

## Patent Alert 9/2011 protective textiles

### **WO2011131156 - METHOD OF PRODUCING A NONWOVEN TEXTILE COMPRISING A BARRIER AND AN ANTISTATIC TREATMENT**

*PEGAS NONWOVENS S R O*

Published 2011-10-27      Priority date 2010-04-23

A method of producing nonwoven textile by a spunmelt process of a polymer, the basis of which is at least one polyolefin, comprising a barrier and antistatic treatment, especially for protective garments for industry and health care. A polyolefin polymer which is suitable for forming fibres is mixed with a first additive capable of modifying a surface property and capable of migration through the polymer, then the mixture is used for producing at least one layer of the nonwoven textile by a spunmelt process, and prior to the termination of the migration of the first additive and to the stabilizing of the final barrier properties on the surface of the fibers a second additive is applied to the layer, the second additive being capable of modifying the antistatic property of the material, and then the nonwoven textile is exposed to a temperature and relative humidity conditions for a time period such that the first additive migrates towards the surface and the second additive undergoes changes on said surface.

### **WO2011134037 - SCALABLE AND MODULAR PROTECTIVE GARMENT SYSTEM**

*ALLEN VANGUARD*

Published 2011-11-03      Priority date 2010-04-27

A protective garment system for a user including a cummerbund having a shoulder harness connected to a wraparound waist portion, and at least one connector device operatively attached to the cummerbund. The protective garment further includes one or more upper body modular protective elements and one or more lower body modular protective elements, with at least one of the lower body modular protective elements to the cummerbund by the connector device.

### **US2011247130 - PROTECTIVE GARMENT**

*LEWANDOWSKI DAVID (Inventor)*

Published 2011-10-13      Priority date 2010-04-08

A garment comprising: at least one pocket; and at least one protective pad located within said at least one pocket; and at least one connecting structure for securing at least one optional protective pad to the garment the at least one connecting structure being capable of cooperating with a complementary connecting structure operatively connected to the at least one optional protective pad.

### **WO2011126875 - PROTECTIVE CLOTHING ENSEMBLE WITH TWO-STAGE EVAPORATIVE COOLING**

*US ARMY*

Published 2011-10-13      Priority date 2010-03-30

A hazardous materials protective garment may use a two-stage evaporative cooling process to ease heat strain on the wearer of the garment. The garment may include an impermeable inner layer and a wicking outer layer. One or more reservoirs may be disposed interior to the inner layer for collecting condensed and/or unevaporated sweat. One or more pumps may move the sweat to the exterior of the impermeable layer for distribution in the wicking layer and evaporation from the garment.

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**US2011239349 - MEDICAL GOWN WITH A SECONDARY SLEEVE FOR EXTENDING OVER A SURGICAL GLOVE**

*THOMPSON W FREDERICK (Inventor)*

Published 2011-10-06      Priority date 2008-08-29

A protective gown with a tubular overlay, or tube, on each gown sleeve attached on one end at the user's forearm as the tube extends toward the upper arm as a surgical glove is donned and the gown sleeve is tucked within the glove cuff. The tube then extends downward toward the sleeve end and over the glove cuff forming a channel in which the glove cuff is positioned and retained. The tube is secured to the glove from within the tube as it engages the glove cuff. Areas of increased frictional resistance may be added to the tube underside to engage the glove cuff secondary surface as the sleeve is tucked within the glove cuff. Increased frictional resistance may be obtained by employing strips or a coating with a low tack surface.

**US2011239346 - MICROCLIMATE SYSTEM FOR PROTECTIVE BODY ARMOR**

*DOHERTY BRIAN; MCCALL ERBY J; MCMORRIS JOHN A (Inventors)*

Published 2011-10-06      Priority date 2010-04-05

A constant or controlled temperature microclimate protective system capable of providing either cooling or heating. Such a system may be used alone or in combination with protective armor without degrading the force impact integrity of the protective system. When used alone, the microclimate system of the present invention may be constructed into a garment configuration for personal use or a sleeve-type configuration for use with one or more electronic devices. When used in combination, the microclimate system may be integrally incorporated into a protective armor system, releasably attached or held within the protective armor system by means including but not limited to a pocket or pouch, or worn as a separate element underneath a protective armor system. The microclimate system may comprise a plurality of cells containing phase change material providing one or more transition temperature points while further assisting in impact shock attenuation.

