# WORKXWEAR FIRE SERIES

workXwear Fire series complies to EN ISO 11612, EN ISO 1149, NFPA 2112, NFPA 70E, Arc Flash protection etc. Available in both treated & inherent fabrics for maximum protection against flames, heats & burn injuries. "Whatever, Whenever, Wherever"

# workXwear Fire Guard

K-Flame is Klopman's new range of inherently flame retardant fabrics, conceived to offer resistance to heat, flame and welding, as well as supplying antistatic and electric arc protection. The fundamental characteristics of the fabric ensure long-term durability, while its composition delivers maximum comfort and breathability even in the hottest environments and climates.

Klopman's K-Flame fabrics use Kermel®, an inherently flame-resistant fibre which combines non-flammability, comfort and durability. Our Range of FR Clothing are constructed from **flame resistant fabric and components** for superior protection against burn injuries.

**Product Features:**

- Flame Retardant 50mm reflective tape Nordic Style
- Inherent European fabric - Klopman
- HRC 2 rated (APTV : 8,4cal/cm2)
- Flame retardant brass zipper with Flame retardant tape
- Full Fledge collar for full protection
- Zipper pockets with flap for easy single handed usage
- Tool Pocket & Slot on sleeve
- Pleated Kneecap for swift action
- Easy identification for safety approval tagging
- Suitable for all sorts of offshore, oil & gas work

EN 1149-5

EN ISO 11612
A1 A2 B1 C1 F1

2 RATING HRC

NFPA 2112

NFPA 70E

IEC 61482-2

# workXwear Fire Armour

Flame Retardant Pyrovatex® treated Coveralls, maximum protection against flames and heats at minimum costs. **EN 1149 and EN ISO 11612 certified**, it provides durable and affordable protection for chemical, oil & gas, petrol chemical plants.

Our Range of FR Clothing are constructed from **flame resistant fabric and components** for superior protection against burn injuries. They are comfortable, light weight with inherent heat and flame resistant properties.

**Product Features:**

- Flame retardant 50mm Nordic style reflective tape for enhanced visibility
- Collar for addition neck / throat protection (optional of WorkXwear SPARTANZ)
- Pleated action back for ease of upper body movements
- Intelligent reinforced construction to major seams strategic bar tacks on crotch areas
- Two back pockets, two side pocket with Velcro fastening covers
- Radio loops on chest, Single tool pocket on sleeve
- World famous YKK two way Zip
- Guaranteed Protection for 50 washes & more

---

# workXwear Fire Shield

### workXwear Fire Shield Jacket

- Colours: Orange (with or without FR reflective tape), Navy Blue (c/w FR reflective tape), Red (c/w FR reflective tape)
- Sizes: S – 4 XL

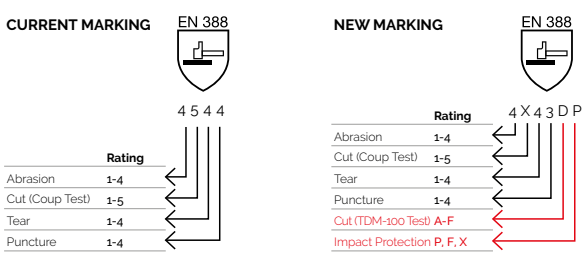
### workXwear Fire Shield Trousers

- Colours: Orange (with or without FR reflective tape), Navy Blue (c/w FR reflective tape), Red (c/w FR reflective tape)
- Sizes: S (28) , M(30) , L(32) , XL(34) , 2XL(36) , 3XL(38) , 4XL(40)

# workXwear Safety Gloves

Construction
- Knitted Liner
  45% High Performance Polyethylene, 12%Fiberglass, 5% Spandex, 38% Polyester
- Impact Protection 100% Thermal Plastic
- Rubber Palm Coating 100% Nitrile

