WEAR

Ultra Suit

www.bbwear.co.uk

Intended Use

The BBwear Ultra Suit is intended to provide protection from bee, wasp and hornet stings for hobby and commercial bee-keeping and pest control purposes. To ensure full protection the suit must be worn with protective boots and gloves.

Description

The BBwear Ultra suit is made from a 100% Polyester fully ventilated 3D material to ensure the wearer is cool and comfortable while they work. The material is 5mm thick which is deeper than the length of a bee sting. The suit is made of mostly polyester or polycotton materials and no materials contain hazardous substances.

Putting the suit on and taking it off

The BBwear Ultra Suit is designed to be an over garment to be worn over normal clothing.
First check to see that the suit is not damaged and that all zips, fastenings, thumb loops and elastic is intact.
The ankle zips should be opened before stepping into it.
Make sure the suit sits well on the shoulders and the collar is not caught in before closing the front zip ensuring the zip is pulled right to the top above the Velcro where the neck zips meet.

Close the ankle zips to secure. Put your thumbs into the thumb loops at the wrist to keep the sleeves from riding up while moving around.

Pull the hood over your head and close both neck zips using the ring pull. Ensure they are both closed as far as they will go with the ring pulls meeting together at the front then secure the velcro inside the hood.

The BBwear Ultra Suit does not cover hands and feet and must be worn with suitable protective gloves/gauntlets and boots. Gloves and boots should cover any exposed skin and be a close fit to ensure that insects cannot crawl in the space between the glove/boot and the suit.

Precautions

The BBwear Ultra Suit is designed to give maximum protection from insect stings but there is still a possibility of the wearer being stung and therefore normal precautions should be taken, such as access to appropriate first aid.

As with all beekeeping hoods the Ultra Suit will lead to reduced visibility when worn and extra care should be taken when moving, by roads or by machinery or moving parts. Although the BBwear Ultra Suit is designed to be fully ventilated care should be taken in hot weather to avoid the wearer overheating.

Do not use If the suit becomes cut, torn or fastenings broken. BBwear provide a repair service - please contact for further details.

The BBwear Ultra Suit is not designed to prevent inhalation or skin contact with hazardous chemicals. The hood has enough room to allow RPE to be worn should this be required. Suitable chemically protective clothing may be worn under the suit to prevent contact with skin if required.

When using a smoker this must not come into contact with the suit once it is lit and must not be held between the legs.

Wash and Care Instructions

The BBwear Ultra Suit is machine washable.
We recommend a maximum 40 degree wash or below and gentle spin cycle.
Use an unscented detergent. Do not use bleach. Do not dry clean. Do not tumble dry. Do not iron. Hang up to dry.
We advise hand washing the fencing style hood to prolong the life of the veil. But it is machine washable on a 30-40 degree wash and gentle spin.

The Retro style hood is not machine washable.
(Continued over)

(continued)
Take extra care if the suit has been used whilst using insecticides as the suit may be contaminated - bag the suit up and follow the instructions for decontamination on the insecticide Material Safety Data Sheet.

Storage

When not in use for long periods wash, dry and keep indoors in a dry area hung up by a coat hanger out of direct sunlight and away from vermin. Do not compress the suit for extended periods.

Repair and Customisation Service

Do not use the BBwear Ultra Suit if it is ripped or cut or if fastenings stop functioning. Do not attempt to repair the suit yourself. BBwear offer a full repair service - contact details are on the front of these instructions.

Spares and Replacement Parts

BBwear offer replacement hoods for all our suits—We also offer gauntlets and gloves that are compatible with the BBwear Ultra Suit.
Please contact us or see the website for further details.

Recycling and Disposal

If correctly used, maintained and stored the BBwear Ultra Suit should last in excess of 5 years. At the end of its useful life it can be placed in a textile bank for reuse, recycling or recovery. It will not need to be disposed of as hazardous waste as long as it is not contaminated with hazardous substances.

