaming or after the ignition source has been removed. Expressed in seconds.

BURN, intransitive verb Undergo combustion.

**BURNED AREA** 

That part of the damaged area of a material that has been destroyed by combustion or pyrolysis, under

specified test conditions. Expressed in square metres. (cf. damaged area).

COMBUSTION

Exothermic reaction of a combustible substance with an oxidiser, accompanied by flames and/or glowing and/or emission of smoke.

CHAR, noun Carbonaceous residue resulting from pyrolysis or incomplete combustion.

CHAR, verb Form carbonaceous residue during pyrolysis or incomplete combustion.

COMBUSTIBLE, adjective Capable of burning.

### COMBUSTION

Exothermic reaction of a combustible substance with an oxidiser, accompanied by flames and/or glowing and/or emission of smoke.

DAMAGED AREA

Total of the areas of a material permanently affected by thermal phenomena under specified test conditions:

loss of material, shrinking, softening, melting, charring, combustion, pyrolysis, etc. Expressed in square centimetres. (cf. burned area).

### DAMAGED LENGTH

Char length (deprecated).

Maximum extent, in a specified direction, of the damaged area of a material under specified test conditions. Expressed in centimetres. In some standards, char length is defined by a specific test method.

### EASE OF IGNITION

Ease with which a material can be ignited under specified test conditions. (cf. minimum ignition time).

FLAME, noun

Zone of combustion in the gaseous phase from which light is emitted.

FLAME, verb

Undergo combustion in the gaseous phase with emission of light.

FLAME SPREAD

Propagation of a flame front.

### FLEXIBURN

Multi-purpose vertical flammability tester for textiles and textile products. Successor to the Rhoburn vertical flammability tester. Manufactured by James H. Heal & Co. Ltd., Halifax, England.

### RATE OF FLAME SPREAD

Burning rate (deprecated).

Rate of burning (deprecated).

Distance travelled per unit time, under specified test conditions, by a flame front during its propagation. Expressed in metres per second.

### FLAME SPREAD TIME

time taken by a flame on a burning material to travel over a specified distance or surface area under specified test conditions. Expressed in seconds.

### HEAT FLUX

### DENSITY OF HEAT FLOW RATE

Thermal intensity, indicated by the rate at which heat crosses a given surface per unit area of that surface. Expressed in watts per square centimetre or kilowatts per square metre.

IGNITION Initiation of combustion.

MELT DRIP, noun

Flaming debris (deprecated). Falling droplets of molten material, either burning or not.

### MINIMUM IGNITION TIME

Minimum time of exposure of a material to an ignition source to obtain sustained combustion under specified test conditions. Expressed in seconds.

### SMOKE

Visible suspension of solid and/or liquid particles in gases resulting from combustion or pyrolysis.

### SMOULDERING

Slow combustion of a material without light being visible and generally evidenced by an increase in temperature and/or by smoke.

### SURFACE FLASH

Rapid spread of flame over the surface of a material without ignition of its basic structure. However, if the latter occurs simultaneously or sequentially with surface flash, it is not considered as a part of surface flash.