**US2011214214 - POCKET FOR A V-BLADE SAFETY AND RESCUE KNIFE**

*HONEYWELL*

Published 2011-09-08      Priority date 2010-03-03

A pocket arrangement for a protective garment, the pocket arrangement comprising a first pocket having a first width, a first depth, a front face, a first internal chamber and a first opening to the first internal chamber. The pocket arrangement further comprising a second pocket positioned on the front face of the first pocket. The second pocket having a second width and a second depth and defining a bottom end and a top end. The second pocket further comprising a second internal chamber, a second opening to the second internal chamber and a tool-positioning wall for narrowing the width of the pocket towards the bottom end of the second pocket. The tool-positioning wall providing an angled surface against which a portion of a tool rests when positioned within the second internal chamber of the second pocket for preventing the tool from changing positions within the second pocket.

**US2011167545 - STAB RESISTANT KNIT FABRIC HAVING BALLISTIC RESISTANCE MADE WITH LAYERED MODIFIED KNIT STRUCTURE AND SOFT BODY ARMOR CONSTRUCTION CONTAINING THE SAME**

*NATHANIEL H KOLMES*

Published 2011-07-14      Priority date 2010-01-12

A stab resistant knit fabric, made containing a plurality of panels of a knit fabric having a modified knit structure corresponding to rows of knit stitches, wherein each of the panels of knit fabric comprise a front layer of knit fabric and a back layer of knit fabric, wherein the front layer and back layer are joined together by rows of tuck stitches formed from a yarn having no more than 4.5% elongation; wherein at least one panel of knit fabric is arranged such that the rows of knit stitches of the at least one panel of knit fabric are perpendicular to the rows of at least one other panel of knit fabric, its combination with a ballistic layer to provide ballistic resistance properties, and a protective garment prepared therefrom.

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**WO2011079096 - SHOWER SHIRT AND METHOD OF USE**

*CRITES LISA F (Inventor)*

Published 2011-06-30      Priority date 2009-12-24

A shower shirt has waterproof seals at its neck opening, arm openings and shirt bottom to prevent water from contacting a person's body that is enclosed by the shirt. The shower shirt also has one or more pockets sized to support post surgical devices associated with the patient such as drain tubes and bulbs. The shower shirt can also include baffles to provide additional lateral breast support to the patient.

**US2011138523 - FLAME, HEAT AND ELECTRIC ARC PROTECTIVE YARN AND FABRIC**

*INTERNATIONAL GLOBAL TRADING*

Published 2011-06-16      Priority date 2009-12-14

This invention relates to flame, heat and electric arc protective yarn that can be used for knitting and weaving a single layer fabric. Both knitted and woven fabrics are for use as a single layer flame, heat and electric arc protective fabric garment or as an outer layer of a flame, heat and electric arc protective multiple layer garment or accessory for a wearer.

**US2011179539 - PROTECTIVE GARMENT SYSTEM WITH WEIGHT TRANSFER ELEMENTS**

*FIRST CHOICE ACQUISITION*

Published 2011-07-28      Priority date 2006-08-21

One embodiment of the present invention provides a ballistic vest, comprising: a front portion configured to protect a front of a torso of a wearer; a rear portion configured to protect a rear of the torso of the wearer; and a cummerbund; wherein the cummerbund is a separate element from the front portion and the rear portion and the cummerbund is configured to form a loop around the wearer; and wherein at least one of the front portion and the rear portion interface with the cummerbund to transfer weight to the cummerbund. Another embodiment of the present invention provides a ballistic vest, comprising: a front portion configured to protect a front of a torso of a wearer; a rear portion configured to protect a rear of the torso of the wearer; and a shoulder pad; wherein at least one of the front portion and the rear portion interface with the shoulder pad to disperse weight applied by at least one of the front portion and the rear portion over a larger area than would be applied in the absence of the shoulder pad.

**JP2011106070 - HEAT-RESISTANT PROTECTIVE GARMENT**

*TEIJIN TECHNO PRODUCTS*

Published 2011-06-02      Priority date 2009-11-19

**PROBLEM TO BE SOLVED:** To provide heat-resistant protective garment cloth excellent in chemical resistance, and moisture-permeable waterproofing properties, also having highly heat-insulating properties, lightness in weight, and flexibility.

**SOLUTION:** The heat-resistant protective garment includes a composite structure comprising a surface layer, an intermediate layer and a heat-insulating layer. The thicknesses of the surface layer and the heat-insulating layer of the protective garment satisfy the following equation:  $5.0 \text{ mm} \geq \text{the thickness of the heat-insulating layer (mm)} \geq -29.6 \times \text{thickness of the surface cloth (mm)} + 14.1 \text{ mm}$ . The heat-insulating layer contains  $\geq 80\%$  of aramid fiber, and is pleated so that the length of the crest of a pleat is 3-5 mm.