Technical Information

Thickness of material—5mm (EN ISO 5084)
Tensile Strength of material (length) ≥300N (EN ISO 13934-1)
Tensile Strength of seams after 5 wash cycles >125N (EN ISO 13935-2)
Dimensional Change after washing <5mm (nonwovens) and <3mm (wovens) (EN ISO 5077)

CE UKCA EU & UK DECLARATION OF CONFORMITY

BBwear Ltd Hereby Declare that the:

Ultra Suit (BBU1)

Manufactured and designed by: **BBwear Ltd, Rosedene Farm, Truro, Cornwall, TR4 9AN UK**

Complies with:
Module B of PPE Regulation (EU) 2016/425
As a Category II device for protection against Hymenoptera stings.
Certificate of EU Type Inspection Number: GB20/965934
Carried out by •SGS Fimko OY NB 0598 Takomotie 8, FI-00380,
Helsinki, Finland .

And

Module B of UK Personal Protective Equipment Regulations, as amended by the Product Safety and Metrology etc. (Amendment etc.) (EU Exit) Regulations 2020

Regulation (EU) 2016/425 - Module B - 0598/PPE/22/3911
UKCA Module B conducted by SGS United Kingdom Ltd. AB0120,Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

In accordance with
BBWear Technical Specification SSW2019/01

Approved By:
Belinda Bright, Director

USE AND CARE INSTRUCTIONS

Ultra Suit (BBU1)

Read the instructions carefully before using

BBWEAR
Unit NP1
Rosedene Farm
Truro
Cornwall
TR4 9AN
UK

Phone: +44 (0)1872 562731
shop@bbwear.co.uk
www.bbwear.co.uk

Technical File for Ultra Suit

1. Product Overview

Product Name: Ultra Suit

Application: Personal protective equipment (PPE) designed for environments requiring protection from stinging insects, specifically Hymenoptera (bees, wasps, hornets), while providing maximum ventilation and user comfort.

Design Goal: The Ultra Suit is engineered to be virtually sting-proof while maintaining excellent ventilation and ensuring user comfort during extended wear in hot conditions.

2. Technical Specifications

Material

Main Fabric: Advanced 3D polyester, 5mm thick, ventilated, and compressible.

Secondary Fabrics: Poly-cotton used for the pockets, collar, and small sections of the wrist and ankle hems to enhance elastic performance.

Ventilation: 100% air porosity through precision-cut holes in the 3D polyester fabric, small enough to prevent insects from passing through.

Elastic Features

Wrist and Ankle Cuffs: Elasticated with poly-cotton hems, with thumb loops on the wrists and ankle zips for easier donning with footwear.

Back Elastic: Provides a fitted look and improved mobility.

Knee Protection

Waterproof Knee Patches: For durability in high-wear areas.

Internal Knee Pockets: For optional knee pads.

Zippers

Full Body Front Zip: For easy access.

Fencing-Style Hood Zips: Zippers start at the back of the neck, wrap around the shoulders, and meet at the throat. Velcro behind the joining points ensures a tight seal.

Pockets

Velcro-Seal Pockets: Located on the thighs and breast for secure storage.

Open Hip Pockets: For easy access during tasks.

3. Materials & Components

Main Fabric: 3D polyester (5mm thick) for breathability, durability, and insect protection.

Poly-Cotton: Used for the pockets, collar, and hems of the wrist and ankle cuffs to enhance elastic functionality.

Knee Patches: Waterproof for enhanced durability in moisture-prone environments.

Seams & Stitching: All seams are double-stitched and reinforced with polyester webbing for strength and durability.

Zippers: Industrial-strength, rigorously tested zippers to ensure longevity and reliability.

4. Design & Functionality

The Ultra Suit combines advanced materials and functional design, allowing full air circulation while maintaining protection from stinging insects. The 3D polyester fabric compresses under pressure but returns to its original 5mm thickness once the pressure is removed, ensuring continuous protection.

Key functional features include:

Ventilated 5mm 3D mesh: Giving both 100% ventilation and virtually sting free protection

Double-Stitched Seams: Reinforced with polyester webbing for increased durability.