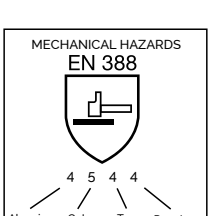
Features
- 13 gauge
- High Visibility color
- Anti Cut Level D
- Impact TPR Protection (Grade P)
- Knitted for maximum breathability
- Adjustable cuffs




| Brand / Model | workXwear Impact Free |
|---|---|
| Protection Level | EN 388 (2016) : (4.X.4.3. DP) |
| Abrasion Resistance | Level 4 |
| Cut Resistance (Coup Test) | N.A. |
| Tear Resistance | Level 4 |
| Puncture Resistance | Level 4 |
| Cut Resistance (TDM-100 Test) | Grade D |
| Impact Protection | Grade P |

Construction
- Knitted Liner 45% High Performance Polyethylene, 12%Fiberglass, 15%Spandex, 28% Nylon
- Rubber Palm Coating with grip 100% Natural Latex

Features
- 13 gauge
- EN CUT Level 5 (EN 388:2003)
- Hard wearing durability coated latex
- Grip texture on palm for extreme grip
- Knitted for maximum breathability




| Brand / Model | workXwear Rizcut 5 |
|---|---|
| Protection Level | EN 388 (2003) : (4.5.4.4.) |
| Abrasion Resistance | Level 4 |
| Cut Resistance | Level 5 |
| Tear Resistance | Level 4 |
| Puncture Resistance | Level 4 |

# WORKXWEAR SAFETY FOOTWEAR

workXwear safety footwear were manufactured to be fit for all industrial usages. The materials used during the manufacturing process are of quality as we understand the importance of a sturdy safety shoes. All our safety footwears has a protective reinforcement in the toe which protects the foot from falling objects or compression, usually combined with a mid sole plate to protect against punctures from below.

**Specifications**

- Top Grain Leather
- Injection moulded for complete resistance to water penetration
- 200 Joules Impact steel Toecap
- Whole piece Steel mid-plate
- Slip & oil resistant
- Anti-Static in-soles padding
- Shock Absorbing heels outsole
- PU/PU Double density outsole for durability up to maximum of 120 degrees Celsius
- Cotton In-soles with air pockets for foot fatigue
- Soft Poly Mesh for Ankle flexibility.

## workXwear Ligero Lightweight (Metal Free)

| Component | workXwear Ligero low cut laced |
|---|---|
| Upper | FlyKnit Mesh (Black / Green) |
| Outsole | PU / PU outsole |
| Midsole | Kevlar Insert |
| Toecap | Composite Toecap NON METAL |

## workXwear Atlantis Comfort

| Component | workXwear Atlantis Premium Comfort Low Cut Laced up Shoes |
|---|---|
| Upper | Top Grain Cow Hide Leather |
| Outsole | PU / PU outsole |
| Midsole | Steel plate full piece |
| Toecap | Steel Toe cap |
| Height | Minimum of 110mm (EN Standard) |

## workXwear Cadetor Economical

| Component | workXwear Cadetor Low Cut Laced up Shoes |
|---|---|
| Upper | Top Grain Cow Hide Leather |
| Outsole | PU / PU outsole |
| Midsole | Steel plate full piece |
| Toecap | Steel Toe cap |
| Height | Minimum of 110mm (EN Standard) |


WATER REPELLENT UPPER


HEEL ENERGY ABSORPTION


PENETRATION RESISTANT MID-SOLE


REINFORCED TOE CAP


ANTI-STATIC SHOES


OIL AND FUEL RESISTANT SOLE


SLIP RESISTANT

## workXwear Guardian Mid Cut Laced

| Component | workXwear Guardian Mid Cut Laced up Ankle Boots |
|---|---|
| Upper | Top Grain Cow Hide Leather |
| Outsole | PU / PU outsole |
| Midsole | Steel plate full piece |
| Toecap | Steel Toe cap |
| Height | Height Clearance of 190mm (EN Standard) |