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### **JP2011106069 - LIGHTWEIGHT HEAT-RESISTANT PROTECTIVE GARMENT**

*TEIJIN TECHNO PRODUCTS*

Published 2011-06-02      Priority date 2009-11-19

**PROBLEM TO BE SOLVED:** To provide heat-resistant protective garment cloth excellent in chemical resistance, and moisture-permeable waterproofing properties, also having highly heat-insulating properties, lightness in weight, and flexibility.

**SOLUTION:** The heat-resistant protective garment is made of cloth where two layers comprising a surface layer and a heat-insulating layer are laminated, and satisfies the following requirements: (a) the thickness of the surface layer and the heat-insulating layer satisfies the following formula:  $5.0 \text{ mm} \geq \text{the thickness of the heat-insulating layer (mm)} \geq 0.75 \times [\text{thickness of the surface cloth (mm)}] + 3.2 \text{ mm}$ ; (b) the heat-insulating layer has such a structure that at least one kind of fibrous structure selected from the group of woven material, knitted material and nonwoven fabric each containing at least one kind of meta aramid fiber and para aramid fiber is laminated on at least one surface of a moisture-permeable waterproofing layer; and (c)  $RHTI_{24}$  [time to rise in temperature by 24°C in the test of resistance against radiant heat in the specification of approach (A) recited in ISO 11613 (ISO 6942)] of the cloth is 18s or more.

### **GB2478855 - HEAT RESISTANT FABRIC**

*TORAY TEXTILES EUROP*

Published 2011-09-21      Priority date 2010-03-19

A double layered or double weave fabric for use in molten metal processing industries such as smelting and welding comprises fluoropolymer yarn, preferably PTFE, and a non-fusible fibre yarn, preferably aramid, and may be woven or knitted. The front face layer preferably comprises PTFE weft and warp yarns, and the rear face layer preferably comprises a mix of PTFE and aramid yarns for both warp and weft. Some PTFE weft picks of the back layer may be moved to the front layer to link the layers so that the front face remains all PTFE. The fabric may be shrunk, the differential shrinkage of PTFE and aramid causes puckering of the preferably predominantly aramid back layer to trap air to enhance heat insulation. The front PTFE face has a flat closed surface and metal spatter impacting it rolls or slides off readily. The fabric preferably has a weight of 350-650g/m<sup>2</sup>) a weft density of 25-60 threads/cm and a warp density of 35-65 threads/cm. The PTFE yarn preferably has a denier of 300-1500 and the fabric may pass the EN ISO 11612:2008 and EN ISO 1611:2007 standards. The fabric may be used for protective clothing, protective screens, and covers for computers and electrical appliances.

### **US2011123757 - BREATHABLE CHEM BIO PROTECTION FABRIC WITH CARBON NANOTUBE PHYSICAL PATHOGEN BARRIER**

*WARWICK MILLS*

Published 2011-05-26      Priority date 2009-11-20

A fabric for use in chemical and biological (CB) protective garments includes at least one felt layer having from 25% to 100% carbon nanotube (CNT) fibers as a breathable physical barrier against toxic chemical droplets and/or pathogens. The felt layers are cleaned and consolidated into a mechanically competent sheet which can form adhesive seams having lapshear greater than the sheet itself. An additional supporting layer can be included. The supporting layer can be a wicking layer which is permeable with a chlorinated or otherwise chemically active solution to establish a reactive chemical barrier, the solution being dispensed on demand from a portable container. Embodiments include a second layer of CNT or of another backing fabric, sandwiching the wicking layer therebetween. Impermeable fluoropolymer seams can divide the fabric into a plurality of CNT/wicking cells. A layer of activated charcoal and/or halamine-forming hydantoin can be included for persistent reactive chemical protection.

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**IE20100605 - A PROTECTIVE GARMENT**

*MAYO WORKWEAR RESEARCH & DEVELOPMENT*

Published 2011-05-11      Priority date 2010-09-21

The present invention relates to a protective garment for the upper body comprising a front section, a back section and a shoulder-embracing yoke section in a seam-free piece, the shoulder-embracing yoke section extending from the back section to the front section. The absence of a seam reduces the discomfort of the wearer if carrying heavy items over his or her shoulder.

**US2011099689 - PROTECTIVE GARMENTS AND MATERIALS THEREFOR**

*ATG CEYLON*

Published 2011-05-05      Priority date 2009-11-02

A method of making a garment material, comprising: providing a substrate formed of yarn, the substrate having interstices through it; applying a polymeric material to the substrate, the polymeric material having fibres suspended in it; coagulating at least some of the polymeric material onto the substrate to form a composite layer of the polymeric material and the fibres.