Zipper Quality Control: All zippers undergo rigorous testing during production.

Fencing-Style Hood: Zippers start at the back of the neck, wrap around the shoulders, and meet at the throat. Velcro behind the zippers ensures a tight seal to prevent any gaps.

Elasticated Back: Enhances fit, mobility, and comfort during extended wear.

5. Performance Data

Ventilation: 100% air porosity ensures the suit keeps the wearer cool while maintaining insect protection.

Sting Protection: The suit is virtually sting-proof due to the thickness and density of the 3D polyester fabric.

Compression Behaviour: The fabric compresses under localized pressure (e.g., from backpack straps) but returns to its full thickness once the pressure is removed.

6. Compliance & Certification

The Ultra Suit is CE and UKCA certified for use against stinging insects, including Hymenoptera, ensuring optimal protection, comfort, and breathability. It meets all relevant PPE standards required for pest control.

7. Testing Data

Quality Control Procedures:

Zipper Testing: Each zipper is tested to ensure smooth operation under various conditions.

Seam Inspection: All seams are checked to ensure they are complete and secure.

Suit Testing: Each suit is inspected for defects, holes, and overall construction integrity.

Hood Testing: The hood is repeatedly zipped on and off to ensure the zippers and Velcro function properly.

8. Manufacturing Process

On-Site Fabric Cutting: Due to the bulkiness of the 3D polyester fabric, it is cut in batches of six suits at a time.

Home-Based Machining:

Fabric bundles are delivered weekly to machinists working from home.

Each suit is double-stitched, and all seams are reinforced with polyester webbing for durability.

Final Assembly & Inspection:

Once returned to the factory, each suit undergoes a thorough quality control process, including seam inspection, zipper testing, and checking for any defects. The hood is attached and tested multiple times.

Packaging: Suits are folded, boxed, and labeled with the product name, size, and machinist responsible for assembly.

9. User Manuals & Instructions

Instructions for Use:

Ensure the suit is fully zipped before use.

When removing the hood, unzip the neck zippers to the shoulders to avoid damaging the zippers.

Inspect areas subject to compression (e.g., shoulders) when using third-party equipment like backpack sprayers to ensure protective integrity.

Regularly check the suit for wear or damage.

Warnings:

Localized compression (e.g., from backpack straps) may reduce fabric thickness in those areas, compromising protection.

Do not use the suit if damaged, as it may not provide adequate sting protection.

10. Packaging Information

Packaging: Each suit is folded and boxed neatly.

Labelling: Packaging includes the product name, size, and machinist’s name.

11. Maintenance

Washing: Machine washable at 40°C; air drying recommended to preserve fabric integrity.

Warning: Washing above 40°C can affect the fabric's 5mm thickness and compromise protection.

Inspection: Regularly check zippers, Velcro, and seams for wear or damage.

Certificate GB20/965934

BBWear Ltd

Unit NP1, Rosedene Farm,
Threemilestone,
Truro,
TR4 9AN
United Kingdom

It is certified that the manufacturer's technical file and the PPE product detailed on page 2 have been assessed and found to be in accordance with

Regulation (EU) 2016/425

Module B, EU type-examination

This certificate is valid from 05 June 2020 until 05 June 2025
Issue 1. Certified since 05 June 2020

Authorised by

UKAS PRODUCT CERTIFICATION
0005

SGS United Kingdom Limited, Notified Body 0120
Unit 202B Worle Parkway, Weston-super-Mare, BS22 6WA UK
t +44 (0)1934 522917 f +44 (0)1934 522137 www.sgs.com

HC SGS 2016/425 B 0118

BBWear Ltd

Regulation (EU) 2016/425

Module B, EU type-examination

Issue 1

PPE Product

BBWear (logo) BBU1 Ultra ventilated beekeeping suit, manufactured from a polyester mesh spacer fabric, with detachable interchangeable hood, elasticated at back, wrists and ankles, twin neck zips with velcro flaps, ankle zips, thumb loops, waterproof knee patches, which are available in 6 nominal sizes and custom sizes to order.