## workXwear Champion Mid Cut Zip Up

| Component | workXwear Champion Mid Cut Zip up Ankle Boots |
|---|---|
| Upper | Top Grain Cow Hide Leather |
| Outsole | PU / PU outsole |
| Midsole | Steel plate full piece |
| Toecap | Steel Toe cap |
| Height | Height Clearance of 200mm (EN Standard) |

## workXwear Defendor Mid Cut Slip On

| Component | workXwear Defendor Mid Cut Slip On Ankle Boots |
|---|---|
| Upper | Top Grain Cow Hide Leather |
| Outsole | PU / PU outsole |
| Midsole | Steel plate full piece |
| Toecap | Steel Toe cap |
| Height | Height Clearance of 165mm (EN Standard) |

## workXwear Protector Tall Boots

| Component | workXwear Protector High Cut Slip On Tall Boots |
|---|---|
| Upper | Top Grain Cow Hide Leather |
| Outsole | PU / PU outsole |
| Midsole | Steel plate full piece |
| Toecap | Steel Toe cap |
| Height | Height Clearance of 275mm (EN Standard) |

# HI-VISIBILITY & PROTECTION WEAR

## HSK Hi-Visibility Workwear – Be seen. Be visible

Our types of Hi-Visibility workwear are designed to provide high visibility under all day, night or rain conditions. Our range of garments fulfill all safety standards for various industries.

Our nylon wetsuit are differentiated by protection against foul weather, wind, cold or rain. They are Nylon based with additional coating for best protection against the weather conditions while keep the wearer cool and light.

## HSK Hi-Visibility Vest - Be seen. Be visible

Our Hi-Visibility vest are EN471:2004 certified which features 3 different classes for highest level of protection.

All our Hi-Visibility vest are fitted with bands of retro-reflective material not less than 50mm wide.

## HSK Head Protection Equipment

**HSK Safety Helmets** are designed to provide head protection from impact hazards in an industrial environment. They consist of a rigid shell and a suspension working together as a protective system.

## HSK Eye Protection Equipment

**HSK Safety Eyewear** features high impact resistance, UV protection, light weight with Z87+, CE EN 166 standards to provide appropriate eye protection against hazardous or chemical environment.

## HSK Respiratory Protection Equipment

A respirators is a device designed to protect the wearer from inhaling harmful dusts, fumes, vapors, or gases. Respirators come in a wide range of types and sizes used by the military, private industry, and the public. Respirators we carry ranges from cheaper, single-use, disposable masks to reusable models with replaceable cartridges.

## HSK Fall Protection Equipment

Falls are among the most common causes of serious work related injuries and deaths. Employers must set up the work place to prevent employees from falling off of overhead platforms, elevated work stations or into holes in the floor and walls.

**Safety Standards:**

• SS 402 Specification for Industrial Safety Belts and Harness for
- Part 1: General Requirements
- Part 2: Permanent Anchors

# Fire Retardant Workwear

Incorporating safety & comfort durability. Practical with modern touches.

**Product Features:**

- 100% Natural Cotton Blend treated with flame retardant finishing. Good for long & short term offshore mobilisation use.
- high collar for added protection.
- Concealed zipper chest pockets with allowance for kinds of devices.
- Ruler pocket on right leg & 2 side swing pockets with side entry.
- radio loops for handsfree operation.
- 8 points 50mm FR reflective bands.
- Elastic rear waistband with inserts
- Bi-swing action back for ease of movement
- Action back with heat release modacrylic FR mesh allowing body heat dissipation.
- Sleeve cuffs with adjustable & concealed snap fasteners.
- Performance guaranteed up to 50x washes minimum.
- Available in FR White with Navy styling

**Safety Approvals**


All Fire Safety regulations approved

- EN ISO 11612
- EN ISO 1149-5
- IEC 61482-2



# Confidential Report

## Our Ref: 60/01865/C

ilac-MRA

UKAS TESTING
1066

Notified Body
for PPE Directive,
Construction Products Regulation
& Marine Equipment Directive
I.D. No. 0338 & 0339