**US7937772 - CHEMICAL/BIOLOGICAL PROTECTIVE GARMENTS AND LAMINATES**

*LAKELAND INDUSTRIES*

Published 2011-05-10      Priority date 2010-01-28

A breathable protective garment or laminate for protection against chemical and/or biologic agents which contains one or more scrim layers which contain anti-microbial and/or anti toxic chemical agents. The garment or laminate is also self-decontaminating.

**US2011107621 - PROTECTIVE GARMENT HAVING A THERMALLY REFLECTIVE LAYER**

*GLOBE HOLDING*

Published 2011-05-12      Priority date 2009-11-09

Protective garment for environments having high radiant heat loads and/or high conductive heat loads is described. A protective footwear article and method of making includes an upper with an opaque outer layer; an inner layer; and a thermally reflective layer positioned between the outer layer and the inner layer, the thermally reflective layer having a reflective surface facing the outer layer.

**WO2011057073 - PRINTABLE ARAMID BLEND FABRIC**

*DU PONT DE NEMOURS*

Published 2011-05-12      Priority date 2009-11-05

The present invention relates to a fabric comprising a warp system and a weft system. The warp system comprises at least one flame retardant yarn comprising aramid fibers and the weft system comprises at least one core spun yarn. The flame retardant yarn of the warp system is covered by at least 70% of the weft system. The fabric according to the present invention has an ink receptive surface and a thermal protection surface, and has particularly excellent mechanical, flame resistance and printability properties due to the structure of its weft and warp systems and the materials used and is particularly useful in confection of combat uniforms. Furthermore, the fabric according to the present invention is also exceptionally abrasion resistant, which prevents the fading of a printed image thereon.

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**US2011088152 - FIRESAFETY CUSHION OR PILLOW**

*WANG ENOCH Y S; HU LINDA M P; WANG SOLOMON HSIU-KUNG (Inventors)*

Published 2011-04-21      Priority date 2009-10-17

The FireSafety Cushion or Pillow is a compact, cushion-like packet with a thinly padded surface of fire retardant material. It contains a poncho-like flame-resistant safety-wear of light to heavyweight flame-resistant material to be worn as a protective outer cover in an emergency to help reduce injuries from flash flames. It may contain other fire escape aids, such as ropes and masks, as options. It is to be placed in living areas, either public or private as a scatter pillow or an attachment to seats or bedboards etc., making it readily available in case of fire. The cushion or pillow should be easily detachable, so that a person can grab it on the run because every second counts in case of fire. This is to provide a much needed safety measure for a common hazard.

**US2011077347 - POLYMER BLEND FILMS FOR CHEMICALLY PROTECTIVE ARTICLES**

*DU PONT DE NEMOURS*

Published 2011-03-31      Priority date 2007-06-19

Provided are chemically protective articles prepared in part from a hydrophilic polymer/barrier polymer blend film. In various embodiments, the chemically protective article is substantially impermeable to hazardous chemical agents, but is sufficiently permeable to water vapor that, if worn as protective apparel, it is both protective and comfortable to wear.

**US2011067159 - CHAPS FOR WADING AND WADER PROTECTION**

*SMITH WAYNE TRACY (Inventor)*

Published 2011-03-24      Priority date 2009-09-24

Chaps style outerwear worn by fishermen, hunters and others while wearing waders, especially breathable-style fishing waders. Used to protect waders and the person wearing them from damage cause by briars, thorns, fishhooks, general wear-tear and abrasions. Formed of two elongated leg portions covering the legs from the ankle to the hips and made of tear, puncture, cut, and abrasion resistant materials.

**CN201758792 - PROTECTIVE GARMENT**

*LONGYUN WANG (Inventor)*

Published 2011-03-16      Priority date 2010-08-27

The utility model discloses a protective garment, which is a utensil for preventing barbs and protecting a body and comprises a protective net. The protective net consists of spiral metal rings sleeved with each other, and lock fasteners are arranged at the connecting positions of adjacent spiral metal rings. The protective garment has the advantages of convenient size adjustment, high body adaptability, capabilities of reducing weight and improving protection effect, and few clothes layers, flexibility and the like when being worn with underwear and jackets in a matching manner.