It is certified that the manufacturer's technical file and the above mentioned PPE have been assessed and found to meet the applicable Essential Health and Safety Requirements in Annex II of Regulation (EU) 2016/425 Personal Protective Equipment

The following have been applied:

manufacturer' technical specification1(SSW2019/01).

Certification is based on technical file reference: BBWear Ultra Beekeeping Suit BBU1, VA.2 Sep 2019

SGS Reference Number UK/CRS 240075.

1 The validity of this certificate may have to be reviewed in the light of new or amended harmonised standards

UKAS PRODUCT CERTIFICATION
0005

BBWEAR ULTRA BEEKEEPING SUIT RISK ANALYSIS

Ultra Ventilated Beekeeping Suit BBU1

3 Risk Analysis

The Following section describes the potential hazards associated with failure of the BBWear BBU1 Ultra Beekeeping Suit and analysis of the controls to reduce the risk of them occurring or the severity of outcome of failure.

Risk assessment

A Note on Severity of Reaction to Stings from Hymenoptera

By far the mostt common reaction to a sting from a wasp, bee or hornet is localised pain and swelling at the sting site. Systemic allergic reactions to bee, wasp or hornet stings affect around 5% of the population over their lifetime[1]. Most of these reactions will be related to excess inflammation (>10cm) at the site of the sting. Around 3% of the population will suffer anaphylaxis when stung by a bee, wasp or hornet[2]. Of those suffering anaphylaxis following an insect sting around 2% will go into cardiorespiratory arrest[3]. More commonly anaphylaxis will result in inflammation at the sting site, vomiting, nausea or breathing difficulties. Fatalities from insect stings in the UK are around 0.009 per hundred thousand population per annum[3]

A 2013 study in China of over a 1000 hospitalised wasp sting patients found that there was also a risk of death without an allergic reaction especially where multiple stings had been received by an individual.

1. Stinging insect allergy: current perspectives on venom immunotherapy

   Sian W Ludman and Robert J Boyle. J of Asthma Allergy. 2015; 8: 75–86.

2. First European data from the network of severe allergic reactions (NORA).

   Worm M, Moneret-Vautrin A, Scherer K, Lang R, Fernandez-Rivas M, Cardona V, Kowalski ML, Jutel M, Poziomkowska-Gesicka I, Papadopoulos NG, Beyer K, Mustakov T, Christoff G, Bilò MB, Muraro A, Hourihane JO, Grabenhenrich LB

   Allergy. 2014 Oct; 69(10):1397-404.

3. Turner PJ, Gowland MH, Sharma V, et al. Increase in anaphylaxisrelated hospitalizations but no increase in fatalities: an analysis of United Kingdom national anaphylaxis data, 1992–2012. J Allergy Clin Immunol. 2015;135(4):956–963.e1

A Note of Likelihood of failure of suit leading to single or multiple insect stings

The beekeepers suit works by preventing the insect sting from being able to reach the skin to inject venom. This is done in two ways – firstly by preventing the insect from getting near to the skin (eg the veil of the suit) and by presenting a barrier that is bigger than the insect sting (where the suit lies directly next to the body such as on the arms and shoulders.

The stings of various members of the Hymenoptera family likely to be encountered in beekeeping or pest control in Europe are given below:

Table 1. Maximum Sting Length (Triangular Plate to Lancet Tip) for various hymenoptera				
Species	Common Name	Sting Length	Std Deviation	Source
Vespa crabro	European Hornet	5.39mm	0.28mm	4
Apis Mellifera	European Honey Bee	2.99mm	0.13mm	4
Vespa velutina	Asian Hornet	No data but body length is typically 5mm smaller than Vespa crabro		

The suit also prevents stings through other mechanisms. A user wearing a suit that gives them the confidence that they will not get stung is likely to be calmer and not to make sudden or jerky movements which may attract stinging insects. The ventilation of the suits also means that the user is likely to be more comfortable and therefore stay calm. Stinging insects are more likely to notice darker colours and therefore the pale colour of the suit means that insects are more likely to ignore the user.