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/C
Your Ref:



Client: HOE SENG (S.K) PTE LTD
7 Soon Lee Street
#02-40/41/05 iSpace building
Singapore 627608

Job Title: Testing of one woven fabric

Client's Order No: -

Date of Receipt: 23rd October 2017
Date of Test Start: 28th November 2017

Description of Sample(s): One red coloured, woven fabric, identified as follows, was received for testing:

CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric in red

The client has confirmed that the fabric is available in the following colours – Red, Orange and Dark Blue. It is the opinion of BTTG™, that colour would not influence the performance levels and the performance levels detailed in this report would apply to all of the aforementioned colours.

Work Requested: We were asked to make the following test:

Induction decay testing to EN 1149-3
After 5 wash cycles according to ISO 6330 (procedure 6N, with tumble drying)

1066

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/C
Your Ref:



**HOE SENG (S.K) PTE LTD**

Sample: CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric in red

Test Method: EN 1149-3: 2004 Method 2 Induction decay
Conditioning and testing carried out at 23 ± 1°C, 25 ± 5% r.h.

Cleansing Pretreatment: Five wash/dry cycles according to ISO 6330:2012 Procedure 6N (60°C) with tumble drying (Procedure F) (max. 60°C outlet temperature).

Summary of Results:

Determination of width between conductive threads

| Measurement | Width of Gap (mm) |
|---|---|
| 1 | 9.5 |
| 2 | 9.5 |
| 3 | 9.5 |
| 4 | 9.5 |
| 5 | 9.5 |
| Mean | 9.5 |

Determination of induction decay time

| Shielding Factor (S) | Half Decay Time ($t_{50}$), s |
|---|---|
| 0.11 | 0.31 |
| 0.09 | 0.50 |
| 0.10 | 0.42 |
| Mean 0.10 | Mean 0.41 |

1066

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/C
Your Ref:



**HOE SENG (S.K) PTE LTD**

Sample: CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric in red

Assessment:

| EN 1149-5 REQUIREMEMNTS | RESULT OBTAINED | PASS/FAIL |
|---|---|---|
| For a material containing conductive threads in a stripe or grid pattern the spacing of the conductive threads in one direction shall not exceed 10mm. | 9.5mm | PASS |
| Shielding Factor (S) greater than 0.2 and / or Half Decay Time ($t_{50}$) less than 4 seconds | Shielding Factor (S) = 0.10<br>Half Decay Time ($t_{50}$) = 0.40 | PASS |

Uncertainty of measurement has not been taken into account when presenting the test result. The 95% confidence limit for this test is ± 5% around the pass/fail levels given in EN 1149-5.

Reported by:..... A Didycz, Senior Laboratory Technician

Countersigned by:..... C Dean, Laboratory Director

1066


# Confidential Report

## Our Ref: 60/01865/A

ilac-MRA

UKAS TESTING
1066

Notified Body
for PPE Directive,
Construction Products Regulation
& Marine Equipment Directive
I.D. No. 0338 & 0339

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/A
Your Ref:



**HOE SENG (S.K) PTE LTD**

| | |
|---|---|
| Client: | HOE SENG (S.K) PTE LTD<br>7 Soon Lee Street<br>#02-40/41/05 iSpace building<br>Singapore 627608 |
| Job Title: | Testing of one woven fabric |
| Client's Order No: | - |
| Date of Receipt: | 23rd October 2017 |
| Date of Test Start: | 28th November 2017 |
| Description of Sample(s): | One red coloured, woven fabric, identified as follows, was received for testing:<br><br>CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric in red<br><br>The client has confirmed that the fabric is available in the following colours – Red, Orange and Dark Blue. It is the opinion of BTTG™, that colour would not influence the performance levels and the performance levels detailed in this report would apply to all of the aforementioned colours. |
| Work Requested: | We were asked to make tests according to the following standard:<br>ISO 11612: 2015<br>After 5 wash cycles according to ISO 6330 (procedure 6N, with tumble drying, except where indicated) |

This is a summary report detailing the results as required by the ISO 11612: 2015 performance standard.
All test methods are UKAS accredited.