**CN201764901 - FLEXIBLE BULLETPROOF AND PUNCTURE PROOF INTEGRATED PROTECTIVE GARMENT INNER CORE**

*SHANGHAI SURREY POLYMERS*

Published 2011-03-16      Priority date 2010-08-25

The utility model relates to a bulletproof and puncture proof integrated protective garment inner core, which is formed by alternately overlapping multiple puncture proof layers and bulletproof layers at the front side and the back side, wherein the puncture proof layers are formed by multiple gum dipping ultra-high-molecular-weight PE (polyethylene) fiber weaving cloth layers, and the bulletproof layers are formed by multiple ultra-high-molecular-weight PE (polyethylene) fiber compound material layers. Compared with the prior art, a protective garment made by the inner core of the utility model has the greatly improved comfort degree, and simultaneously has the bulletproof and puncture proof integrated protective function so that the action of wearers can be more flexible and the safety after the wearing of the protective garment is obviously improved.

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### **JP2011038224 - HEAT-RESISTANT PROTECTIVE GARMENT**

*TEIJIN TECHNO PRODUCTS*

Published 2011-02-24      Priority date 2009-08-17

**PROBLEM TO BE SOLVED:** To provide a lightweight and soft heat-resistant protective garment giving no stuffy feeling even when having a large amount of perspiration, excellent in comfortability, free from stiff feeling, and improved in feeling of wear.

**SOLUTION:** The heat-resistant protective garment has a triple laminated composite structure. A first layer is made of a fabric with an LOI value of not less than 20, a second layer shows moisture permeability and water resistance, and a third layer is made of a fabric in which one surface has hydrophilic property, the other surface has hydrophobic property, the surface with hydrophilic property is arranged on the second layer, and the surface with hydrophobic property has a water absorption speed of not more than 15s.

### **US2011099696 - ATHLETIC GARMENT WITH ARTICULATED BODY PROTECTIVE UNDERLAYER**

*NIKE*

Published 2011-05-05      Priority date 2007-01-08

Athletic apparel containing protective underlayer comprising molded foam padding that are shaped and curved to match the anatomical regions to reduce the bulk of the underlayers. The molded foam pads a perforated structure to allow for increased flexibility and ventilation. Protective underlayers that surround regions of motion, such as the hip joint, are notched to provide articulation of the protective underlayer that will improve mobility of the athletic apparel wearer.

### **JP2011033311 - CUT-RESISTANT CLOTH AND CUT-RESISTANT PROTECTIVE GARMENT USING THE SAME**

*TEIJIN TECHNO PRODUCTS*

Published 2011-02-17      Priority date 2009-08-05

**PROBLEM TO BE SOLVED:** To provide a light/soft cut-resistant cloth in which the cut-resistant performance is improved without considerably increasing weight and thickness and which keeps good wearing feeling free from stiff feeling, and to provide a cut-resistant protective garment using the same.

**SOLUTION:** The cut-resistant cloth is a cloth made of high-strength filament yarn, and the high-strength filament yarn is crimped. A remaining crimping degree is set to be not less than 10.0%. The maximum value  $F_{\max}$  of friction between fibers measured by the following measuring method of the high-strength filament yarn is set to be not less than 710. In addition, the cut-resistant protective garment using the cut-resistant cloth is obtained. In the measuring method for the maximum value  $F_{\max}$  of friction between fibers, one end of fibers composing the cloth is fixed and twisted three times. Then, a load (T1) is applied on the other end to measure the maximum value ( $T2_{\max}$ ) of tension (T2) when the fibers are moved at a speed of 0.1m/minute. The maximum value ( $F_{\max}$ ) of the friction between fibers is obtained by a formula:  $F_{\max} = T2_{\max} \cdot T1$ .

### **US2011030118 - WRAP-AROUND HARNESS ASSEMBLY**

*LION APPAREL*

Published 2011-02-10      Priority date 2009-08-07

A protective garment including an outer shell and a harness assembly configured to be generally positioned between the outer shell and a wearer of the garment when the garment is worn. The harness assembly includes a wrap-around portion and a shoulder portion configured to fit about the shoulders of a wearer. The wrap-around portion is movable between a retracted position wherein the wrap-around portion is generally positioned adjacent to a back of the garment and an extended position wherein the wrap-around portion is generally spaced away from the back and passable around or over the crotch of a wearer. The harness assembly includes an attachment portion configured to be attached, at a position on a front of the wearer, to the harness assembly, or to the outer shell, or to a component.

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**US2011072546 - PROTECTIVE GARMENT HAVING A QUICK RELEASE SYSTEM**

*FIRST CHOICE ARMOR & EQUIPMENT*

Published 2011-03-31      Priority date 2009-08-04

In one embodiment, the inventive ballistic garment includes a front panel and a rear panel; a plurality of connecting element, wherein each connecting element having a first end and a second end, wherein the first end of each connecting element is operatively fastened to a first end of a respective anchor element and each of a second end of each respective anchor element is operatively fixed to the rear panel of the ballistic garment; a locking assembly, wherein the locking assembly is operatively fixed to the ballistic garment; at least one releasable plug for releasably engaging the locking assembly, wherein the at least one releasable plug is operatively attached to the second end of at least one connecting element, and wherein the front panel of the ballistic garment is attached to the rear panel of the ballistic garment when the at least one releasable plug engages the locking assembly.