Failure of the suit depends upon an insect or insects finding a way into the suit and then finding a site to sting the user. This may mean that the user becomes agitated and attracts more insects toward them. Failure is likely to be more dangerous where a larger entrance for insects into the suit is available allowing easier to find access to the user and also an increase in probability that multiple insects will enter. Whilst bees will only sting once wasps and hornets may sting multiple times. As noted above the number of stings received by an individual increases the probability of a severe reaction.

Professional beekeepers and pest controllers are far more likely to come into contact with stinging insects than the general population. Equally they are more likely to have received training in dealing with insect stings, potential symptoms that point to a systemic reaction and the potential consequences of not administering first aid or seeking professional medical help. They are also more likely to carry epinephrine injectors and be trained in their usage which will help with the treatment of systemic reactions and anaphylaxis. Finally professionals that work with stinging Hymenoptera are more likely to know that a severe reaction to a sting makes the likelihood of a more severe reaction with the next sting more likely.

4. Stinging wasps (Hymenoptera: Aculeata), which species have the longest sting? Emily A. Sadler, James P. Pitts, and Joseph S. Wilson. PeerJ. 2018; 6: e4743.

Scoring

Likelihood that something will go wrong (1= not likely; 10 almost certain)

Detectability of failure (1 = likely to detect; 10 very unlikely to detect)

Severity of failure (1 = Little impact: 10 extreme impact such as death or serious personal injury)

ABBREVIATIONS

RPN Risk priority number- multiply likelihood x severity x detection. Highest RPN require highest priority action