1066

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/A
Your Ref:



**HOE SENG (S.K) PTE LTD**

Sample: CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric

Performance Standard: ISO 11612: 2015
(a) Clause 6.2.1 Heat resistance (at 180°C)
(b) Clause 6.3.2 Limited flame spread – Face ignition
(c) Clause 6.3.3 Limited flame spread – Edge ignition
(d) Clause 6.4 Dimensional change due to cleaning
(e) Clause 6.5.1 Tensile strength
(f) Clause 6.5.2 Tear strength
(g) Clause 7.2 Convective heat
(h) Clause 7.3 Radiant heat

Cleansing Pretreatment: Prior to all tests except clause 6.4 five wash/dry cycles according to ISO 6330:2012 Procedure 6N (60°C) with tumble drying (Procedure F) (max. 80°C outlet temperature).

Prior to test clause 6.4 five wash/dry cycles according to ISO 6330:2012 Procedure 4N (40°C) with tumble drying (Procedure F) (max. 60°C outlet temperature).

Tests 6.3.2 and 6.3.3 also carried out in the "as received" condition.

Summary of Results: See pages 3, 4 and 5.

ISO 11612: 2015 states the following:

- "All the individual results of the specimens of a test shall meet the performance requirement"
- "The average result shall be given"
- "The estimate of uncertainty shall be applied when it may affect the rating or classification of a property"

For the purposes of assessing the sample, BTTG™ uses the following parameters:

1. The worst individual test result.
2. The mean result after uncertainty of measurement has been applied.

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/A
Your Ref:



**HOE SENG (S.K) PTE LTD**

Sample: CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric

Summary of Results:

| PROPERTY | TEST METHOD | EN ISO 11612 REQUIREMENTS | RESULTS OBTAINED | PASS/FAIL OR LEVEL |
|---|---|---|---|---|
| 6.2.1<br>Heat resistance (at 180°C) | ISO 17493: 2016 at 180°C | Shall not ignite or melt or shrink > 5% | Fabric did not ignite or melt. Shrinkage:<br>Length Width<br>Mean -0.9% -0.4%<br>Worst -1.0% -0.5% | PASS |
| 6.3.2<br>Limited flame spread<br>– Face ignition<br>(code letter A1) | ISO 15025: 2016<br>Procedure A | No flaming to edge<br>No hole formation<br>No flaming or molten debris<br>Afterglow time ≤ 2s<br>Afterflame time ≤ 2s | As received<br>No flaming to edge<br>No holing<br>No flaming or molten debris<br>No afterglow<br>No afterflame<br><br>Pre-treated<br>No flaming to edge<br>No holing<br>No flaming or molten debris<br>No afterglow<br>No afterglow<br>No afterflame | PASS A1 |

1066

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/A
Your Ref:



**HOE SENG (S.K) PTE LTD**

Sample: CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric

Summary of Results:

| PROPERTY | TEST METHOD | EN ISO 11612 REQUIREMENTS | RESULTS OBTAINED | PASS/FAIL OR LEVEL |
|---|---|---|---|---|
| 6.3.3<br>Limited flame spread<br>– Bottom edge ignition<br>(code letter A2) | ISO 15025: 2016<br>Procedure B<br>(Folded edge) | No flaming to edge<br>No flaming or molten debris<br>Afterglow time ≤ 2s<br>Afterflame time ≤ 2s | As received<br>No flaming to edge<br>No flaming or molten debris<br>No afterglow<br>No afterflame<br>Pre-treated<br>No flaming to edge<br>No flaming or molten debris<br>No afterglow<br>No afterflame | PASS A2 |
| 6.4<br>Dimensional change | ISO 5077: 2007 | Woven: ≤ ± 3% | Warp / Weft<br>Mean -2.5% / -0.5%<br>Worst -2.8% / -0.7% | PASS |
| 6.5.1<br>Tensile strength | ISO 13934-1: 2013 | ≥ 300N | Warp / Weft<br>Mean 830N / 450N<br>Worst 779N / 341N | PASS |
| 6.5.2<br>Tear strength | ISO 13937-2: 2000 | ≥ 10N | Across warp / Across weft<br>Mean 18N / 19N<br>Worst 18N / 18N | PASS |
| 7.2<br>Convective heat<br>(Code letter B) | ISO 9151: 2016 | Level / $HTI_{24}$<br>B1 ≥ 4.0s<br>B2 ≥ 10.0s<br>B3 ≥ 20.0s | Specimen / $HTI_{24}$<br>1 5.8s<br>2 5.6s<br>3 5.8s<br>Mean 5.7s | LEVEL B1 |