**US2011179558 - BREATHABLE PROTECTIVE FABRIC AND GARMENT**

*INTERNATIONAL ENVIROGUARD SYSTEMS*

Published 2011-07-28      Priority date 2009-07-29

A breathable composite barrier fabric for protective garments includes a high strength nonwoven web, a barrier layer and an aperture film layer, with the barrier layer between the high strength nonwoven web and the film layer. The different layers and webs may be bonded together to form the fabric using calendaring, thermal bonding and/or adhesives. The breathable composite barrier fabric is capable of blocking particles as small as 0.3 microns at greater than 99% efficiency while allowing air transmissions between 7 CFM and 9 CFM at 20 Pa. Protective garments may be constructed using the breathable composite barrier fabrics so that the high strength nonwoven web is on the body side of the garment and the film layer is on the exterior of the garment.

**FR2948672 - MATERIAL ELASTOMER RADIO-ATTENUATEUR, MULTI-LAYER GLOVE OF PROTECTION AGAINST THE IONIZING RAYS AND THEIR USES**

*AREVA NC*

Published 2011-09-23      Priority date 2009-07-31

The invention relates to a radiation-attenuating elastomer material, of the type including an elastomer containing a dispersion of metal oxide powder, which is characterised in that the metal oxide powder includes 70 to 90 wt% of bismuth trioxide, 5 to 15 wt% of tungsten trioxide and 5 to 15 wt% of lanthanum trioxide. The invention also relates to the use of said elastomer material for manufacturing personal protective garments against ionising radiation. The invention further relates to a multi-layer glove for protecting against ionising radiation in which at least one layer is made from said elastomer material, as well as to the use of said glove for protection against the ionising radiation emitted by nuclear fuel powder, in particular containing plutonium. The invention can be used in the nuclear industry for handling nuclear fuel powder as well as in medical imaging, interventional radiology, nuclear medicine, treatment of plastic materials, inspection and testing of manufactured parts, etc.

**FR2947993 - PROTECTIVE GARMENT E.G. VEST, FOR BOAR HUNTING DOG, HAS THREE-DIMENSIONAL TEXTILE LAYER INCLUDING KNITTED ELEMENTARY LAYERS, WHICH ARE ASSEMBLED WITH ONE ANOTHER BY BINDING THREAD, AND CONSTANT SPACING FORMED BETWEEN ELEMENTARY LAYERS**

*ESPUNA*

Published 2011-08-19      Priority date 2009-07-17

The garment has a set of textile layers superimposed with one another. The textile layers comprise a woven or knitted textile layer provided with a thread presenting a stiffness greater than or equal to 20 grams by denier. Another three-dimensional textile layer includes knitted elementary layers, which are assembled with one another by a binding thread. A constant spacing is formed between the elementary layers. Material of the textile layers is selected from a group consisting of polyethylenes or aramides.

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**US2011010829 - COMBINED NECK AND UPPER BODY PROTECTIVE GARMENT**

*NORMAN DAVID MALCOLM (Inventor)*

Published 2011-01-20      Priority date 2009-07-16

A neck protector comprising a collar sized and shaped to provide a continuous closure around a neck of a wearer. The collar has a first pair of opposed ends, with one end having a first tongue and the other a first groove. The first tongue fits into the first groove to form a first tongue and groove interlock, which is maintained with a closure. Also, an upper body protector which may be used in combination with the neck protector. The upper body protector comprises a body portion and a spine protector shield system, and/or a chest protector shield system attached to the body portion. Both shield systems comprise at least two overlapping shield sections sized, shaped and positioned to cover at least a portion of the wearer's spine or sternum, while permitting flex, freedom of movement, and venting.

**WO2010144940 - ABSORBENT/DISPOSABLE BIB - APRON FOR DOMESTIC, MEDICAL AND OTHER COMMERCIAL USES**

*COCKS GREGORY*

Published 2010-12-23      Priority date 2009-06-17

The disclosed bib-apron is a protective garment comprising three layers bonded together. It combines a waterproof breathable plastic undercoating with an absorbent paper surface which will channel wetness away to a fast absorbent middle layer and keep the top dry. It is disposable. The size would be sufficient to provide protective covering of an individual from neck to calf and sides of torso and legs.