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Seams	Seams not able to withstand tensile forces that may be expected in usage (eg snagging on rough terrain, branches, brambles)	Small to Large Hole where stinging insects can enter and sting user	6	Made incorrectly or out of spec materials	2	Visual inspection by operator. QC Inspection No holes>2mm Use of competent operators. training and 'toolbox talks' Selection of materials Goods-in inspection. Seams tested to EN ISO 13935-2:2014 (see tech spec BBW2019/01) Regular testing of seam strength to EN ISO 13935-2	3	36	See SOP9 Testing Procedure which gives circumstances and frequencies for testing of seam strength. See Technical Specification BBW2019/01 which specifies seam strength.	All seams have been tested to ISO 13935-2 before wash and following 5 wash cycles. Average Strengths are 380N-530N This compares favourably to the standard for class 6 chemical suits which specifies seam strength >125N
Seams	Sewn incorrectly leaving hole that stinging insects can enter	Small Hole where stinging insects can enter and sting user	4	Not sewn correctly	1	Visual inspection by operator & QC Inspection Use of competent operators. Retraining and 'toolbox talks' Seams are taped Material Selection No holes>2mm Seams tested to EN ISO 13935-2:2014	6	24	See SOP9 Testing Procedure which gives circumstances and frequencies for testing of seam strength. See Technical Specification BBW2019/01 which specifies seam strength.	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Zips	Zips have spaces large enough for stinging insects to gain entry to suit	Small Hole where stinging insects can enter and sting user	4	Incorrectly specified zip. Wrong zip supplied	1	Specification of zip to have holes <2mm when closed Velcro tabs on hood. Goods in inspection	6	24	See Technical Specification BBW2019/01 which specifies class of zip (EN ISO 16732).	Acceptable risk minimised by controls and checks
Zips	Zip fails and comes open during use	Small-Large Hole where insects can enter and sting user	6	zip mechanism fails due to weakness or over stress	2	Visual inspection by operator. Quality Inspection Specification of zips Goods In Inspection Zips meet ISO 16732:2015 and BS3084 tests for Class ‘C’ uses. Class C includes overalls. Min. number of cycles before failure >500 Lateral Strength of fastener >300N	3	36	See Technical Specification BBW2019/01 which specifies class of zip (EN ISO 16732).	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Spacer Material	Spacer Material tears when subjected to tensile forces on usage	Small – Large hole where insects can enter and sting user	5	Failure of spacer material	1	Visual inspection by operator. Quality Inspection Specification of spacer material >300N tensile strength	3	15	See Technical Specification BBW2019/01 which specifies tensile strength of material (EN 13934-1)	Acceptable risk minimised by packaging differences
Spacer Material	Spacer Material tears when it comes into contact with sharp edge.	Small – Large hole where insects can enter and sting user	3	User error	1	Intended use IFU. Specification of spacer material to have tear propagation load >30N	2	6	See Technical Specification BBW2019/01 which specifies tear propagation strength of spacer material (EN ISO 13937-2)	Acceptable risk minimised by controls and checks
Spacer Material	Material is not thick enough to prevent sting of largest insect reaching skin of wearer.	Material is squashed or has lost thickness due to repeated compression	5	Repeated compression means material is compressed below 5mm thickness	2	Spacer Material compression stress value to ISO 3386-1 >8kPa and thickness of 5mm±0.5mm to ISO 5084	5	50	See Technical Specification BBW2019/01 which specifies compression stress value (ISO 3386-1) and thickness of spacer material (ISO 5084)	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Spacer Material	Stinging Insect can penetrate 'holes' in mesh either by crawling through or penetration with sting	Stinging Insect is able to crawl into suit & sting user or sting user through the spacer material	4	Holes become enlarged	2	'Holes' in mesh are 3mm but have mesh across restricting the diameter. Spacer has avg 6 course per cm and avg 11 wales per course. So average gap is about 0.9mm x 1.2mm. Suit tested for elongation on wash to EN ISO 5077:2007	4	32	See Technical Specification BBW2019/01 which specifies mesh density (EN 14971) as no lower than 5 courses and wales per cm.	Acceptable risk minimised by controls and checks
Spacer Material	Catches fire or ignites	Burns to user Holes in suit allowing access to bees. Molten polyester adheres to wearer	6	Suit in contact with source of ignition (eg smoker)	1	Spacer Material is resistant to fire ≤100mm spread of flame per min or self-extinguishing ISO 3795 IFU says do not put 'smoker' between legs Materials Specification and Goods In Inspection	3	18	See Technical Specification BBW2019/01 which specifies resistance to fire	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
All Material	Emits or Leach hazardous substances	User inhales or absorbs hazardous substances through skin. Long term health effects or irritation of skin, eyes or respiratory system	5	Material emits hazardous substances either latently or through contact with perspiration, rainwater or heat.	1	All materials that may come into contact with user tested for innocuousness. Spacer Material and waterproof Knee Patches conform with Oko Tex 100 standard Class 1. Veil tested for Azo dyes. Goods In Inspection Materials Specification	9	45	See Technical Specification BBW2019/01 which specifies pH of all materials >pH3.55 and <pH8.5, no azo dyes, no hazardous substances	Acceptable risk minimised by controls and checks
Hood	Veil comes into contact with face allowing insect to sting user.	Insect or Insects can sting user	6	Semi-rigid Structure of hood fails	1	Veil material has 48 courses per inch and 18 wales per inch. 'Bones' of hood are flexible and strong.	3	18	See Technical Specification BBW2019/01 which specifies veil material to have minimum 20 courses and 15 wales per inch.	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Hood	Veil rips	Insect or Insects can sting user	6	Veil snags or tears on sharp point or edge	3	Contact with sharp edge at face unlikely Goods In Inspection Material Specification	1	18	See Technical Specification BBW2019/01 which specifies veil material to have minimum 20 courses and 15 wales per inch.	Acceptable risk minimised by controls and checks
Wrists/Ankles	Insect can crawl into suit under elasticated closures	Insect or Insects can enter suit and sting user	4	Elastic does not hold wrists or ankles tightly enough – elastic ages	2	Care Instructions IFU to wear gloves/gauntlets Suit tested for elongation on wash to EN ISO 5077:2007 Material Specification Goods In Inspection	3	24	See Technical Specification BBW2019/01 which specifies that dimension change after 5 washes to be less than ±5% (non-wovens) and ±3% (wovens)	Acceptable risk minimised by controls and checks
Hood	User cannot wear RPE when using chemicals due to lack of space	User is exposed to hazardous chemicals through inhalation	6	Selected RPE does not fit under hood and user decides not to wear it	1	Hood is large and has been tested with many common types of RPE	1	6	Specification of dimensions of hood	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Hood	Users vision is impaired so they cannot operate or move safely	Wearer walks into stationary or moving objects	8	Veil material is too opaque	2	Hood has been tested for visibility. Goods In inspection Materials Specification	2	32	Specification of veil material	Acceptable risk minimised by controls and checks
Coverage of Hands	User decides not to use gloves and is exposed to stinging insects at hands & greater potential to enter suit at wrists	Insect or Insects sting user and potentially enter suit and sting user	6	User decision to use without gloves or user not understanding risk	2	IFU advise use of suit with gloves or gauntlets. Some beekeepers may prefer to use without gloves	1	12		Acceptable risk minimised by controls and checks
Whole Suit	Suit is too large for user	Suit does not fasten correctly at wrists and ankles. Trip hazard. Visibility Hazard	5	User orders wrong size	1	Range of sizes and made to measure available Size Guide on website and when ordering Suit tested for elongation on wash to EN ISO 5077:2007	2	10	See Technical Specification BBW2019/01 which specifies chest girth and height for the six sizes of suit available	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Whole Suit	Suit is too small for user	Greater tensile forces on suit – more likely to tear. Exposure of hands, arms and legs	5	User orders wrong size	1	Range of sizes and made to measure available Size Guide on website and when ordering	2	10	See Technical Specification BBW2019/01 which specifies chest girth and height for the six sizes of suit available	Acceptable risk minimised by controls and checks
Whole Suit	User uses suit for PPE for unintended purpose (eg chemical protection, protection from hot surfaces)	Absorption or inhalation of hazardous chemicals, burns or mechanical injuries	6	Misuse	1	IFU state intended purpose and emphasise that suit is not chemical protection	2	12		Acceptable risk minimised by controls and checks
Whole Suit	Suit is washed in perfumed detergent which arouses stinging insects.	Flying insects more angry and likely to sting.	6	Failure to read IFU	3	IFU and labels give wash instructions	2	24	See Technical Specification BBW2019/01 which specifies wash care instructions	Acceptable risk minimised by controls and checks