1066

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/A
Your Ref:



**HOE SENG (S.K) PTE LTD**

Sample: CFR265 Pyrovatex, 100% cotton flame retardant antistatic woven fabric

Summary of Results:

| PROPERTY | TEST METHOD | EN ISO 11612 REQUIREMENTS | | RESULTS OBTAINED | | PASS/FAIL OR LEVEL |
|---|---|---|---|---|---|---|
| 7.3<br>Radiant heat<br>(Code letter C) | ISO 6942: 2002<br>Method B at<br>20kW/m² | Level<br>C1<br>C2<br>C3<br>C4 | $RHTI_{24}$<br>≥ 7.0s<br>≥ 20.0s<br>≥ 50.0s<br>≥ 95.0s | Specimen<br>1<br>2<br>3<br>Mean | $RHTI_{24}$<br>14.3s<br>14.3s<br>14.5s<br>14.4s | LEVEL C1 |

An estimation of uncertainty of measurement has been taken into account when making a judgement to any pass/fail criteria. Refer to Appendix A for further information.

Reported by:..... M T Healey, Principal Technician

Countersigned by:..... C Dean, Laboratory Director

1066

Unit 6, Wheel Forge Way, Trafford Park,
Manchester, M17 1EH, UK.
Telephone: +44 (0) 161 876 4211
Email: info@bttg.co.uk
Website: www.bttg.co.uk

Date: 22 December 2017

Our Ref: 60/01865/A
Your Ref:



**HOE SENG (S.K) PTE LTD**

## Appendix A

## ISO 11612: 2015 Annex E: Uncertainty of Measurement:

| ISO 11612 Clauses | | Test Method | 95% Confidence limit |
|---|---|---|---|
| 5.2 | Pre-treatment | Washing: ISO 6330: 2012 | Chaotic Processes Not applicable |
| 6.2.1 | Heat resistance | ISO 17493: 2016 (180°C) | ± 2.8% |
| 6.2.2 | Heat resistance (optional) | ISO 17493: 2016 (260°C) | ± 2.8% |
| 6.3.2 | Flame spread – Face (A1) | ISO 15025: 2016 (A) | ± 5.0% |
| 6.3.3 | Flame spread – Edge (A2) | ISO 15025: 2016 (B) | ± 10.8% |
| 6.4 | Dimensional change | ISO 5077: 2007 | ± 3.2% |
| 6.5.1 | Tensile strength (woven fabrics) | ISO 13934-1: 2013 | Aramid ± 1.7%<br>Wool ± 3.5%<br>Cellulosic ± 4.8% |
| 6.5.2 | Tear strength (woven fabrics) | ISO 13937-2: 2000 | Aramid ± 2.8%<br>Wool ± 4.4%<br>Cellulosic ± 5.8% |
| 7.2 | Convective heat (B) | ISO 9151: 2016 | ± 10.5% |
| 7.3 | Radiant heat (C) | ISO 6942: 2002 (20kW/m²) | ± 4.8% |

* These uncertainty value are based on a standard uncertainty multiplied by a coverage factor k=2, which provides for a confidence level of approximately 95%.

1066