**US2010313340 - PROTECTIVE CHITOSAN LAMINATES**

*DU PONT DE NEMOURS*

Published 2010-12-16      Priority date 2009-06-12

Provided are laminates containing in order: a fabric layer with an oil and water repellent coating, a continuous chitosan film, a continuous water vapor permeable polyurethane layer, and a fabric layer. The laminates, which have improved function in high moisture environments, can be used to make a variety of finished articles that can be used to provide protection from hazardous chemical and biological agents.

**US2011171280 - ANTIMICROBIAL TEXTILES COMPRISING PEROXIDE**

*QUICK MEDICAL TECHNOLOGIES*

Published 2011-07-14      Priority date 2009-06-08

This invention pertains to method for imparting a durable antimicrobial activity to substrates, particularly textiles. An acetate-free metal and peroxide antimicrobial treatment formulation is prepared by adjusting the pH of a mixture of a metal salt in aqueous hydrogen peroxide to about 7.5. The substrate is treated with the composition and dried to afford the treated substrate with antimicrobial activity. Zinc salts, ions, or complexes are preferred.

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### **CN201657794 - COLD WEATHER PROTECTIVE GARMENT WITH CARBON CRYSTAL HEATING MODULES**

*HONGDOU WUXI YUANDONG CLOTHING*

Published 2010-12-01      Priority date 2009-10-13

The utility model relates to a cold weather protective garment with carbon crystal heating modules, which relates to the apparel field. Existing cold weather protective garments are cumbersome without the function of infrared physical therapy. For realizing cold weather protective garments with light weight and functions of thermal insulation, warming and treatment, the utility model provides a cold weather protective garment, a plurality of carbon heating module mounting positions are arranged on a lining layer of the cold weather protective garment, the mounting positions correspond to portions of human body needing to be kept warm or common acupuncture points for treatment, the carbon heating modules are fixed at the mounting positions, batteries are installed inside the lining layer, the carbon heating modules electrically connected are electrically connected with the batteries, and a heating controller is mounted in a circuit. The cold weather protective garment has the advantages of light weight, thinness, speedy heating control, convenience and safety, and can provide beneficial effect of continuous treatment.

### **US2010300054 - ACTIVATED PROTECTIVE FABRIC**

*CLEMSON UNIVERSITY*

Published 2010-12-02      Priority date 2009-06-02

Disclosed are fibrous activated materials that can remove and/or deactivate potentially dangerous airborne agents from a gas or air stream. Disclosed materials are multi-layer materials that include a fibrous nonwoven interceptor layer and an active layer immediately adjacent the interceptor layer. The interceptor layer is a fibrous membrane of very low basis weight and defines a relatively low porosity, and the active layer describes geometries, chemistries, etc. that can entrap and/or decontaminate compounds contained in an airstream passing through the material. Disclosed materials can be utilized in forming protective garments, face masks, and the like.

### **WO2011043675 - A PROTECTIVE DEVICE**

*DELLOCH*

Published 2011-04-14      Priority date 2009-10-06

There is provided a protective device, and in particular a device to assist in minimising injury to a person's hips caused by a fall. The device includes a plurality of guards, and a securing portion to hold the guards in position adjacent to and over top of, a person's hip joints. The guards are formed from rigid material so as to transfer the force of an impact into soft tissue and muscle surrounding the person's hip joints. Community assembly alerts is configured to alert a monitoring service upon detection that a fall has occurred.

### **US2010297905 - BLEND OF LYOCELL AND FLAME RESISTANT FIBERS FOR PROTECTIVE GARMENTS**

*PBI PERFORMANCE PRODUCTS*

Published 2010-11-25      Priority date 2009-05-22

A unique blend of fibers used to create a yarn or fabric useful in protective garments including a lyocell fiber, and a flame resistant fiber that is not a modacrylic and/or does not require the emission of gases and/or acids for flame resistance. The lyocell fiber is approximately 5% to 55% of the blend, and the flame resistant fiber is approximately 45% to 95% of the blend. The resulting fabric requires no post treatment for flame resistance.