Revision No	**3**	**Review date**	**06.10.2019**							
Step / input	**Potential failure mode**	**Potential failure effects**	**Severity**	**Potential causes**	**Occurrence**	**Current controls**	**Detection**	**RPN**	**Additional Action recommended**	**Conclusion**
What aspect of performance under evaluation?	In what ways does input go wrong?	What is the impact on key safety requirements (customer requirements)		What causes the key input to go wrong		What are existing controls and procedures? (inspections & tests that prevent the cause or the failure mode)			What are the actions for reducing the occurrence of the cause or improving the detection	
Whole Suit	User overheats and goes into heat stress	User becomes erratic – may remove parts of the suit	6	Suit is worn in very hot conditions or for too long	3	Suit is ventilated and therefore cooler than standard beekeeping suits. IFU points out use in hot weather may lead to overheating Material Specification Goods In Inspection	4	72	See Technical Specification which specifies Muller 3Mesh Material	Acceptable risk minimised by controls and checks
Whole Suit	Suit material cracks in very cold weather and holes appear allowing in stinging insects	Small to Large Hole where stinging insects can enter and sting user	6	Suit left compressed and folded in very cold environment	1	Storage Instructions say keep indoors hung up	3	18	See Instructions for use which specify storage instructions.	Acceptable risk minimised by controls and checks

Risk Analysis Conclusions

The risk analysis shows that there are some residual risks but these are at a low and acceptable level and that the product is safe.