**Patent Alert 9/2011**  
**protective textiles**

**CN101886340 - HIGH-WATERPROOF HIGH-MOISTURE-PERMEABLE FLAME-RETARDANT COATING FABRIC AND PRODUCTION METHOD THEREOF**

*TORAY FIBER RESEARCH INST*

Published 2010-11-17      Priority date 2009-05-13

The invention discloses a high-waterproof high-moisture-permeable flame-retardant coating fabric and a production method thereof. The fabric comprises base cloth and a high-waterproof high-moisture-permeable flame-retardant coating, wherein high-waterproof high-moisture-permeable flame-retardant is a polyurethane non-porous layer, and the flame retardant used in the coating layer is a halogen free particle flame retardant. The production method comprises the following steps of: uniformly spreading fabric coating slurry which is prepared by mixing hydrophilic polyurethane resin, an organic solvent, an additive and the flame retardant on the base cloth; and drying the base cloth to obtain the high-waterproof high-moisture-permeable flame-retardant coating product with the hydrophilic polyurethane non-porous layer. The coating fabric of the invention has high waterproofness and moisture-permeability and extremely high flame resistance. The coating fabric is used on particular occasions when high requirements on waterproofness, and moisture-permeability and fire resistance are required, can be used for preparing protective garments and the fabrics of protective equipment of departments such as fire control, metallurgy, petroleum and national defense, the fabrics of tents and the like, and therefore has greater economic and social benefits.

**US2010287689 - PROTECTIVE GARMENTS AND ACCESSORIES**

*NEPTUNIC TECHNOLOGY*

Published 2010-11-18      Priority date 2009-05-12

The present invention provides a protective fabric or garment comprising an insulator base layer, a protective layer attached to a body side of the insulator base layer, and one or more protective components attached to selected areas of an outer side of the insulator base layer, wherein each protective component includes at least one protective component layer. Each protective may include fibers having a tensile strength of at least 3 GPa and a modulus of at least 70 GPa. In some embodiments, at least one protective layer is formed with a liquid crystal polymer fiber. In other embodiments, at least one protective layer is formed using a blend of two or more materials selected from the group consisting of, liquid crystal polymer, meta-aramid, para-aramid, nylon, olefin, s-glass, elastic, spandex, polyethylene, diamond tough nylon, polyphenylenebenzimidazole, polybenzoxazole, thermoset polyurethane synthetic polymer material, aromatic copolyamid, and extended-chain polyethylene.

**US2010287688 - PROTECTIVE HOOD HAVING A SHIELDED ELASTOMERIC GASKET/SEAL FOR SEALING ENGAGEMENT WITH THE FACE PIECE/MASK OF A SELF-CONTAINED BREATHING APPARATUS OR RESPIRATOR**

*HONEYWELL*

Published 2010-11-18      Priority date 2009-04-22

A protective hood of a protective garment is provided for use with a face piece or mask worn by a user. The hood includes an outer shell having a peripheral edge, and a gasket that extends from the peripheral edge to an interior of the hood for sealing engagement with the face piece or mask with the gasket being covered by the outer shell of the hood when worn by a user.

**Patent Alert 9/2011**  
**protective textiles**

**JP2010255140 - ARAMID FIBER**

*TEIJIN TECHNO PRODUCTS*

Published 2010-11-11      Priority date 2009-04-27

**PROBLEM TO BE SOLVED:** To provide an aramid fiber having excellent functionality having both of antimicrobial property and deodorant property.

**SOLUTION:** The aramid fiber is obtained by compounding a specific amount of an inorganic functionality-imparting agent such as titanium oxide for exhibiting the deodorant property and the antimicrobial property in the aramid fiber composed of an aramid polymer such as a copolyparaphenylene-3, 4-oxydiphenylene terephthalamide. Concretely, the aramid fiber contains 3-50 wt.% of the inorganic functionality-imparting agent having <+10 µm average particle diameter. The aramid fiber is used for a protective garment.

**WO2010129109 - BLAST WAVE EFFECTS REDUCTION SYSTEM**

*NOVA RESEARCH*

Published 2010-11-11      Priority date 2009-05-04

A system for reducing the effects of a blast wave includes armor plating configured to face a supersonic blast wave. The armor plating has a surface consisting of alternating tall and short peaks with valleys between the peaks. The peaks and valleys are positioned such that the supersonic blast wave reflects from the side surfaces of the tall peaks as a regular reflection that at least partially suppresses Mach reflection of the supersonic wave caused by the short peaks and the valleys. The surface may also be designed to not trap reflected waves. The valleys can be parabolic shaped to deflect and/or dissipate transonic flow that follows the blast wave front.

**US2011138522 - PROTECTIVE GARMENT WEARABLE WITH BOOTS AND COMPRISING ATTACHED SOCKS**

*MORNING PRIDE MANUFACTURING*

Published 2011-06-16      Priority date 2006-09-22

For a firefighter, rescue worker, or chemical worker or for a person engage in an outdoor activity, a protective garment wearable with a pair of boots having leg-encasing portions comprises a pair of leg portions. Fitting into an associated one of the pair of boots, each leg portion has an attached sock, which may be detachably detached. The garment further comprises a pair of cuffs, each being attached to and around an associated one of the leg portions so as to extend downwardly over and around an upper area on the leg-encasing portion of an associated one of the boots.